Mario's Family Medicine In-Training Examination (ITE) Database

One of the most important objectives in creating this database is to help the physician in organizing and associating topics to increase memorization efficiency and retention. Another important objective is to allow the physician to focus on any particular organ systems or clinical category he/she might be interested by using simple search queries. For instance, in order to search for the organ system category of Cardiovascular, you only need to press Shift+Ctrl+F, type the letters "Car" after a "+" sign in the search box, i.e. type: "+Car" (do not include "), and click the search button, or to search for the clinical category of Care of Children, you only need to type: "+Cca" in the search box and click the search button. The ITE database was exported to adobe acrobat format to ease portability, readability and searchability. Other search examples include: questions that more than 50% of residents missed, type ">L".

This database is based on memorization techniques described here: http://www.web-us.com/memory/improving_memory.htm, but if you have difficulty memorizing all that is written here, remember the warning from one of the smartest and most creative minds of our times, Albert Einstein: "the spirit of learning and creative thought are lost in strict rote learning."

Organ Systems:
Respiratory=Res; Cardiovascular=Car; Musculoskeletal=Mus; Gastrointestinal=Gas; Special Sensory=Sen; Endocrine=End; Integumentary=Int; Neurologic=Neu; Psychogenic=Psy; Reproductive: Female=Ref; Reproductive: Male=Rem; Nephrologic=Nep; Hematologic/Immune=Hem; Nonspecific=Non; Population-based Care=Pbc (Recommendations); Patient-based Systems=Pbs;

Clinical Category:
Adult Medicine=Adm; Care of the Surgical Patient=Csp; Maternity Care=Mac; Community Medicine=Com; Care of Children and Adolescents=Cca; Mental Health=Mhe; Care of the Elderly=Cel; Care of the Female Patient=Cfp; Emergent & Urgent Care=Euc.

Question numbers that have a "P" next to them were excluded from scoring for statistical reasons. Although these items did not perform as expected, they still have a correct answer and should still be reviewed for educational purposes.

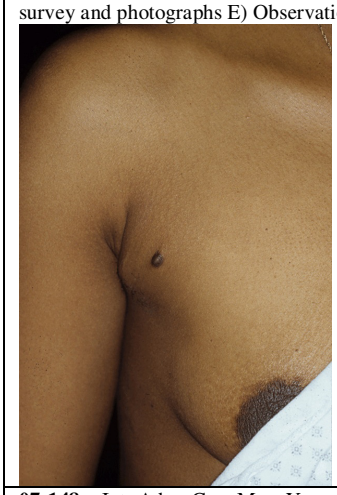
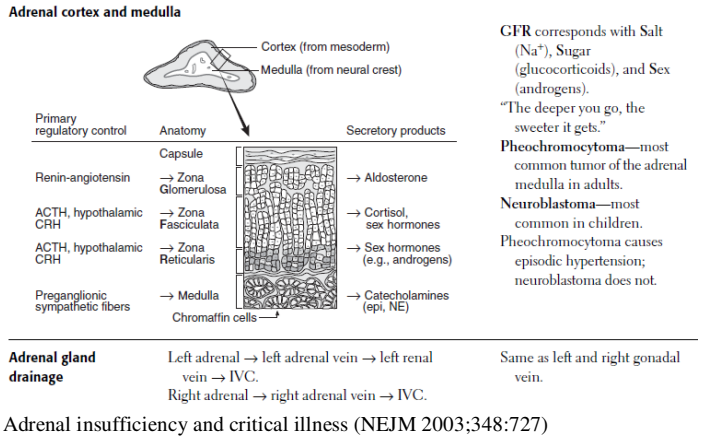
This is a work in progress to facilitate UM/JMH Family Medicine residents to retain important medical facts for the better care and education of our patients, and to help us score among the best programs in the nation in our ITE and Board exams. This is a team effort, so I encourage everyone to send me suggestions and corrections to my e-mail mjimenez3@med.miami.edu. Please, send me the question number, for instance 07-087, and your pertinent comment or suggestion. I am looking to incorporate mnemonics into the database, so if you see a question where we can use a mnemonic, please forward it to me as well. To search for mnemonics, press Shift+Ctrl+F, and type: "Hint:", and all mnemonics will show in your search result.

Let's make the father of family medicine, Dr. Lynn Carmichael, proud!!! So, let us work as a team, encouraging each other to reach our full potentials as family physicians and human beings, empowering every single one of our patients to live longer, healthier, and more enjoyable lives, and always remembering the words of Dr. Carmichael: "The real healers are the patients. The goal of the physician should be to do whatever is necessary to enhance individuals' abilities to heal themselves. There is a tremendous amount of gratification and satisfaction that can come from this kind of medical practice."

"Talent wins games, but teamwork and intelligence wins championships." Michael Jordan..
"Individual commitment to a group effort - that is what makes a team work, a company work, a society work, a civilization work." Vince Lombardi.

07-087.+Car+Pbc+Adm. Which one of the following screening intervals is most consistent with U.S. Preventive Services Task Force recommendations regarding screening for abdominal aortic aneurysm? A) Every 5 years in all patients age 65–75 who have ever smoked B) Every 5 years in females age 65–75 who have ever smoked C) One time in males age 65–75 who have ever smoked D) One time in all patients age 65–75 who have ever smoked E) No screening is recommended	Abdominal aortic aneurysm. **07-087.** Recommendations; **ANS=C.** In 2005 the U.S. Preventive Services Task Force (USPSTF) recommended **one-time screening for abdominal aortic aneurysm (AAA) by ultrasonography in men age 65–75 who have ever smoked.** The USPSTF made no recommendation for or against screening for AAA in men age 65–75 who have never smoked, because of its lower prevalence in this group, and recommended against routine screening for AAA in women, because of the lower prevalence of large AAAs in women.
08-138. +Pbc+Adm. According to the U.S. Preventive Services Task Force, which one of the following patients should be screened for an abdominal aortic aneurysm? A) A 52-year-old male with type 2 diabetes mellitus B) An asymptomatic 67-year-old male smoker with no chronic illness C) A 69-year-old female with a history of coronary artery disease D) A 72-year-old male with a history of chronic renal failure E) A 75-year-old female with hypertension and hypothyroidism	Abdominal aortic aneurysm. **08-138.** Recommendation**. ANS=B.** The U.S. Preventive Services Task Force has released a statement summarizing recommendations for screening for **abdominal aortic aneurysm (AAA).** The guideline recommends **one-time screening with ultrasonography for AAA in men 65–75 years of age who have ever smoked.** No recommendation was made for or against screening women. Men with a strong family history of AAA should be counseled about the risks and benefits of screening as they approach 65 years of age.
09-205. +Car+Adm**.** A 65-year-old male asks you about an advertisement for vascular disease screening tests that will be performed at a local retail outlet this Saturday. The cost is minimal, but will be out of pocket. The patient is asymptomatic, but has a 45-pack-year smoking history. Based on U.S. Preventive Services Task Force guidelines (USPSTF), which one of the following screening tests would you recommend for this patient? A) Duplex ultrasonography of both carotid arteries B) Ultrasonography of the thoracic aorta C) Ultrasonography of the abdominal aorta D) An ankle-brachial pressure index	Abdominal aortic aneurysm. **09-205.** Although screening recommendations for abdominal aortic aneurysms vary, a 65-year-old male with a history of smoking should be screened by ultrasonography. **ANS=C.** The other tests are not indicated in asymptomatic patients.
10-125. +Car+Csp. An asymptomatic 68-year-old male sees you for a health maintenance visit. He is a former cigarette smoker, but quit 20 years ago. According to the U.S. Preventive Services Task Force, evidence shows that the potential benefit exceeds the risk for which one of the following screening tests in this patient? A) A chest radiograph B) Abdominal ultrasonography C) Ophthalmic tonometry D) A prostate-specific antigen level E) An EKG	Abdominal aortic aneurysm. **10-125.** The U.S. Preventive Services Task Force (USPSTF) recommends one-time screening for abdominal aortic aneurysm (AAA) by ultrasonography in men aged 65–75 who have ever smoked (SOR B, USPSTF B Recommendation). **ANS=B.** The USPSTF found good evidence that screening these patients for AAA and **surgical repair of large AAAs (≥□5.5 cm) leads to decreased AAA-specific mortality.** There is good evidence that abdominal ultrasonography, performed in a setting with adequate quality assurance (i.e., in an accredited facility with credentialed technologists), is an accurate screening test for AAA. There is also good evidence of important harms from screening and early treatment, including an increased number of operations, with associated clinically significant morbidity and mortality, and short-term psychological harms. Based on the moderate magnitude of net benefit, the USPSTF concluded that the benefits of screening for AAA in men aged 65–75

	who have ever smoked outweighs the potential harm. While they may be considered for making the diagnosis in patients who have symptoms, none of the other tests listed have evidence to support a net benefit from their use as routine screening tools in patients like the one described here.
07-171. +Ref+Cfp. A 33-year-old female presents with 3 months of irregular vaginal bleeding. Prior to this her menstrual periods were normal. Which one of the following is the most appropriate initial laboratory test for this patient? A) Hemoglobin and hematocrit B) TSH C) LH and FSH D) Estradiol E) hCG	Abnormal vaginal bleeding. **ANS=E.** **In women of childbearing age, the most likely cause of abnormal vaginal bleeding is pregnancy**; thus, **the most appropriate initial test would be an hCG level**. Once pregnancy has been excluded, patient history would guide further testing. **Iatrogenic causes, usually resulting from certain medicines or supplements, are the next most common cause** in this age group, **followed by systemic disorders.** Hemoglobin and hematocrit would be appropriate only if the patient seemed acutely anemic due to the abnormal bleeding.
07-052. +Ref+Mac+Cfp. A healthy 36-year-old female presents with vaginal bleeding 3 weeks after a missed menstrual period. A pelvic examination reveals a dilated cervix with products of conception visible in the vaginal vault. Which one of the following is the most likely cause of this condition? A) Caffeine use B) Advanced maternal age C) Previous history of elective abortion D) Recent sexual activity E) Chromosomal abnormality	Abortion. **07-052. S**pontaneous**. ANS=E.** Although **heavy caffeine use, advanced maternal age, and a previous history of multiple elective abortions are all considered risk factors for spontaneous abortion**, **the most common cause, which accounts for nearly 50% of spontaneous abortions, is chromosomal abnormalities.** Most chromosomal abnormalities are random events, such as maternal and paternal gametogenesis errors, dispermy, and nondisjunction. Sexual activity does not raise the risk of spontaneous abortion in women with uncomplicated pregnancies.
08-240. +Res+Adm. A 34-year-old male presents with a 10-lb weight loss, subjective fever, chills, and a cough for the past 6 weeks. The cough has gradually worsened and now produces blood-tinged, foul-tasting mucus. His medical history includes poorly controlled type 1 diabetes mellitus that has resulted in several instances of symptomatic hypoglycemia over the past year. He smokes cigarettes, but only on social occasions when he has a drink. On examination he has a temperature of 38.9°C (102.0°F), a harsh cough, significant dental caries and periodontal disease, and normal breath sounds and chest resonance. Laboratory studies indicate the presence of mild leukocytosis with a left shift, moderately elevated blood glucose, and minimally elevated BUN and creatinine. A sputum Gram stain indicates mixed flora. A chest radiograph is shown in. Of the following choices, which one would be the best empirical treatment while awaiting the results of cultures, testing for acid-fast bacilli, and a tuberculin test? A) A four-drug antitubercular regimen B) Trimethoprim/sulfamethoxazole (Bactrim, Septra) C) Clindamycin (Cleocin) D) Doxycycline plus a fluoroquinolone	Abscess, lung Anaerobic. **08-240. ANS=C.** As with pulmonary tuberculosis, the **symptoms of lung abscess are most often insidious and prolonged, but when coupled with the development of putrid sputum, the diagnosis of lung abscess seems much more likely.** In this case, the **chest radiograph confirms the diagnosis by demonstrating a partially fluid-filled cavitary lesion.** Abscesses of the lung most commonly result from aspiration of oral bacteria, including anaerobes, which is much more likely with coexisting periodontal disease and the potential for aspiration, such as might occur with seizures or hypoglycemic episodes. **When selecting an initial antibiotic regimen, the physician should consider the probability of a polymicrobial infection with oral flora, including anaerobes.** Of the choices provided, only **clindamycin will provide anaerobic coverage.** Treatment length varies, but often a course of 4–6 weeks is required. Surgical intervention is rarely required. 
10-188. +Res+Adm. A 25-year-old white male who has a poorly controlled major seizure disorder and a 6-week history of recurrent fever, anorexia, and persistent, productive coughing visits your office. On physical examination he is noted to have a temperature of 38.3°C (101.0°F), a respiratory rate of 16/min, gingival hyperplasia, and a fetid odor to his breath. Auscultation of the lungs reveals rales in the mid-portion of the right lung posteriorly. Which one of the following is most likely to be found on a chest radiograph? A) Sarcoidosis B) Miliary calcifications C) A lung abscess D) A right hilar mass E) A right pleural effusion	Abscess, lung Anaerobic. **10-188.** Anaerobic lung abscesses are most often found in a person predisposed to aspiration who complains of a productive cough associated with fever, anorexia, and weakness. **ANS=C.** Physical examination usually reveals poor dental hygiene, a fetid odor to the breath and sputum, rales, and pulmonary findings consistent with consolidation. Patients who have sarcoidosis usually do not have a productive cough and have bilateral physical findings. A persistent productive cough is not a striking finding in disseminated tuberculosis, which would be suggested by miliary calcifications on a chest film. The clinical presentation and physical findings are not consistent with a simple mass in the right hilum nor with a right pleural effusion.
07-182. +Int+Adm. An obese middle-aged adult has acanthosis nigricans. Which one of the following is the most likely associated illness? A) Hypothyroidism B) Diabetes mellitus C) Gastric adenocarcinoma D) Lymphoma E) Addison's disease	**Acanthosis nigricans can be associated with many different entities**. **ANS=B**. Most patients are obese, and obese patients with acanthosis nigricans have markedly higher levels of fasting plasma insulin. Many of these patients do not have diabetes, but do have insulin resistance. **Other possible causes include other endocrine disorders (hypothyroidism, polycystic ovarian disease, ovarian hyperthecosis, Cushing's disease, Addison's disease, acromegaly), some drugs (such as glucocorticoids), malignancies (gastric adenocarcinoma

	being most common), and hereditary syndromes.
07-240. +Int+Cca+Adm. A 14-year-old Hispanic female presents with a dark spot on her right lateral chest (see **Figure**). Her mother says the lesion has been there for "years." Which one of the following would be most appropriate initially? A) A biopsy of the lesion B) A cosyntropin test C) An FSH level D) A yearly skin survey and photographs E) Observation only 	Accessory nipple. **ANS=E.** This is a classic presentation of an accessory nipple that requires only observation. These **congenital remnants of the "mammary lines" may be found on both the anterior and posterior chest walls.** This lesion has **no propensity to malignancy or endocrine relationships.**
07-148. +Int+Adm+Cca+Mac. You are counseling a 24-year-old female about treatment for her acne. Despite conventional treatment with topical agents and systemic antibiotics, she continues to experience flares of inflammatory acne and believes that her acne is severely limiting her social relationships and her ability to make a favorable impression during job interviews. She asks you about using isotretinoin (Accutane). Which one of the following would be accurate advice? A) Isotretinoin is most useful in treating comedonal acne B) Concomitant therapy with topical keratolytic agents is usually well tolerated C) Teratogenicity is the most devastating adverse effect D) Elevations in liver enzymes often necessitate discontinuing treatment E) Osteoporosis and osteophyte formation are common late complications of treatment	**Acne.** Isotretinoin is **FDA-labeled only for treatment of severe, recalcitrant, nodular acne. ANS=C.** Because of documented clinical experience with the drug, however, in addition to additional published evidence, **there is international consensus that isotretinoin may be appropriate in other situations. These include an inadequate response to appropriate conventional therapy for less severe acne, scarring inflammatory acne, and acne that causes severe psychologic distress.** When isotretinoin is used, **adjuvant therapy with topical keratolytics and drying agents should be discontinued because concomitant use may lead to excessive dryness**. The **most devastating adverse effect of isotretinoin is teratogenicity**. Major malformations may occur in 25%–30% of fetuses exposed to the drug. Liver enzyme levels should be monitored periodically, although elevations beyond the reference range are rare. **If elevations do occur, it may be necessary to reduce the dosage, or in rare instances to discontinue therapy.** Long-term retinoid therapy may be complicated by skeletal changes, including osteoporosis and osteophyte formation. **No studies have reported notable bony changes associated with short-term therapy of the duration typical for treatment of acne (usually 5 months).**
07-187. +End+Adm. A 54-year-old African-American female is admitted to the hospital for intravenous heparin therapy for a deep-vein thrombosis of her leg. She had previously been very healthy. Shortly after admission she begins to experience profound orthostatic hypotension and gastrointestinal distress. Serial hemoglobin tests are stable, but serum sodium and bicarbonate levels are low. Her potassium level is slightly elevated. Which one of the following tests would most quickly determine if she has suffered from acute adrenal cortex insufficiency (Addison's disease)? A) A cosyntropin stimulation test B) A dexamethasone suppression test C) A renin:aldosterone ratio D) A serum adrenocorticotropic hormone (ACTH) level E) Measurement of 24-hour urinary excretion of catecholamines  Adrenal insufficiency and critical illness (NEJM 2003;348:727)	Adrenal insufficiency. **07-187.** Addison's disease**. ANS=A.** Destruction of the adrenal cortex by acute causes (infarction, hemorrhage, infection) or chronic ones (granulomatous disease, immune destruction) results in a loss of circulating levels of cortisol and aldosterone. The effects of this deficiency can include electrolyte disturbances such as those seen in this patient, gastrointestinal distress (including "acute abdomen," diarrhea, nausea, etc.), orthostatic hypotension, and patient fatigue. **If the process is gradual, ACTH levels will increase, resulting in a darkened skin tone**. **Measuring serum levels of ACTH may be helpful in determining the cause of decreased cortisol levels, but is not a good first test of adrenal cortex function**. The **dexamethasone suppresion test is used to evaluate glucocorticoid excess**. The **cosyntropin stimulation test does assess adrenal cortex function. This test involves injecting cosyntropin, 250 ug intramuscularly or intravenously, and measuring cortisol levels 60 minutes later.** If the result shows an inadequate response (cortisol level <495 nmol/L), adrenal cortical function is proven to be at least 90% diminished. **Pocket Medicine: Clinical manuifestations:** Clinical manifestations (NEJM 1996;335:1206) • **Primary or secondary: weakness and fatigability (99%), anorexia (99%), orthostatic hypotension (90%), nausea (86%), vomiting (75%), hyponatremia (88%)** • **Primary only (extra s/s due to lack of aldosterone and ACTH): marked orthostatic hypotension (because volume-depleted), hyperpigmentation (seen in creases, mucous membranes, pressure areas, nipples), hyperkalemia** • Secondary only: ± other manifestations of hypopituitarism (see "Pituitary Disorders") **Diagnostic studies:** • **Early a.m. serum cortisol: < 3 µg/dl virtually diagnostic; > 18 µg/dl rules it out (except in critical illness—see left column)** • **dose (250 µg) cosyntropin stimulation test (testing ability of ACTH cortisol) normal = 60-min post-ACTH cortisol 18 µg/dl abnormal in primary b/c adrenal gland diseased and unable to give adequate output › abnormal in chronic secondary b/c adrenals atrophied and unable to respond › may be normal in acute secondary b/c adrenals still able to respond**

• Controversial; no consensus exists on diagnosing relative adrenal insufficiency • Serum free cortisol may be more useful in critically ill Pt (NEJM 2004;350:1629) • Perform ACTH stim as soon as possible in critically ill Pt suspected to have adrenal insuffic. › insufficiency if baseline cortisol < 15 µg/dl or if 9 µg/dl › poor prognosis also associated with elevated baseline cortisol > 34 µg/dl • Initiate corticosteroids early if adrenal insufficiency suspected: › hydrocortisone 50-100 mg IV q6-8h › use dexamethasone 2-4 mg IV q6h + fludrocortisone 50 µg daily prior to ACTH stim, but change to hydrocortisone once test performed Treatment • Acute adrenal insufficiency › Hydrocortisone IV as above + volume resuscitation with normal saline • Chronic adrenal insufficiency › Hydrocortisone: 20-30 mg PO qd (in am, in pm) or prednisone ~5 mg PO qd › Fludrocortisone (not needed in 2° adrenal insufficiency): 0.05-0.1 mg PO qam back-up dexamethasone 4 mg IM prefilled syringe given to Pt for emergency situations Addison's disease: 1° deficiency of aldosterone and cortisol due to adrenal atrophy or destruction by disease, causing hypotension (hyponatremic volume contraction) and skin hyperpigmentation (due to MSH, a by-product of ↑ ACTH production from POMC). Characterized by Adrenal Atrophy and Absence of hormone production; involves All 3 cortical divisions. Distinguish from 2° insufficiency, which has no skin hyperpigmentation (↓ pituitary ACTH production).	• **dose (1 µg) cort stim: ? more sensitive than high-dose test (controversial)** • Other tests to evaluate HPA axis (w/ guidance by endocrinologist): insulin-induced hypoglycemia (measure serum cortisol response); metyrapone (blocks cortisol synthesis and therefore stimulates ACTH, measure plasma 11-deoxycortisol and urinary 17- hydroxycorticosteroid levels) • Other lab abnormalities: hypoglycemia, eosinophilia, lymphocytosis, ± neutropenia • ACTH: in 1°, or low-normal in 2° • Imaging studies to consider › pituitary MRI to detect pituitary abnormalities › adrenal CT: small, noncalcified adrenals in autoimmune, enlarged in metastatic disease, hemorrhage, infection, or deposition (although they may be normal-appearing) Etiologies • Primary = adrenocortical disease = Addison's disease › autoimmune: isolated or in assoc w/ PGA syndromes (see table 7-2 Polyglandular Autoimmune (PGA) Syndromes) infection: tuberculosis, CMV, histoplasmosis › vascular: hemorrhage (usually in setting of sepsis), thrombosis, and trauma › metastatic disease: (90% of adrenals must be destroyed to cause insufficiency) › deposition diseases: hemochromatosis, amyloidosis, sarcoidosis › drugs: ketoconazole, etomidate (even after single dose), rifampin, anticonvulsants • Secondary = pituitary failure of ACTH secretion (but aldosterone intact b/c RAA axis) › any cause of primary or secondary hypopituitarism (see "Pituitary Disorders") › glucocorticoid therapy (occurs after 2 wks of "suppressive doses," which are extremely variable; even 7.5 mg/d of prednisone can be suppressive) › megestrol (a progestin with some glucocorticoid activity)
10-064. +End+Adm.>L* A 68-year-old female presents with a several-month history of weight loss, fatigue, decreased appetite, and vague abdominal pain. The most appropriate initial test to rule out adrenal insufficiency is A) morning serum cortisol B) a cosyntropin (ACTH) stimulation test C) MRI D) an insulin tolerance test E) a metyrapone test	Adrenal insufficiency**. 10-064. ANS=A. A single morning serum cortisol level >13 ug/dL reliably excludes adrenal insufficiency. If the morning cortisol level is lower than this, further evaluation with a 1-ug ACTH stimulation test is necessary, although the test is somewhat difficult.** It requires dilution of the ACTH prior to administration, and requires multiple blood draws. **The insulin tolerance test and metyrapone test, although historically considered to be "gold standards," are not widely available or commonly used in clinical practice.** MRI does not provide information about adrenal function.
10-155P. +End+Adm.>L* An incidental 2-cm adrenal nodule is discovered on renal CT performed to evaluate hematuria in a 57-year-old female with flank pain. She has no past medical history of palpitations, headache, hirsutism, sweating, osteoporosis, diabetes mellitus, or hypertension. A physical examination is normal, with the exception of a blood pressure of 144/86 mm Hg. Laboratory evaluation reveals a serum sodium level of 140 mmol/L (N 135–145) and a serum potassium level of 3.8 mmol/L (N 3.5–5.0). What is the most appropriate next step in the evaluation of this patient? A) Repeat CT in 12 months B) Evaluation for adrenal hormonal secretion C) Fine-needle aspiration of the nodule D) MRI of the abdomen E) Referral to a general surgeon for exploratory laparotomy	Adrenal mass. **10-155P. ANS=B.** The incidental discovery of adrenal masses presents a common clinical challenge. Such masses are found on abdominal CT in 4% of cases, and the incidence of adrenal masses increases to 7% in adults over 70 years of age. **While the majority of masses are benign, as many as 11% are hypersecreting tumors and approximately 7% are malignant tumors**; the size of the mass and its appearance on imaging are major predictors of malignancy. **Once an adrenal mass is identified, adrenal function must be assessed with an overnight dexamethasone suppression test. A morning cortisol level >5 ug/dL after a 1-mg dose of dexamethasone indicates adrenal hyperfunction. Additional testing should include 24-hour fractionated metanephrines and catecholamines to rule out pheochromocytoma. If the patient has hypertension, morning plasma aldosterone activity and plasma renin activity should be assessed to rule out a primary aldosterone-secreting adenoma.** Nonfunctioning masses require assessment with CT attenuation, chemical shift MRI, and/or scintigraphy to distinguish malignant masses. PET scanning is useful to verify malignant disease. Nonfunctioning benign masses can be monitored for changes in size and for the onset of hypersecretory states, although the appropriate interval and studies are controversial. MRI may be preferred over CT because of concerns about excessive radiation exposure. Fine-needle aspiration of the mass can be performed to differentiate between adrenal and non-adrenal tissue after malignancy and pheochromocytoma have been excluded.
09-090. +Pbs+Com. The advance directive specifications contained in an individual's living will become effective A) at the time it is signed and witnessed B) when it is confirmed by the individual's health care surrogate C) at the time of admission to a health care facility such as a hospital D) when the patient develops a terminal illness E) when the individual becomes unable to communicate health care wishes	Advance directive**. 09-090. ANS=E.** The living will, a written advance directive, allows a competent person to indicate his or her health care preferences while cognitively and physically healthy. A living will may list medical interventions the patient would prefer to have withheld or withdrawn when he or she becomes unable to communicate.
09-133. +Pbs+Com. A 72-year-old male is brought by ambulance to the emergency department with weakness and numbness of his left side that began earlier this morning. While in the emergency department he becomes comatose with infrequent, gasping breaths and is quickly intubated and placed on a ventilator. A full evaluation shows an acute ischemic right-sided stroke. His wife states that she wishes to have the ventilator stopped, as she believes this would be consistent with her husband's wishes in this circumstance. She understands that this would precipitate the patient's death. The wife presents a legally valid advance directive confirming her as the patient's healthcare proxy. Which one of the following responses to the wife's request is most ethically appropriate? **A)** Withdraw the ventilator as requested **B)** Contact the hospital ethics committee to initiate the legal requirements to process the wife's request **C)** Inform the wife that all life-sustaining care should be given until the patient's condition has been determined to be irreversible **D)** Inform the wife that intubation may have been	Advance directive. **09-133. ANS=A.** Competent adult patients have the right to refuse any medical intervention, even if forgoing this treatment may result in their death. Legally and ethically it does not matter whether the patient requests that care be withheld before it is started or that it be withdrawn once it is begun. All states currently allow competent patients to legally designate a health-care proxy to make these decisions for them if they become unable to communicate or are no longer competent to decide for themselves. The patient in this example has instituted such a legal advance directive and his proxy's request should be respected as his own and the care withdrawn. If there were no advance directive the decision in this case would become more difficult, and might require a family conference or the involvement of an ethics committee. A patient's condition does not need to be terminal or irreversible to allow the removal of life-sustaining therapy. Legal involvement is rarely required in situations where advance directives are already available and valid.

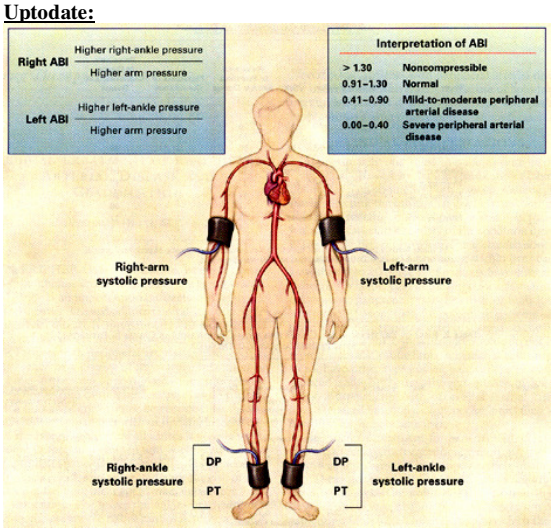
avoided in the emergency department, but once life-sustaining care has been initiated it should not be withdrawn **E)** Promptly contact hospital security or the local law enforcement agency to report the wife's request	
09-182. +Pbc+Com. The 1990 Patient Self-Determination Act requires that A) the process for advance directives be standardized for all 50 states B) a living will be implemented for patients upon admission to the hospital C) hospitals ask patients about advance directives D) verbally expressed wishes be honored for individuals who do not have a written advance directive	Advance directives. **09-182. ANS=C.** The 1990 Patient Self-Determination Act (PSDA) requires hospitals, nursing homes, and health care programs to ask patients about advance directives and then incorporate the information into medical records. The living will, a written advance directive, allows a competent person to indicate his or her health care preferences while cognitively and physically healthy. A living will may list medical interventions the patient wishes to have withheld or withdrawn when he or she becomes unable to communicate. Another type of advance directive, the durable power of attorney for health care, allows persons to designate a proxy (or surrogate) to make decisions for them if they become incapacitated. Although PSDA mandates that patients be asked about their advance directive status upon admission to the hospital, it does not require hospitals or individual physicians to offer patients an opportunity to complete an advance directive. The acceptance and precision of verbal preferences varies from state to state. Although verbal discussions are binding in many states, five states require "clear and convincing evidence of patient preferences." In California, Delaware, Michigan, Missouri, and New York, advance directives must include such evidence regarding a specific condition and/or treatment, even if a durable power of attorney states prior general verbal preferences. Therefore, lack of an advance directive may result in continued medical interventions to preserve life even if the patient may not want such treatment.
07-165. +Pbc+Adm. A 51-year-old healthy female sees you for a routine examination. On a screening questionnaire she reports having two alcoholic drinks per day on average, but never more than three drinks on any occasion. She denies problems or symptoms associated with alcohol use. To reduce the risk of this patient suffering adverse effects from alcohol use you should A) refer her to Alcoholics Anonymous B) prescribe naltrexone (ReVia) C) advise her to quit drinking D) inform her that her pattern represents at-risk drinking	Alcohol at-risk drinking. **07-165.** A brief intervention is a short-term counseling intervention based on motivational interviewing techniques. **ANS=D**. It is designed to reduce at-risk or problem drinking. The U.S. Public Health Service, U.S. Preventive Services Task Force, and American Society of **Addiction Medicine define at-risk drinking for women (and all those over 65 years of age) as more than seven drinks per week or more than three drinks per occasion. For men, at-risk drinking is defined as more than 14 drinks per week or more than four drinks per occasion.** A referral to Alcoholics Anonymous or prescribing naltrexone would be more appropriate for an alcohol-dependent person, which this patient is not. **One drink is defined as a 12-ounce bottle of beer, a 5-ounce glass of wine, or a 1 1/2-ounce shot of liquor.** Alcoholism (alcohol dependence) and alcohol abuse are two different forms of problem drinking. Alcoholism occurs when a person shows signs of physical addiction to alcohol (for example, tolerance and withdrawal) and continues to drink, despite problems with physical health, mental health, and social, family, or job responsibilities. Alcohol may come to dominate the person's life and relationships.In alcohol abuse, a person's drinking leads to problems, but not physical addiction.
08-125. +Neu+Mhe. Which one of the following would be the most effective monotherapy for alcohol withdrawal syndrome? A) Clonidine (Catapres) B) Phenytoin (Dilantin) C) Atenolol (Tenormin) D) Phenobarbital E) Chlordiazepoxide (Librium)	Alcohol withdrawal syndrome. **08-125.** Alcohol withdrawal syndrome encompasses a wide range of symptoms involving primarily the central nervous, cardiovascular, and gastrointestinal systems, and is mediated by the abrupt removal of alcohol-enhanced GABA inhibition of excitatory glutamate receptors in the central nervous system. **ANS=E.** It generally is divided into three stages, based on severity and timeline; seizures may occur during any of these stages and may be the first sign of withdrawal. **The ideal pharmacologic agent should provide not only safe sedation but also protection from seizures. Long-acting benzodiazepines such as chlordiazepoxide have been shown to be superior to the other choices in numerous studies.** Clonidine and atenolol have been found to be useful in symptom reduction but not in seizure prevention. Phenytoin would seem to offer protection from seizures, but studies have not consistently shown this to be the case. Phenobarbital, while effective, has a very narrow therapeutic window, making its use problematic. Epocrates: There is no superiority of one benzodiazepine over the other for alcohol withdrawal**. In patients with hepatic failure, consider lorazepam over chlordiazepoxide to avoid increased sedation.** Chlordiazepoxide : 25-100 mg orally/intravenously/intramuscularly every 4-6 hours, reduce dose as symptoms abate, maximum 300 mg/day. Diazepam : 5-10 mg orally/intravenously/intramuscularly every 6-8 hours Lorazepam : 1-4 mg orally/intravenously/intramuscularly every 6-8 hours Oxazepam : 15-30 mg orally every 6-8 hours
10-217. +Gas+Adm.>L* An elevation of serum alkaline phosphatase combined with an elevation of 5'-nucleotidase is most suggestive of conditions affecting A) bone B) the liver C) the placenta D) the small intestine	Liver disease**.** Alkaline phosphatase is elevated in conditions affecting the bones, liver, small intestine, and placenta. **ANS=B. The addition of elevated 5'-nucleotidase suggests the liver as the focus of the problem.** Measuring **5'-nucleotidase to determine whether the alkaline phosphatase elevation is due to a hepatic problem is well substantiated, practical, and cost effective** (SOR C).
07-074. +Res+Cca. A 5-year-old male has moderate persistent asthma and allergic rhinitis. Which one of the following is true regarding leukotriene inhibitors in this situation? A) They are less effective than intranasal corticosteroids for allergic rhinitis B) They are more effective than inhaled corticosteroids for asthma C) They are more effective than long-acting B2-agonists when added to inhaled corticosteroids for asthma	Allergic rhinitis**. 07-074.** In general, **asthma is most effectively treated with inhaled corticosteroids. ANS=A. Adding a leukotriene inhibitor may be effective, but is less effective than adding a long-acting B2-agonist.** Leukotriene inhibitors are also less effective than intranasal corticosteroids for allergic rhinitis. Leukotriene inhibitors are considered inappropriate monotherapy for moderate persistent asthma, as they are less effective than inhaled corticosteroids. **Leukotriene inhibitors (e.g. montelukast) are less effective**

D) They are appropriate monotherapy for asthma	**than intranasal corticosteroids for allergic rhinitis.**
09-005. +Res+Adm. You are treating an 18-year-old white male college freshman for allergic rhinitis. It is September, and he tells you that he has severe symptoms every autumn that impair his academic performance. He has a strongly positive family history of atopic dermatitis. Which one of the following medications is considered optimal treatment for this condition? A) Intranasal glucocorticoids B) Intranasal cromolyn sodium C) Intranasal decongestants D) Intranasal antihistamines	Allergic rhinitis. **09-005.** Topical **intranasal glucocorticoids** are currently believed to be the **most efficacious medications for the treatment of allergic rhinitis.** They are far superior to oral preparations in terms of safety. **Cromolyn sodium is also an effective** topical agent for allergic rhinitis; **however, it is more effective if started prior to the season of peak symptoms.** Because of the high risk of rhinitis medicamentosa with chronic use of topical decongestants, these agents have limited usefulness in the treatment of allergic rhinitis. Azelastine, an intranasal antihistamine, is effective for controlling symptoms but can cause somnolence and a bitter taste. Oral antihistamines are not as useful for congestion as for sneezing, pruritus, and rhinorrhea. Overall, they are not as effective as topical glucocorticoids. **Ans: A.** **Epocrates:** Beclomethasone nasal: (42 micrograms/spray) children >6 years of age and adults: 42-84 micrograms (1-2 sprays) in each nostril twice daily; (84 micrograms/spray) children >6 years of age and adults: 84-168 micrograms (1-2 sprays) in each nostril once daily Budesonide nasal : (32 micrograms/spray) children >6 years of age and adults: 32-64 micrograms (1-2 sprays) in each nostril once daily Flunisolide nasal : (25 micrograms/spray) children >6 years of age and adults: 50 micrograms (2 sprays) in each nostril twice daily Fluticasone propionate nasal : (50 micrograms/spray) children >4 years of age: 50-100 micrograms (1-2 sprays) in each nostril once daily; adults: 100 micrograms (2 sprays) in each nostril once daily Mometasone nasal : (50 micrograms/spray) children >2 years of age: 50 micrograms (1 spray) in each nostril once daily; adults: 100 micrograms (2 sprays) in each nostril once daily Triamcinolone nasal : (55 micrograms/spray) children 2-5 years of age: 55 micrograms (1 spray) in each nostril once daily; children 6-11 years of age: 55-110 micrograms (1-2 sprays) in each nostril once daily; children >11 years of age and adults: 110 micrograms (2 sprays) in each nostril once daily Ciclesonide nasal : (50 micrograms/spray) children >5 years of age and adults: 100 micrograms (2 sprays) in each nostril once daily
07-009. +Non+Euc A patient who is in college in another state calls to report that he has developed wheezing, oral itching, and a swollen lower lip after kissing his girlfriend. The symptoms reminded him of an allergic reaction to peanuts he had when he was a child, so he self-administered a dose of adrenalin from his EpiPen kit 15 minutes ago. His itching and wheezing have improved, and he asks what else he should do. What advice should you provide? A) He should take oral diphenhydramine (Benadryl) now and prednisone for 3 days B) He should go to the nearest emergency department C) He should schedule a comprehensive reevaluation by an allergist D) No further action is needed	Allergy. **07-009.** peanut. **ANS=B. Patients with peanut allergy can have reactions to infinitesimal amounts of peanut protein, including residue on the lips of other people.** This patient has successfully interrupted the course of anaphylaxis. Diphenhydramine can help reduce subsequent symptoms, and prednisone is generally given, although its value is unproven. However, the patient is at **risk of a biphasic reaction and should go to an emergency department where additional adrenalin and resuscitation facilities are available**. The American Academy of Pediatrics guideline recommends that **all peanut-allergic patients who require a dose of adrenalin be observed in an emergency department for at least 4 hours.** Patients who have not already had a full allergy evaluation need to see an allergist, but this patient's peanut allergy has been established. Currently, desensitization is ineffective and has a high complication rate, but in the future an agent that blocks IgE may be available. Peanut-allergic patients tend to have accidental exposure about once every 5 years in spite of efforts at avoidance.
10-182. +Non+Adm.>L?* Which one of the following is a frequent cause of cross-reactive food-allergy symptoms in latex-allergic individuals? A) Avocadoes B) Goat's milk C) Pecans D) Pastrami E) Peppermint	Allergy. **10-182.** latex and bananas, avocadoes, and kiwi. **ANS=A. The majority of patients who are latex-allergic are believed to develop IgE antibodies that cross-react with some proteins in plant-derived foods. These food antigens do not survive the digestive process, and thus lack the capacity to sensitize after oral ingestion in the traditional food-allergy pathway.** Antigenic similarity with proteins present in latex, to which an individual has already been sensitized, results in an **indirect allergic response limited to the exposure that occurs prior to alteration by digestion, localized primarily in and around the oral cavity.** The frequent association with certain fruits has been labeled the "latex-fruit syndrome." Although many fruits and vegetables have been implicated, **fruits most commonly linked to this problem are bananas, avocadoes, and kiwi.**
10-193. +Non+Euc.?* In a patient with a severe anaphylactic reaction to peanuts, the most appropriate route for epinephrine is A) intramuscular B) intravenous C) oral D) subcutaneous E) sublingual	Allergy. **10-193. Peanut,** Anaphylactic reaction. **ANS=A. Intramuscular epinephrine is the recommended drug for anaphylactic reactions** (SOR A). Epinephrine is absorbed more rapidly intramuscularly than subcutaneously.
07-184. +Sen+Cca. The most common cause of monocular vision loss in children and young adults is A) amblyopia B) congenital cataract C) type 1 diabetes mellitus D) trauma Amblyopia [fr. amblys dull, + bps, eye]: visual impairment not due to an ocular lesion and not fully correctable by an artificial lens. Mild to moderate strabismic and/or mild to moderate anisometropic amblyopia (visual acuity better than 20/100): All types of amblyopia require optical correction of significant refractive errors if present. Patches **are used to occlude**	Amblyopia. **07-184. Amblyopia due to strabismus is the leading cause of monocular vision loss in children and young adults**, and is a major health problem. **ANS=A**. It is crucial to make the diagnosis early, so screening during infancy and childhood is necessary. Early screening results in better outcomes. However, studies suggest that **only 20% of school-age children are routinely screened.** Congenital cataracts, ptosis, and corneal lesions are less common causes of amblyopia, which act by deprivation of visual information. Neither type of diabetes mellitus is a major cause of monocular vision loss. Trauma is much less common than amblyopia.

the eye with better vision. They are usually stuck directly onto the periorbital skin. Poor initial visual acuity has been found to be associated with poor compliance with patching. **Atropine eye drops to blur the vision in the better eye are sometimes used as an alternative to patching.** After the amblyopia has been treated, children with residual strabismus typically undergo strabismus surgery.	Epocrates: Strabismic Amblyopia: Strabismus (misalignment of the eyes) results in amblyopia if the child prefers to fixate with 1 of the eyes instead of freely alternating fixation between the 2 eyes. The nonfixating eye (or deviated eye) is suppressed as an adaptive mechanism to avoid double vision. Prolonged suppression during early childhood leads to amblyopia. Refractive: Refractive errors defocus the retinal image and, if marked, can cause amblyopia. Form deprivation: This results from blurring of the retinal image caused by opacities in the cornea, anterior chamber, lens, vitreous, or retinal surface (e.g., macular hemorrhage).
07-205. +Ref+Cfp. A 14-year-old female is brought to your office for evaluation because she has not yet menstruated. An examination reveals no secondary sexual characteristics. You order FSH and LH levels, and find that both are low. Which one of the following would be most appropriate at this time? A) Watchful waiting B) Karyotype analysis C) Ultrasonography of the uterus D) A progestogen challenge test E) An estrogen/progestogen challenge test	Amenorrhea, primary. **07-205. Primary amenorrhea is diagnosed if menarche has not occurred by 16 years of age**. **ANS=A. Because this patient had no secondary sexual characteristics, her FSH and LH levels were measured. The fact that both are low indicates hypogonadotropic hypogonadism. The most common cause for this situation in girls with primary amenorrhea is constitutional delay of growth and puberty. A detailed family history might help confirm this etiology, because it is often familial. Watchful waiting is appropriate for this problem. Karyotype analysis would be the next step in diagnosis if FSH and LH were elevated, indicating hypergonadotropic hypogonadism, which could be associated with 46,XX and premature ovarian failure, or 45,XO and Turner's syndrome**. **Ultrasonography would be appropriate if secondary sexual characteristics were present and would identify whether the uterus is absent or abnormal, and whether an outflow obstruction exists.** The hormone challenge tests are used to evaluate secondary amenorrhea.
08-037. +Ref+Cfp. A 20-year-old female long-distance runner presents with a 3-month history of amenorrhea. A pregnancy test is negative, and other blood work is normal. She has no other medical problems and takes no medications. With respect to her amenorrhea, you advise her A) to increase her caloric intake B) that this is a normal response to training C) to begin an estrogen-containing oral contraceptive D) to stop running	Amenorrhea, secondary. **08-037. Amenorrhea is an indicator of inadequate calorie intake, which may be related to either reduced food consumption or increased energy use. ANS=A.** This is not a normal response to training, and may be the first indication of a potential developing problem. Young athletes may develop a combination of onditions, including eating disorders, amenorrhea, and osteoporosis (the female athlete triad). Amenorrhea usually responds to increased calorie intake or a decrease in exercise intensity. It is not necessary for patients such as this one to stop running entirely, however.
09-155. +End+ Cfp. A 15-year-old white female who has had regular periods since age 12 comes to your office because of secondary amenorrhea and a milky discharge from her breasts. A pregnancy test is negative. The best test for initial evaluation of the pituitary in this patient is A) plasma antidiuretic hormone B) plasma ACTH C) serum prolactin D) serum FSH and LH E) fasting growth hormone	Amenorrhea, secondary. **09-155. Anterior pituitary hormone overproduction is suspected on clinical grounds and confirmed by appropriate laboratory evaluation**. **ANS=C.** The most common secretory pituitary adenomas are prolactinomas. They **cause galactorrhea and hypogonadism, including amenorrhea, infertility, and impotence.** Growth hormone–secreting tumors, which are the next most common secretory pituitary tumors, cause acromegaly or gigantism. Next in frequency are corticotropic (ACTH-secreting) adenomas, which cause cortisol excess (Cushing's disease). Glycoprotein hormone-secreting pituitary adenomas (secreting TSH, LH, or FSH) are the least common. TSH-secreting adenomas are a rare cause of hyperthyroidism. **Paradoxically, most patients with gonadotropin-secreting adenomas have hypogonadism.**
10-199. +Ref+Cfp. A 30-year-old African-American female is being evaluated because of absent menses for the last 6 months. Menarche was at age 12. Her menstrual periods have frequently been irregular, and are accompanied only occasionally by dysmenorrhea. She had her first child 4 years ago, but has not been able to become pregnant since. A physical examination and pelvic examination are unremarkable. A serum pregnancy test is negative, prolactin levels are normal, and LH and FSH levels are both three times normal on two occasions. These findings are consistent with A) hypothalamic amenorrhea B) ovarian failure C) pituitary microadenoma D) polycystic ovary syndrome	Amenorrhea, secondary. **10-199.** Ovarian failure or premature menopause**. ANS=B.** The history and physical findings in this patient are consistent with all of the conditions listed. However, **the elevated FSH and LH indicate an ovarian problem, and this case is consistent with ovarian failure or premature menopause**. Most pituitary tumors associated with amenorrhea produce hyperprolactinemia. **Polycystic ovary syndrome usually results in normal to slightly elevated LH levels and tonically low FSH levels. Hypothalamic amenorrhea is a diagnosis of exclusion, and can be induced by weight loss, excessive physical exercise (running, ballet), or systemic illness. It is associated with tonically low levels of LH and FSH.** **Hint: 1) In Polycystic Ovarian Disease (PCOD), increased levels of androgens lead to high estrogen levels from conversion in peripheral fat tissue, which suppress FSH and lead to increased LH levels relative to FSH, so the LH/FSH ratio will increase. 2) In ovarian failure there is decreased production of estrogen and inhibin. This results in loss of feedback inhibition of estrogen on FSH and LH, causing high levels of both hormones. Since inhibin causes feedback inhibition of FSH only, in the absence of inhibin, FSH levels are higher than LH levels in the blood, which is pathognomonic of ovarian failure.**
09-154. +Mus+Adm. A 20-year-old college wrestler is seen for an examination prior to the wrestling season. He tells you that some friends have told him he should start taking dehydroepiandrosterone (DHEA), and he asks for your advice. Which one of the following is true about the effects of this drug? A) It enhances performance but not muscle strength B) It enhances muscle strength but not performance C) It enhances both performance and muscle strength D) It does not enhance either performance or muscle strength	Anabolic Steroids**. 09-154.** Dehydroepiandrosterone (DHEA). **ANS=D. Dehydroepiandrosterone (DHEA) is illegal** under the Anabolic Steroid Control Act of 2004, and is prohibited by the NCAA and the International Olympic Committee**. Like androstenedione, DHEA is a precursor to testosterone, but neither of these substances has been shown to enhance either performance or strength.** In fact, they increase serum estrogen and luteinizing hormone levels.
08-217. +Hem+Adm. A 60-year-old male has moderate anemia, with a suggestion of hemolysis on a peripheral blood smear. Which one of the following patterns would be consistent with the presence of hemolysis? A) Elevated LDH, decreased haptoglobin, elevated indirect bilirubin	Anemia, hemolytic. **Hemolytic anemia is established by reticulocytosis, increased unconjugated bilirubin, elevated lactate dehydrogenase (LDH), decreased haptoglobin, and peripheral blood smear findings**. **ANS=A.** Hemolytic anemia occurs when an abnormal breakdown of red blood cells takes

B) Elevated LDH, elevated haptoglobin, decreased indirect bilirubin C) Decreased LDH, elevated haptoglobin, elevated indirect bilirubin D) Decreased LDH, decreased haptoglobin, elevated indirect bilirubin E) Decreased LDH, decreased haptoglobin, decreased indirect bilirubin	place. Because LDH is abundant in red blood cells, elevated LDH in the bloodstream can be a marker for hemolyisis. Read more: The Causes of High LDH | eHow.com http://www.ehow.com/list_7469479_causes-high-ldh.html#ixzz1Ec4lBR8D. **When red blood cells break down, they release hemoglobin into the bloodstream. The hemoglobin combines with a chemical called haptoglobin. A low level of haptoglobin in the bloodstream is a sign of hemolytic anemia.**
08-068. +Hem+Adm. A 45-year-old female with rheumatoid arthritis has a hemoglobin level of 9.5 g/dL (N 11.5–16.0). Her arthritis is well controlled with methotrexate (Trexall). Further evaluation reveals the following: Hematocrit. . . . . 29.0% (N 35.0–47.0) Mean corpuscular volume.. . 78 um3 (N 80–98) Platelets. . . . . 230,000/mm3 (N 150,000–400,000) WBCs. . . . . 6900/mm3 (N 4000–11,000) Differential. . . . . normal **Serum iron. . . . . 15 ug/dL (N 50–170)** **Total iron binding capacity. . 150 ug/dL (N 45–70)** **Iron saturation. . . . . 10% (N 15–50)** **Serum ferritin. . . . . 7 ng/mL (N 12–150)** **Reticulocyte count.. . . . . 8×10^9 /L (N 10–100)** Stool guaiac.. . . . . negative ×3 Which one of the following would be the most appropriate next step? A) Evaluation for a source of blood loss B) Hemoglobin electrophoresis to screen for thalassemia C) Stopping the methotrexate and beginning an alternative treatment for rheumatoid arthritis D) No further evaluation	Anemia, iron deficiency. **08-068. ANS=A.** In **iron deficiency anemia, total-body iron levels are low, leading to hypochromia and microcytosis, low iron levels, increased transferrin levels, and reduced ferritin levels. Anemia of chronic disease is characterized by the underproduction of red cells, due to hypoferremia caused by the uptake of iron by the reticuloendothelial system. Total-body iron stores are increased but the iron in storage is not available for red cell production. This anemia is normochromic and normocytic, and is associated with a reduction in iron, transferrin, and transferrin saturation.** ***Ferritin is either normal or increased, reflecting both the increased iron within the reticuloendothelial system and increases due to immune activation (acute phase reactant)***. This patient's anemia is most likely multifactorial, with anemia of chronic disease and drug effects playing a role. However, **she also has iron deficiency, and searching for a source of blood loss would be important.** With thalassemia, marked microcytosis is seen, and with hemolysis of any standing, slight macrocytosis and an increased reticulocyte count would be expected. Transferrin, a protein that transports iron, is elevated in iron-deficiency anemia, indicating that the body needs more iron. **The total iron-binding capacity (TIBC), an indirect measurement of transferrin, is low in anemia of chronic disease because there is ample iron, but it is not easily available. TIBC tends to be increased when iron stores are diminished and decreased when they are elevated.** In iron-deficiency anemia, the TIBC is higher than 400–450 mcg/dL because stores are low. **In anemia of chronic disease, the TIBC is usually below normal because the iron stores are elevated.** In nearly two-thirds of the patients, the serum ferritin is one test that can be used to distinguish between anemia of chronic disease and iron-deficiency anemia. Ferritin is an acute-phase reactant, which means that it can be elevated in the presence of inflammation and this factor must be taken into consideration when examining the findings. Serum ferritin can be raised to normal levels even in the presence of iron deficiency. **Hint: if deciding in between iron deficiency anemia and anemia of chronic disease, look at total iron binding capacity (TIBC), if it is low, it is most likely anemia of chronic disease.**
08-149. +Pbc+Adm. A 34-year-old female with menorrhagia is found to have iron deficiency anemia. Which one of the following is true regarding the treatment of this problem with oral iron? A) An acidic environment enhances the absorption of iron from the gastrointestinal tract B) Iron is absorbed better if taken with food C) Diarrhea is a common complication D) Iron supplementation can be discontinued once the hemoglobin reaches a normal level E) Sustained-release formulations increase the total amount of iron available for absorption	Anemia, iron deficiency. **08-149. Vitamins & minerals. Iron. ANS=A. Oral iron is absorbed better with an acidic gastric environment, which can be accomplished with the concomitant administration of vitamin C. Agents that raise gastric pH, such as antacids, proton pump inhibitors, and H2 blockers, should be avoided if possible.** Oral iron absorption is improved if the iron is taken on an empty stomach, but this may not be well tolerated because gastric irritation is a frequent side effect. Constipation also is common with oral iron therapy. Iron therapy should be continued for several months after the hemoglobin reaches a normal level, in order to fully replenish iron stores. Sustained-release oral iron products provide a decreased amount of iron for absorption.
09-050. +Hem+Adm. Which one of the following is most consistent with a diagnosis of iron deficiency anemia? A) Low iron-binding capacity B) An elevated methylmalonic acid level C) Increased serum ferritin D) Reticulocytosis about 1 week after administration of iron	Anemia, iron deficiency. **09-050. ANS=D.** In iron deficiency anemia, **serum iron is low but iron-binding capacity is high**. **Serum ferritin is one-tenth of normal**. Bone marrow iron stores are depleted. **Oral replacement**, which is safer than parenteral administration and more acceptable to patients, **should raise the hemoglobin level by 0.2 g/dL/day**. **A reticulocyte response should be seen in a week to 10 days unless factors such as a concomitant folic acid deficiency prevent a full response.**
10-157. +Hem+Adm. In a patient with microcytic anemia, which one of the following patterns of laboratory abnormalities would be most consistent with iron deficiency as the underlying cause? A) Ferritin low, total iron binding capacity (TIBC) low, serum iron low B) Ferritin low, TIBC low, serum iron high C) Ferritin low, TIBC high, serum iron low D) Ferritin high, TIBC low, serum iron low	Anemia**,** iron deficiency. **10-157. ANS=C**. **Ferritin and serum iron levels fall with iron deficiency. Total iron binding capacity rises, indicating a greater capacity for iron to bind to transferrin** (the plasma protein that binds to iron for transport throughout the body) when iron levels are low.
07-196. +Hem+Cel. Which one of the following is the most common type of anemia in the geriatric age group? A) Iron deficiency anemia from blood loss B) Nutritional anemia from vitamin B12 deficiency C) Anemia of chronic disease D) Hemolytic anemia E) Myelodysplastic anemia	Anemia, of chronic disease (inflammation). **ANS=C.** The **most common cause of anemia in the geriatric age group is chronic disease** (35%–40%), which is often asymptomatic, followed by iron deficiency anemia (8%–15%), chronic renal disease (6%–8%), blood 12 loss (7%), myelodysplasia (5%), and vitamin B deficiency (5%). Renal insufficiency accounts for the greatest percentage of patients with anemia of chronic disease. MGH Hnadbook of Internal Medicine: Anemia of chronic inflammation (ACI; NEJM 2005;352:1011). • Impaired iron utilization & ↓epo-responsiveness due to ↑hepcidin & cytokines in setting of autoimmune disorders, chronic infection, inflammation, HIV, malignancy

	• Dx: **↓Fe**, **↓TIBC**, ± **↑ferritin**; usually normocytic but can be microcytic if prolonged • ACI w/Fe-deficiency anemia: soluble transferrin receptor (sTFR) ↑in Fe deficiency sTFR/log Ferritin: > 2 →ACI w/ Fe deficiency; < 1 →ACI alone (*Blood* 1997;89:1052) • Treatment: treat underlying disease ± erythropoietin; for cancer- or chemo-related use epo for goal Hb 10-12 (11-12 if sx) g/dl. Iron if ferritin < 100 or Fe/TIBC < 20%.
09-233. +Hem+Cel. A 70-year-old white male presents with fatigue, weakness, and foot paresthesias. His hemoglobin level is 10.5 g/dL (N 12.6–17.4). His peripheral smear is shown in the **Figure.** Which one of the following is the most likely diagnosis? A) Iron deficiency anemia B) Vitamin B12 deficiency anemia C) Hemolytic anemia D) Acute myelogenous leukemia E) Chronic myelogenous leukemia 	Anemia, pernicious anemia. **ANS=B.** The **blood smear shows a hypersegmented polymorphonuclear (PMN) white blood cell, typical of vitamin B12 deficiency with pernicious anemia.** The anemia is of the macrocytic type (MCV >100 µm3). There is no evidence of hemolysis or leukemia. While iron deficiency anemia can be a coexisting problem, the hypersegmented PMN is classic for vitamin B12 deficiency. It is important to note that elderly patients with vitamin B12 deficiency may have neurologic signs and symptoms before developizz1qq1ng hematologic abnormalities.
07-093. +Hem+Adm. An asymptomatic 32-year-old African-American female presents with a hemoglobin concentration of 10.2 g/dL and a mean corpuscular volume (MCV) of 68 um3. Iron studies are normal. In which one of the following would a normal pattern on hemoglobin electrophoresis be expected? A) A-Thalassemia minor (trait) B) B-Thalassemia minor (trait) C) B-Thalassemia major D) Hemoglobin SC disease E) Hemoglobin H disease	Anemia, thalassemia. **07-093.** Thalassemia is an inherited hematologic disorder that affects the balanced production of globin chains of the hemoglobin molecule. **ANS=A. Normal adult hemoglobin contains two A chains and two B chains that are produced in equal amounts. Thalassemia minor results in a partial reduction in the production of either the A- or B-chains.** Patients with this problem usually have hypochromic, microcytic red blood cells with a normal or elevated RBC count and mildly reduced hemoglobin. **In B-thalassemia minor, hemoglobin electrophoresis is abnormal and shows a decreased concentration of HbA and an increase in HbA2. In A-thalassemia minor A-chain production is reduced but there is no increase in other abnormal hemoglobins and electrophoresis is normal. If the production of A-chains is severely reduced it results in the production of hemoglobins with all B-chains, termed Hb H, or all G-chains, called Hb Barts.** B-Thalassemia major is a severe anemic syndrome without the production of any HbA. An abnormal hemoglobin consisting of four A-chains is found on electrophoresis. Hemoglobin SC is an abnormal hemoglobin with amino acid substitution in the globin chain that is abnormal on electrophoresis.
08-173. +Hem+Adm. Which one of the following causes of anemia is associated with a normal red cell distribution width? A) Vitamin B12 deficiency B) Iron deficiency C) B-Thalassemia trait D) Sideroblastic anemia E) Myelofibrosis	Anemia, thalassemia. **08-173.** Anemia, B-Thalassemia trait vs. iron deficiency**. ANS=C. Red cell distribution width (RDW) is particularly useful in distinguishing anemic disorders, especially iron deficiency anemia (high RDW, normal to low mean corpuscular volume) and uncomplicated heterozygous thalassemia, i.e. , B-Thalassemia trait (normal RDW, low mean corpuscular volume).**
10-148. +Hem+ Cca.**?*** You see a 1-year-old male for a routine well child examination. Laboratory tests reveal a hemoglobin level of 10 g/dL (N 9–14), a hematocrit of 31% (N 28–42), a mean corpuscular volume of 68 _m3 (N 70–86), and a mean corpuscular hemoglobin concentration of 25 g/dL (N 30–36). A trial of iron therapy results in no improvement and a serum lead level is normal. Which one of the following would be the most appropriate test at this time? A) Hemoglobin electrophoresis B) Bone marrow examination C) Vitamin B12 and folate levels D) A TSH level	Anemia, thalassemia. **10-148. ANS=A.** This patient has a microcytic, hypochromic anemia, which can be caused by iron deficiency, thalassemia, sideroblastic anemia, and lead poisoning. **In a child with a microcytic anemia who does not respond to iron therapy, hemoglobin electrophoresis is appropriate to diagnose thalassemia.** Hypothyroidism, vitamin B12 deficiency, and folate deficiency result in macrocytic anemias.
07-059. +Int+Adm. A 60-year-old male was seen in your clinic 2 days ago for heart failure and hypertension. You initiated an ACE inhibitor to address both of these conditions. His current medications include lisinopril (Prinivil, Zestril), metoprolol (Toprol), and low-dose aspirin. He called the clinic today with some difficulty swallowing and a swollen upper lip. He denies any hives. The patient's complaints are most likely due to A) Ludwig's angina B) cholinergic urticaria C) dependent edema D) angina pectoris E) angioedema	Angioedema. **07-059.** ACE inhibitors. **Angioedema is a subcutaneous or deep tissue edema from mast cell release (as in an allergic reaction) or an increase in vascular permeability from bradykinin release (as seen with ACE inhibitors) or complement system abnormalities**. **ANS=E.** Ludwig's angina is a cellulitis in the submandibular or sublingual areas. Cholinergic urticaria is manifested by hives associated with sweating or hot showers. Dependent edema is swelling in the lower or dependent portions of the body and can be associated with calcium channel blockers. Angina pectoris is not a well-documented cause of angioedema.
09-075. +Car+Adm. A 68-year-old African-American male with a history of hypertension and heart failure continues to have shortness of breath and fatigue after walking only one block. He has normal breath sounds, no murmur, and no edema on examination. His current medications include furosemide (Lasix), 20	Angioedema. **09-075.** ACE inhibitors. Heart failure,Systolic. **ANS=E. In patients with systolic heart failure, the usual management includes an ACE inhibitor and a B-blocker**. Since this **patient had angioedema with an ACE inhibitor, an angiotensin receptor blocker may cause this side effect as well.**

mg/day, and metoprolol extended-release (Toprol-XL), 50 mg/day. He previously took lisinopril (Prinivil, Zestril), but it was discontinued because of angioedema. A recent echocardiogram showed an ejection fraction of 35%. Which one of the following would be most likely to improve both symptoms and survival in this patient? A) Valsartan (Diovan) B) Metolazone (Zaroxolyn) C) Digoxin D) Verapamil (Calan, Isoptin) E) Isosorbide/hydralazine (BiDil)	Adding metolazone is generally not necessary unless the patient has volume overload that does not respond to increased doses of furosemide. Digoxin may improve symptoms, but has not been shown to increase survival. **For patients who cannot tolerate an ACE inhibitor, especially African- Americans, a combination of direct-acting vasodilators such as isorbide and hydralazine is preferred.** Verapamil has a negative inotropic effect and should not be used.
07-011. +Car+Adm. Which one of the following ankle-brachial index (ABI) ranges is associated with the lowest rate of leg pain and claudication? A) 1.00–1.39 B) 0.70–0.99 C) 0.40–0.69 D) <0.40	Ankle-brachial index (ABI). **07-011. ANS=A. The average ABI in patients with nonperipheral arterial disease has been reported to be approximately 1.15.** One study compared patients whose ABI was 1.10–1.19 with those whose ABI was 1.20–1.29. The percentage of patients who had no pain was similar for the two groups (85.3% and 87.4%), and the percentage of those with classic claudication was identical (0.8%). **Uptodate:**  In order to calculate the ankle-brachial index (ABI), systolic blood pressure is measured by Doppler ultrasonography in each arm and in the dorsalis pedis (DP) and posterior tibial (PT) arteries in each ankle. The higher of the two arm and ankle pressures is selected. The right and left ABI values are determined by dividing the higher ankle pressure in each leg by the higher arm pressure. **A ratio greater than 1.30 suggests a noncompressible, calicified vessel;** in this situation, the true pressure at that location cannot be obtained, and additional tests are required to diagnose peripheral arterial disease. **Patients with claudication typically have ankle-brachial index values ranging from 0.41 to 0.90, and those with critical leg ischemia have values of 0.40 or less.**
08-213. +Car+Adm. A 56-year-old white male presents with a 2-week history of intermittent pain in his left leg. The pain usually occurs while he is walking and is primarily in the calf muscle or Achilles region. Sometimes he will awaken at night with "cramps" in the affected leg. He has no known risk factors for atherosclerosis. Which one of the following would be the best initial test for peripheral vascular occlusive disease? A) Ankle-brachial index B) Arterial Doppler ultrasonography C) Arteriography D) Magnetic resonance angiography (MRA) E) Venous ultrasonography	Ankle-brachial index (ABI). **08-213. ABI is an inexpensive, sensitive screening tool and is the most appropriate first test for peripheral vascular occlusive disease (PVOD)** in this patient. **ANS=A.** The ABI is the ratio of systolic blood pressure measured in the ankle to systolic pressure using the standard brachial measurement. **A ratio of 0.9–1.2 is considered normal. Severe disease is defined as a ratio <0.50.** More invasive and expensive testing using Doppler ultrasonography, arteriography, or magnetic resonance angiography may be useful if the ABI suggests an abnormality. Venous ultrasonography would not detect PVOD, but it could rule out deep venous thrombosis, which is another common etiology for calf pain.
09-098. +Psy+Mhe. A 14-year-old female is brought to your office by her parents because of concerns regarding her low food intake, excessive exercise, and weight loss. Her weight is less than 75% of ideal for her height. Which one of the following sets of additional findings would indicate that the patient suffers from severe anorexia nervosa? A) Hypertension, tachycardia, and hyperthermia B) Hypertension, tachycardia, and hypothermia C) Hypotension, tachycardia, and hypothermia D) Hypotension, bradycardia, and hyperthermia E) Hypotension, bradycardia, and hypothermia	Anorexia nervosa. **ANS=E.** Characteristic **vital signs in patients with severe anorexia nervosa include hypotension, bradycardia, and hypothermia**. Criteria for hospital admission include a heart rate <40 beats/min, blood pressure <80/50 mm Hg, and temperature <36°C (97°F). Increased cardiac vagal hyperactivity is thought to cause the bradycardia.
07-221. +Hem+Adm. In a patient with a mechanical mitral valve replacement who is taking warfarin (Coumadin), the recommended INR range is A) 1.0–2.0 B) 1.5–2.5 C) 2.0–3.0 D) 2.5–3.5	Anticoagulation. **07-221. Warfarin, INR values. ANS=D. Most conditions (DVT or PE, atrial fibrillation) requiring warfarin therapy are adequately treated at INR values between 2.0 and 3.0; patients with mechanical heart valves, especially mitral valves, may benefit from higher values (up to 3.5). Patients with thrombophilia due to antiphospholipid antibody syndrome may require a higher INR (3.0–4.0) for optimal therapy.**

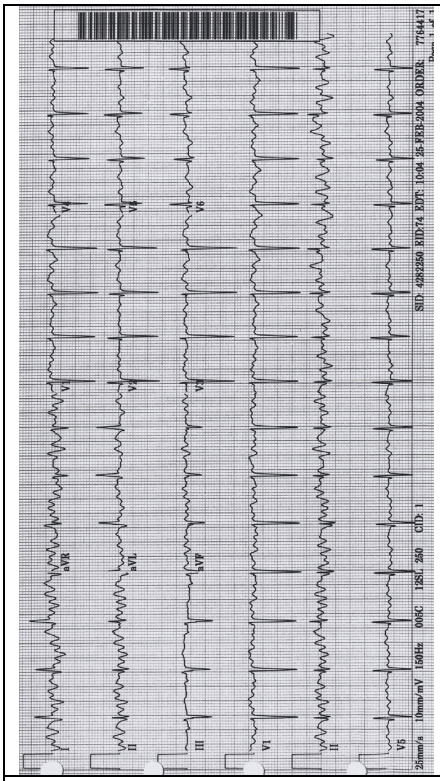
E) 3.0–4.0	
08-208. +Hem+Adm. A 69-year-old male has a 4-day history of swelling in his left leg. He has no history of trauma, recent surgery, prolonged immobilization, weight loss, or malaise. His examination is unremarkable except for a diffusely swollen left leg. A CBC, chemistry profile, prostatespecific antigen level, chest radiograph, and EKG are all normal; however, compression ultrasonography of the extremity reveals a clot in the proximal femoral vein. He has no past history of venous thromboembolic disease. In addition to initiating therapy with low molecular weight heparin, the American College of Chest Physicians recommends that warfarin (Coumadin) be instituted now and continued for at least A) 1 month B) 3 months C) 6 months D) 12 months	Anticoagulation. **08-208. Warfarin. ANS=B.** **For patients with a first episode of unprovoked deep venous thrombosis, evidence supports treatment with a vitamin K antagonist for at least 3 months** (SOR A). The American College of Chest Physicians recommends that patients be evaluated at that point for the potential risks and benefits of long-term therapy (SOR C). **Uptodate: Warfarin treatment for an indefinite period is indicated for patients with recurrent venous thromboembolism or those in whom there is a continuing risk factor for venous thromboembolism (eg, active malignancy, antiphospholipid syndrome).**
09-066. +Car+Adm. A 48-year-old male who weighs 159 kg (351 lb) is admitted to the hospital with a left leg deepvein thrombosis and pulmonary embolism. Treatment is begun with enoxaparin (Lovenox). Which one of the following would be most appropriate for monitoring the adequacy of anticoagulation in this patient? A) Anti-factor Xa levels B) Activated partial thromboplastin time (aPTT) C) Daily INRs D) Daily factor VIII levels.	Anticoagulation. **09-066.** Low molecular weight heparin (enoxaparin) **ANS=A.** **In severely obese patients (>330 lb) and those with renal failure, low molecular weight heparin therapy should be monitored with anti-factor Xa levels obtained 4 hours after injection**. **Most other patients do not need monitoring**. The **INR is used to monitor warfarin** therapy, and the **activated partial thromboplastin time (aPTT) is used to monitor therapy with unfractionated heparin**. Factor VIII levels are not used to monitor anticoagulation therapy. **Hint:** The **EX**-Presiden**T** went to **WAR**(farin)= **WAR**farin affects **EX**trinsic pathway and mainly **PT**. warfar**IN**=**INr** (INR monitoring).
09-167. +Hem+Adm. A 29-year-old white female is hospitalized following a right middle cerebral artery stroke confirmed by MRI. Her past medical history is remarkable only for a history of an uncomplicated tonsillectomy during childhood and a second-trimester miscarriage 3 years ago. The only remarkable finding on physical examination is left hemiplegia. The initial laboratory workup reveals normal hematocrit and hemoglobin levels, a normal prothrombin time, and a platelet count of 200,000/mm3 (N 140,000–440,000). The activated partial thromboplastin time is 95 sec (N 23.6–34.6), and it does not normalize when the patient's serum is mixed with normal plasma. A serum VDRL is positive, and a serum FTA-ABS is nonreactive. Which one of the following is the most likely diagnosis? A) Hemophilia B) Neurosyphilis C) Antiphospholipid syndrome D) Thrombotic thrombocytopenic purpura E) Protein C deficiency	Antiphospholipid syndrome is **due to the appearance of a heterogeneous group of circulating antibodies to negatively charged phospholipids**, **including most commonly a lupus anticoagulant and anticardiolipin antibodies. ANS=C.** **The antibodies are usually detected by a false-positive serologic test for syphilis (serum VDRL is positive, buta serum FTA-ABS nonreactive). Clinical features include venous and arterial thrombosis, fetal wastage, thrombocytopenia, and the presence of an activated partial thromboplastin time (aPTT) inhibitor** (thus **prolonged aPTT, not normalized when the patient's serum is mixed with normal plasma). It is an important diagnostic consideration in all patients with unexplained thrombosis or cerebral infarction, particularly in young patients**. Although **hemophilia would also be associated with a prolonged aPTT, the PTT would normalize when the patient's serum was mixed with normal plasma.** Neurosyphilis is excluded by the negative serum FTA-ABS result**. Thrombotic thrombocytopenic purpura** is not associated with prolongation of the aPTT and **is associated with a hemolytic anemia**. Although protein C deficiency is a hypercoagulable state that can lead to stroke, none of the laboratory abnormalities suggests this diagnosis.
08-030. +Psy+Mhe. Which one of the following antipsychotic medications is most likely to cause agranulocytosis? A) Clozapine (Clozaril) B) Aripiprazole (Abilify) C) Risperidone (Risperdal) D) Olanzapine (Zyprexa)	Antipsychotics. **08-030. Clozapine was the first atypical antipsychotic drug**, so designated because **it has antipsychotic effects without the adverse effects on movement seen with first-generation agents,** in addition to having **enhanced therapeutic efficacy compared with first-generation drugs. ANS=A.** Because of these advantages, it was introduced into clinical practice in the United States despite a **serious known adverse effect: an increased incidence of agranulocytosis**. Although only clozapine causes agranulocytosis in a substantial proportion of patients, **many second-generation drugs produce clinically significant weight gain.**
08-200. +Psy+Mhe. A 79-year-old male has psychosis secondary to dementia associated with Parkinson's disease. After exhausting all other options you decide to prescribe an antipsychotic agent. Which one of the following would be the best choice in this situation? A) Haloperidol B) Olanzapine (Zyprexa) C) Risperidone (Risperdal) D) Quetiapine (Seroquel) E) Thioridazine	Antipsychotics. **08-200.** **Quetiapine** **is an atypical antipsychotic that has no clinically significant effect on the dopamine D2 receptor, which is responsible for the parkinsonian side effects of antipsychotic medications. ANS=D.** Because of this, **it is considered the antipsychotic of choice in patients with dementia associated with Parkinson's disease**, although its use has not been studied extensively in this clinical situation. The other atypical antipsychotics listed, olanzapine and risperidone, have some D2 receptor effect. Thioridazine and haloperidol are typical antipsychotics and have more side effects, including parkinsonian side effects; they are not recommended in this clinical situation.
09-030. +Psy+Mhe. A 24-year-old female has a history of mood swings over the past several months, which have created marital and financial problems, in addition to jeopardizing her career as a television news reporter. You have made a diagnosis of bipolar disorder, and she has finally accepted the need for treatment. However, she insists that you choose a drug that "won't make me fat." Which one of the following would be best for addressing her concerns? A) Aripiprazole (Abilify) B) Olanzapine (Zyprexa) C) Quetiapine (Seroquel) D) Risperidone (Risperdal)	Antipsychotics. **09-030.** Bipolar disorder. Ans=A. **All of the atypical antipsychotics are associated with some degree of weight gain.** Of the choices listed, **aripiprazole is associated with the least amount of weight gain,** generally less than 1 kilogram. The other agents listed are likely to cause considerably more weight gain. **Bipolar I disorder have episodes of sustained mania, and often experience depressive episodes**. Patients with **bipolar II** disorder have **one or more major depressive episodes, with at least one hypomanic episode. 1st line therapy for acute severe manic or mixed episodes is an antipsychotic agent plus either lithium or valproate.**
09-104. +Psy+Mhe. A 24-year-old female had been healthy with no significant medical illnesses until about 3 months ago, when she was diagnosed with schizophrenia and treatment was initiated. She is now concerned because she has gained 10 lb since beginning treatment. A comprehensive metabolic panel is normal, with the exception of a fasting blood glucose level of 156 mg/dL. Which one of the following medications would be most likely to cause these findings? A) Clonazepam (Klonopin) B) Thioridazine C) Chlorpromazine D) Aripiprazole	Antipsychotics. **09-104. ANS=E.** Second-generation, or **"atypical," antipsychotics are associated with weight gain, elevated triglycerides, and type 2 diabetes mellitus. Olanzapine and clozapine are associated with the highest risk.** Clonazepam, a benzodiazepine, does not share these risks. Thioridazine and chlorpromazine are first-generation antipsychotics, and carry less risk of these side effects. Aripiprazole, although it is a second-generation antipsychotic, has been found to cause weight gain and metabolic changes similar

(Abilify) E) Olanzapine (Zyprexa)	to those seen with placebo.
09-189. +Psy+ Mhe. A 70-year-old female becomes psychotic and risperidone (Risperdal) is prescribed. Which one of the following should be used to monitor the patient for adverse cardiac effects of this drug? A) Serum sodium levels B) Echocardiography C) Nuclear stress testing D) Lower-extremity venous duplex ultrasonography E) Electrocardiography	Antipsychotics. **09-189. Both typical and atypical antipsychotics can cause prolongation of the QTc interval, resulting in torsades de pointes, ventricular tachycardia, and sudden death. The best way of monitoring the QTc interval is electrocardiography. ANS=E.**
09-197. +Psy+Mhe. A 34-year-old white female visits your office complaining of a sore throat. She takes haloperidol, 2 mg after each meal, for schizophrenia, and you notice that she seems unable to sit still and is extremely anxious. The most likely diagnosis is A) drug-induced parkinsonism B) akathisia C) tardive dyskinesia D) hysteria E) dystonia	Antipsychotics. **09-197.** Motor **side effects of the antipsychotic drugs can be separated into five general categories: dystonias, parkinsonism, akathisia, withdrawal dyskinesias, and tardive dyskinesia. ANS=B. Akathisia is a syndrome marked by motor restlessness. Affected patients commonly complain of being inexplicably anxious, of being unable to sit still or concentrate, and of feeling comfortable only when moving.** A diagnosis of hysteria is inconsistent with the findings presented.
10-165. +Psy+Adm.* A 45-year-old Hispanic male with schizophrenia presents with an exacerbation of his COPD. He currently takes only ziprasidone (Geodon). He asks for a prescription for clarithromycin (Biaxin) because it has worked well for previous exacerbations. Which one of the following effects of this drug combination should you be alert for? A) Stevens-Johnson syndrome B) Prolonged QT interval C) Seizures D) Diarrhea E) Hypoglycemia	Antipsychotics. **10-165.** Schizophrenia**,** Ziprasidone, clarithromycin, antiarrhythmics (class I and III), and tricyclic antidepressants interaction. **ANS=B. Ziprasidone is a second-generation antipsychotic used in the treatment of schizophrenia. These drugs cause QT-interval prolongation**, which can in turn lead to torsades de pointes and sudden cardiac death. **This risk is further increased when these drugs are combined with certain antibiotics (e.g., clarithromycin), antiarrhythmics (class I and III), and tricyclic antidepressants.** The FDA has issued a black box warning for both first- and second-generation antipsychotic drugs due to a 1.6- to 1.7-fold increase in the risk of sudden cardiac death and cerebrovascular accidents associated with their use in the elderly population (SOR A). None of the other conditions listed is associated with this drug combination.
10-129. +Res+Euc+Mhe. A 50-year-old male is brought to the emergency department with shortness of breath, chest tighypertensioness, tremulousness, and diaphoresis. Aside from tachypnea, the physical examination is normal. Arterial blood gases on room air show a pO2 of 98 mm Hg (N 80–100), a pCO2 of 24 mm Hg (N 35–45), and a pH of 7.57 (N 7.38–7.44). The most likely cause of the patient's blood gas abnormalities is A) carbon monoxide poisoning B) anxiety disorder with hyperventilation C) an acute exacerbation of asthma D) pulmonary embolus E) pneumothorax	Anxiety disorder with hyperventilation**. ANS=B.** The **elevated pH, normal oxygen saturation, and low pCO2 are characteristic of acute respiratory alkalosis, as seen with acute hyperventilation states**. **In patients with a pulmonary embolism, pO2 and pCO2 are decreased, while the pH is elevated, indicating the acute nature of the disorder.** With the other diagnoses, findings on the physical examination would be different than those seen in this patient. Vital signs would be normal with carbon monoxide poisoning, and patients with an asthma exacerbation have a prominent cough and wheezing, and possibly other abnormalities. Tension pneumothorax causes severe cardiac and respiratory distress, with significant physical findings including tachycardia, hypotension, and decreased mental activity.
08-159. +Car+Cca. A 16-year-old white male is seen for a preparticipation sports examination. His height is 183 cm (72 in), his weight is 64 kg (141 lb), and he appears to have long arms. A physical examination reveals a high arched palate, kyphosis, myopia, and pectus excavatum. Which one of the following valvular abnormalities is most likely in this patient? A) Mitral stenosis B) Pulmonic stenosis C) Aortic stenosis D) Aortic insufficiency E) Bicuspid aortic valve	Aortic insufficiency; Marfan syndrome**. ANS=D.** This adolescent has findings of Marfan syndrome. It is **associated with arachnodactly, arm span greater than height, a high arched palate, kyphosis, lenticular dislocation, mitral valve prolapse, myopia, and pectus excavatum**. **Cardiac examination may reveal an aortic insufficiency murmur, or a murmur associated with mitral valve prolapse. Cardiovascular defects are progressive, and aortic root dilation occurs in 80%–100% of affected individuals.** Aortic regurgitation becomes more common with increasing age.
10-094P. +Car+Adm.>L A previously healthy 67-year-old male sees you for a routine health maintenance visit. During the physical examination you discover a harsh systolic murmur that is loudest over the second right intercostal space and radiates to the carotid arteries. The patient denies any symptoms of dyspnea, angina, syncope, or decreased exertional tolerance. An echocardiogram shows severe aortic stenosis, with an aortic valve area of <1 cm , a mean gradiant >40 mm Hg, and an 2 ejection fraction of 60%. Which one of the following would be most appropriate at this point? A) Coronary angiography B) Exercise stress testing C) Treatment with prazosin (Minipress) D) Referral for aortic valve replacement E) Watchful waiting	Aortic stenosis**. ANS=E. Watchful waiting is recommended for most patients with asymptomatic aortic stenosis, including those with severe disease** (SOR B). This is because **the surgical risk of aortic valve replacement outweighs the approximately 1% annual risk of sudden death in asymptomatic patients with aortic stenosis. Peripheral a-blockers, such as prazosin, should be avoided because of the risk of hypotension or syncope. Coronary angiography should be reserved for symptomatic patients who do not have evidence of severe aortic stenosis on echocardiography** performed to evaluate their symptoms, **or for preoperative evaluation prior to aortic valve replacement. Exercise stress testing is not safe with severe aortic stenosis because of the risk of death during the test.**
07-028. +Pbc+Cel. An elderly female with Alzheimer's disease is admitted to the hospital for pneumonia. She has not been eating well for several weeks, so her family requests that she be started on megestrol (Megace) for appetite stimulation. Which one of the following statements is true regarding this drug? A) It stimulates the appetite center of the thalamus B) It increases the release of growth hormone C) It is associated with bleeding secondary to platelet dysfunction D) It is a glucocorticoid derivative E) It can result in adrenal suppression	Appetite inducer**. Megestrol acetate is a synthetic progestational agent that is used to increase appetite in a variety of cachexia-inducing illnesses. ANS=E. It has been associated with weight gain in well-designed, randomized trials in populations of patients with a malignant disease or HIV infection.** Its mechanism of action is unknown. **Megestrol acetate doses greater than 160 mg/day can suppress ACTH secretion, leading to secondary adrenal insufficiency.** For **patients who are on chronic treatment or who are being withdrawn from chronic treatment, consideration should be given to empiric glucocorticoid treatment during times of stress, illness, or surgery.** Megestrol acetate **is associated with thrombophlebitis and pulmonary embolus, but not excessive bleeding.**
08-104. +Mus+Adm. A 79-year-old male is admitted to the hospital because of a sudden inability to ambulate. He has a past history of gout. On examination his temperature is 38.2°C (100.8°F) and he has bilateral knee effusions. His WBC count is 14,000/mm with 82% segs. His serum uric acid level is 8.5 mg/dL3 (N <6.5). Which one of the following would be most appropriate at this point? A) 24-hour urine collection for uric acid B) Arthrocentesis C) Initiation of allopurinol D) Initiation of antibiotics	Arthritis, polyarticular. **ANS=B. Polyarticular arthritis often presents with fever, knee and other joint effusions, and leukocytosis.** A 24-hour urine collection is not routine, is difficult for the patient, and typically does not change therapy. **Especially in cases where a joint effusion is accompanied by fever, diagnostic arthrocentesis should be performed to help guide therapy.** Allopurinol should not be initiated during an acute gouty attack, but may be started after a patient has recovered. Diuretics increase uric acid levels.

E) Initiation of furosemide (Lasix)	
08-155. +Res+Adm. A 60-year-old male presents to the urgent care center with a fever and a productive cough. He has a 40 pack/year history of cigarette smoking. In addition to lobar pneumonia on a chest radiograph, there is an incidental finding of bilateral pleural plaques. Which one of the following is the most likely cause of this finding? A) Coal dust B) Silicon dust C) Asbestos D) Vinyl chloride E) Radon	Asbestos inhalation**. ANS=C.** Development of **pleural plaques is the most common pathologic pulmonary response to asbestos inhalation**. Over time, collagen is deposited in the pleura and may calcify. **Most plaques are asymptomatic, and there is no evidence that plaques transform into malignant lesions.** Plaques occur in approximately 50% of persons with heavy and prolonged exposure to asbestos and, therefore, are a marker of asbestos exposure. **This should alert the physician to follow the patient for development of more serious asbestos-related diseases (e.g., lung cancer and mesothelioma).** Although the **other substances listed are associated with pulmonary diseases** (**coal dust and silicon dust with pneumoconiosis, and vinyl chloride and radon with lung cancer**), none is associated with pleural plaques as found in this patient.
09-001. +Hem+Adm. Which one of the following drugs inhibits platelet function for the life of the platelet? A) Aspirin B) Ibuprofen C) Dipyridamole (Persantine) D) Ticlopidine (Ticlid) E) Warfarin (Coumadin)	Aspirin. **09-001.** platelet mechanism. A number of drugs inhibit platelet function, but **aspirin is the only effective drug that interferes with platelet aggregation for the life of the platelet. ANS: A.** It does this by permanently acetylating the platelet enzyme cyclooxygenase, thus inhibiting prostaglandin synthesis. This phenomenon is clinically helpful when an antithrombotic effect is desired, but it may require that necessary surgical procedures be delayed. The effect of a single aspirin on bleeding times can persist for up to 5 days. Other NSAIDs (i.e., indomethacin, sulfinpyrazone) also inhibit platelet activity, but their effect on prostaglandin synthesis is reversible. The anti-platelet effect of dipyridamole is less well understood. Warfarin is a biochemical antagonist of prothrombin and vitamin K-dependent coagulation factors, and therefore has no significant effect on platelet activity.
09-136. +Hem+Cel. An elderly male patient takes aspirin, 81 mg daily, for prevention of a heart attack. He also takes herbal supplements. Which one of the following supplements can have a negative interaction with aspirin? A) Kava B) Yohimbine C) Saw palmetto D) Echinacea E) Ginkgo biloba	Aspirin. **09-136.** ginkgo biloba interaction. **ANS=E.** Herbal and dietary supplements can affect the absorption, metabolism, and disposition of other drugs. **Ginkgo biloba has been associated with serious intracerebral bleeding. In most of these patients, concurrent anticoagulant drugs were being used. Ginkgo has been shown in vitro to inhibit platelet aggregation and has been associated with case reports of spontaneous bleeding. Caution is recommended when using this supplement with aspirin or other anticoagulants.** Hint: Think of a Gringo (Ginkgo) in Balboa (biloba) taking an aspirin.
07-026. +Res+Com. In a woman with mild persistent asthma, which one of the following agents is thought to be the best choice for maintenance therapy during pregnancy? A) Inhaled corticosteroids B) Inhaled cromolyn (Intal) C) A long-acting B-agonist D) A leukotriene receptor antagonist E) A leukotriene synthesis inhibitor III) **Moderate persistent asthma:** Criteria: A.Daily symptoms and Beta Agonist use B.Exacerbations affect activity C.Exacerbations exceed twice per week (may last days) D.Nocturnal symptoms more than once per week E.Pulmonary Function Tests 1.FEV1 or PEF between 60-80% predicted 2.PEF variability >30% Management: A.Long-term 1.Inhaled Corticosteroids (Low or Medium dose) a.May decrease dose once Asthma well controlled b.Avoid eliminating Corticosteroid completely 2.Long-Acting Bronchodilators (e.g. Salmeterol) 3.Leukotriene Receptor Antagonist (e.g. Montelukast) 4.Consider Zileuton (Zyflo) B.Short-term rescue with beta agonist IV) **Severe persistent asthma:** II.Criteria A.Continuous Symptoms 1.Interferes with sleep and activity B.Frequent exacerbations and nocturnal symptoms C.Pulmonary Function Tests 1.FEV1 or PEF <60% of predicted 2.PEF variability > 30% Management: A.Rule out Other Etiologies 1.Non-compliance 2.Cystic Fibrosis B.Long-term daily control medication 1.Inhaled Corticosteroid (High dose) and 2.Long acting beta agonist Bronchodilator and 3.Leukotriene Receptor Antagonist (Montelukast) 4.Consider Zileuton (Zyflo) 5.Consider Systemic Corticosteroids (2 mg/kg/day to 60 mg/day) 6.Consider Anti-IgE Therapy (Omalizumab) a.Indicated in severe refractory (Step 5-6) Asthma with IgE levels >75	Asthma**. 07-026.** Mild persistent. **ANS=A. Inhaled corticosteroids are currently the recommended maintenance agent for pregnant patients with mild persistent asthma**. They have proven efficacy with a relatively low risk profile. Cromolyn has a good safety record but somewhat disappointing results. Its effectiveness is limited compared to that of inhaled corticosteroids. **Long-acting B-agonists with inhaled corticosteroids are more often used in more severe persistent asthma, as they decrease the frequency of attacks**. There is some controversy about their effect on mortality. **Leukotriene receptor antagonists are probably a reasonable add-on therapy for asthma in pregnancy**. They are not as effective as inhaled corticosteroids, however, and do not have as long a track record of safety. **Leukotriene synthesis inhibitors are not recommended for use in pregnancy**. Four classifications of asthma based on frequency and duration of symptoms are used to develop a treatment plan: I) **Mild intermittent asthma: Criteria:** A.Occasional exacerbations (Less than twice/week). 1.Exacerbations are brief (hours to days) 2.Nocturnal exacerbations are less than twice/month B.Asymptomatic C.Normal Pulmonary Function Test between exacerbations 1.FEV1 or PEF >80% predicted 2.PEF Variability <20% **Management:** A.No daily medications necessary B.Inhaled short acting Beta agonist as needed C.If beta agonist use more than twice per week: 1.Step-up to Mild Persistent Asthma Management 2.Consider long-term control (Inhaled Corticosteroids) II) **Mild persistent asthma:** Criteria: A.Frequent exacerbations (>2x/week) but not daily B.Exacerbations may affect activity C.Nocturnal symptoms more than twice per month D.Pulmonary Function Test Criteria 1.FEV1 or PEF > 80% predicted 2.PEF variability 20-30% Management: A.Long-term control with one Anti-Inflammatory medication 1.Inhaled Corticosteroid (Low Dose) 2.Inhaled Cromolyn or Nedocromil 3.Do not substitute with Long-acting Beta Agonist a.Risks loss of Asthma control b.Steroids are key management of persistent Asthma c.Long-acting Beta Agonist is in addition to steroids

b.Subcutaneous Injection every 2-4 weeks C.Other measures: 1.Short term rescue with beta agonist	4.Adult stable patients may taper steroids to half dose B.Short-term 1.Rescue with beta agonist 2.Increased use may indicate Moderate Persistent Asthma
07-063. +Res+Cca. A 12-year-old African-American female with asthma presents with a 2-day history of increasing cough and wheezing, preceded by symptoms of an upper respiratory infection. On examination she has a temperature of 37.2E C (99.0E F), 2+ expiratory wheezes throughout, and a peak flow of 50% of expected. Her oxygen saturation is 96%. Which one of the following is true regarding treatment of this patient? A) Intravenous corticosteroids have been proven to be more beneficial than oral corticosteroids B) A nebulizer is better than an inhaler with a spacer for administering B2-agonists C) Intravenous theophylline is recommended as a second-line therapy in acute asthma exacerbations D) Ipratropium (Atrovent) added to an inhaled B2-agonist lessens the need for hospitalization	Asthma. **07-063.** Ipratropium plus inhaled B2-agonists. **The addition of ipratropium to inhaled B2-agonists has been found to be more effective in acute asthmatic attacks than B2-agonists alone**. **ANS=D.** Sudden exacerbations of asthma are common in children. Numerous treatments have been used in the past. B2-Agonists have been shown to be equally effective whether administered via an inhaler and spacer device or by nebulization. As long as the gastrointestinal tract is working, intravenous corticosteroids have no benefit over oral corticosteroids. **Intravenous theophylline, which once was the mainstay of treatment, now is used only in a hospital setting to treat severe asthma not responding to other treatments**. The marginal improvement is not great enough to outweigh the potential risk of cardiovascular, gastrointestinal, or central nervous system toxicity.
08-112. +Res+Cca. A 12-year-old female has a cough and slight shortness of breath on a daily basis. She is awakened by the cough at least 3 nights per week. Which one of the following would be the most appropriate treatment for this patient? A) Inhaled corticosteroids daily B) An oral leukotriene inhibitor as needed C) Oral prednisone daily D) A short-acting _-agonist daily E) A long-acting _-agonist daily	**Asthma. 08-112.** **Moderate persistent asthma;** This patient has moderate persistent asthma. **ANS=A.** **The preferred and most effective treatment is daily inhaled corticosteroids.** A leukotriene inhibitor would be less effective. Oral prednisone daily is not recommended because of the risk of inducing adrenal insufficiency. Short- and long-acting B-agonists are not recommended as daily therapy because either can cause tachyphylaxis. They are considered rescue medications rather than preventive treatments.
08-207. +Res+Adm. A 24-year-old female with a past history of asthma presents to the emergency department with an asthma exacerbation. Treatment with an inhaled bronchodilator and ipratropium (Atrovent) does not lead to significant improvement, and she is admitted to the hospital for ongoing management. On examination she is afebrile, her respiratory rate is 24/min, her pulse rate is 92 beats/min, and oxygen saturation is 92% on room air. She has diffuse bilateral inspiratory and expiratory wheezes with mild intercostal retractions. Which one of the following should be considered in the acute management of this patient? A) Chest physical therapy B) Inhaled fluticasone/salmeterol (Advair) C) Oral azithromycin (Zithromax) D) Oral prednisone E) Oral theophylline	Asthma. **08-207.** Oral prednisone. **Hospital management of acute exacerbations of asthma should include inhaled short-acting bronchodilators in all patients. ANS=D.** **Systemic corticosteroids (i.e.** Oral prednisone) **are recommended for all patients admitted to the hospital.** **The efficacy of oral prednisone has been shown to be equivalent to that of intravenous methylprednisolone** (SOR A). Oxygen should also be considered in most patients. Antibiotics are not recommended in the treatment of asthma exacerbations unless there is a comorbid infection. **Inhaled ipratropium bromide is recommended for treatment in the emergency department, but not in the hospital** (SOR A). Chest physical therapy and methylxanthines are not recommended in the treatment of acute asthma exacerbations.
09-019. +Res+Cca. A 12-year-old white male asthmatic has an acute episode of wheezing. You diagnose an acute asthma attack and prescribe an inhaled B2-adrenergic agonist. After 2 hours of treatment, he continues to experience wheezing and shortness of breath. Which one of the following is the most appropriate addition to acute outpatient management? A) Oral theophylline (Theo-Dur) B) Oral corticosteroids C) An oral B2-adrenergic agonist D) Inhaled cromolyn (Intal) E) Inhaled corticosteroids	Asthma. **09-019.** Acute. **The treatment of choice (TOC) for occasional acute symptoms of asthma is an inhaled B2-adrenergic agonist such as albuterol, terbutaline, or pirbuterol.** **If symptoms do not respond, then they should be treated with a short course of systemic corticosteroids.** **ANS=B. Theophylline has limited usefulness for treatment of** acute symptoms in patients with intermittent asthma; it is a less potent bronchodilator than subcutaneous or inhaled adrenergic drugs, and **therapeutic serum concentrations can cause transient adverse effects** such as nausea and central nervous system stimulation **in patients who have not been taking the drug continuously**. **Cromolyn can decrease airway hyperreactivity, but has no bronchodilating activity** and is useful only for prophylaxis. **Inhaled corticosteroids should be used to suppress the symptoms of chronic persistent asthma.** Oral B2-selective agonists are less effective and have a slower onset of action than the same drugs given by inhalation.
09-168. +Res+Adm. A 12-year-old male uses a short-acting bronchodilator three times per week to control his asthma. Lately he has been waking up about twice a week due to his symptoms. Which one of the following medications would be most appropriate? A) Inhaled medium-dose corticosteroids B) A scheduled short-acting bronchodilator C) A scheduled long-acting bronchodilator D) A leukotriene inhibitor	Asthma**. 09-168.** Moderate persistent asthma. This patient has moderate persistent asthma. **ANS=A.** Although many parents are concerned about corticosteroid use in children with open growth plates, **inhaled corticosteroids have not been proven to prematurely close growth plates, and are the most effective treatment with the least side effects**. Scheduled use of a shortacting bronchodilator has been shown to cause tachyphylaxis, and is not recommended. The same is true for long-acting bronchodilators. Leukotriene use may be beneficial, but compared to those using inhaled corticosteroids, patients using leukotrienes are 65% more likely to have an exacerbation requiring systemic corticosteroids.
10-018. +Res+Cca.**?*** Which one of the following is true concerning the use of short-acting inhaled B-agonists for asthma? A) They should be given before any inhaled corticosteroid to facilitate lung delivery B) They are ineffective in patients taking B-blockers C) They are less effective than oral B-agonists D) They are less effective than anticholinergic bronchodilators when given with inhaled corticosteroids E) Their effects begin within 5 minutes and last 4–6 hours	**Asthma. 10-018.** Short-acting inhaled B-agonists. **ANS=E.** **The effects of short-acting inhaled B-agonists begin within 5 minutes and last 4–6 hours**. In the past, giving inhaled B-agonists just before inhaled corticosteroids was felt to improve the delivery and effectiveness of the corticosteroids. However, this has been proven to be ineffective and is no longer recommended. **B-Blockers do diminish the effectiveness of inhaled B-agonists, but this effect is not severe enough to contraindicate using these drugs together. Oral B-agonists are less potent than inhaled forms.** Similarly, anticholinergic drugs cause less bronchodilation than inhaled B-agonists and are not recommended as first-line therapy.
10-034. +Res+Euc.>L When treating acute adult asthma in the emergency department, using a metered-dose inhaler (MDI) with a spacer has been shown to result in which one of the following, compared to use of a nebulizer?	Asthma. **10-034.** **Albuerol metered-dose inhaler (MDI)** with a spacer. **ANS=B.** **Compared to nebulizers, MDIs with spacers have been shown to lower pulse rates, provide greater improvement in peak-flow rates, lead to greater**

A) Higher hospitalization rates B) Shorter stays in the emergency department C) Higher relapse rates D) Less improvement in peak-flow rates E) Increases in the total dose of albuterol	**improvement in arterial blood gases, and decrease required albuterol doses. They have also been shown to lower costs, shorten emergency department stays, and significantly lower relapse rates at 2 and 3 weeks compared to nebulizers. There is no difference in hospital admission rates.**
10-083. +Res+Cca. You see a 9-year-old female for evaluation of her asthma. She and her mother report that she has shortness of breath and wheezing 3–4 times per week, which improves with use of her albuterol inhaler. She does not awaken at night due to symptoms, and as long as she has her albuterol inhaler with her she does not feel her activities are limited by her symptoms. About once per year she requires prednisone for an exacerbation, often triggered by a viral infection. Based on this information you classify her asthma severity as A) intermittent B) mild persistent C) moderate persistent D) severe persistent	Asthma**. 10-083. Mild persistent. ANS=B.** The 2007 update to the guidelines for the diagnosis and management of asthma published by the National Heart, Lung, and Blood Institute outlines clear definitions of asthma severity. Severity is determined by the most severe category in which any feature occurs. This patient has mild persistent asthma, based on her **symptoms occurring more than 2 days per week, but not daily, and use of her albuterol inhaler more than 2 days per week, but not daily. Clinicians can use this assessment to help guide therapy.**
10-101. +Res+Cca. A 14-year-old female with a history of asthma is having daytime symptoms about once a week and symptoms that awaken her at night about once a month. Her asthma does not interfere with 1 normal activity, and her FEV is >80% of predicted. Which one of the following is the most appropriate treatment plan for this patient? A) A short-acting inhaled B-agonist as needed B) Low-dose inhaled corticosteroids daily C) A leukotriene receptor antagonist daily D) Medium-dose inhaled corticosteroids daily E) Low-dose inhaled corticosteroids plus a long-acting inhaled B-agonist daily	Asthma**. 10-101.** Intermittent. **ANS=A.** Based on this patient's reported frequency of asthma symptoms, she should be classified as having intermittent asthma. **The preferred first step in managing intermittent asthma is an inhaled short-acting B-agonist as needed. Daily medication is reserved for patients with persistent asthma (symptoms >2 days per week for mild, daily for moderate, and throughout the day for severe) and is initiated in a stepwise approach, starting with a daily low-dose inhaled corticosteroid or leukotriene receptor antagonist and then progressing to a medium-dose inhaled corticosteroid or low-dose inhaled corticosteroid plus a long-acting inhaled B-agonist.**
10-200. +Res+Adm. A 30-year-old female presents to your office for an initial visit. She reports a long history of asthma that currently awakens her three times per month, necessitating the use of an albuterol inhaler (Proventil, Ventolin). According to current guidelines, which one of the following would be optimal treatment? A) Continued use of a short-acting _-agonist only as needed B) Adding a long-acting _-agonist C) Adding a leukotriene receptor antagonist D) Adding a low-dose inhaled corticosteroid E) Adding theophylline	Asthma**. 10-200. Inhaled corticosteroids improve asthma control more effectively in children and adults than any other single long-term controller medication** (SOR A). **ANS=D.** This patient has mild persistent asthma and should be treated with a low-dose inhaled corticosteroid.
10-206. +Res+Adm. A 40-year-old nurse presents with a 1-year history of rhinitis, and a more recent onset of episodic wheezing and dyspnea. Her symptoms seem to improve when she is on vacation. She does not smoke, although she says that her husband does. Her FEV1 improves 20% with inhaled B-agonists. Which one of the following is the most likely diagnosis? A) Occupational asthma B) Sarcoidosis C) COPD D) Anxiety E) Vocal cord dysfunction	**Asthma. 10-206. Occupational asthma merits special consideration in all cases of new adult asthma or recurrence of childhood asthma after a significant asymptomatic period** (SOR C). **ANS=A. Occupational asthma is often preceded by the development of rhinitis in the workplace and should be considered in patients whose symptoms improve away from work.** Reversibility with B-agonist use makes COPD less likely, in addition to the fact that the patient is a nonsmoker. Cystic fibrosis is not a likely diagnosis in a patient this age with a long history of being asymptomatic. Sarcoidosis would be less likely to cause reversible airway obstruction and intermittent symptoms. Vocal cord dysfunction would not be expected to respond to bronchodilators.
07-019. +Hem+Adm. A 66-year-old male is hospitalized for new-onset atrial fibrillation. His heart rate is controlled, and he is anticoagulated first with low molecular weight heparin and then with warfarin (Coumadin). His INR at discharge is 2.3. He presents 3 days later for follow-up and states that he feels well. His INR is now 10.0. The most appropriate management at this time would be to withhold warfarin until his INR is therapeutic and to A) readmit for monitoring, give vitamin K, and start enoxaparin (Lovenox) B) administer 2 units of fresh frozen plasma and vitamin K subcutaneously C) administer vitamin K intravenously D) administer vitamin K intramuscularly E) administer vitamin K orally	Atrial fibrillation. **07-019.** Warfarin anticoagulation**. ANS=E.** The **most cost-effective management for excessive anticoagulation is to administer oral vitamin K and retest the prothrombin time.** This patient is not hemorrhaging, and a recent analysis has shown oral vitamin K to be as effective as intravenous or subcutaneous vitamin K. An INR greater than 8.0 does carry a risk of bleeding, so simply withholding warfarin would not be appropriate, and neither would readmission, given the high likelihood of correcting the patient's excessive anticoagulation with oral vitamin K alone.
07-068. +Neu+Adm+Euc. An otherwise healthy 50-year-old male presents to the emergency department with palpitations and is noted to be in atrial fibrillation. This resolves without treatment. Total duration was less than 2 hours. A CBC, metabolic profile, thyroid studies, EKG, and echocardiogram were all normal. Which one of the following would be most appropriate? A) Warfarin (Coumadin) B) Clopidogrel (Plavix) C) Cilostazol (Pletal) D) Dipyridamole (Persantine) E) Aspirin	Atrial fibrillation. **07-068. Stroke, risk. ANS=E.** For patients with atrial fibrillation who are at low risk for embolization (age <65 years and no history of hypertension, diabetes, or heart failure), the risk for embolization is 1%–2% per year. This can be reduced to 1% or less by using either warfarin or aspirin, but aspirin would be preferred because the risk of side effects is lower, as is the cost.
07-239. +Car+Adm. Which one of the following is shown in the EKG in? A) Atrial fibrillation B) Atrial flutter C) Multifocal atrial tachycardia D) Complete AV block E) Normal sinus rhythm	Atrial fibrillation. **07-239. Baseline artifact from tremors, body shakes, etc., can be confused with atrial fibrillation or atrial flutter. ANS=E.** Normal EKGs should have a normal P wave before each QRS. The rate and QRS complex should be normal unless sinus tachycardia is present. **Atrial fibrillation (AF) is characterized by disorganized atrial activity without discrete P waves. Ventricular response is irregularly irregular. A slow, regular rate in a patient with AF suggests a manifestation of digitalis toxicity.** Atrial flutter is characterized by an atrial rate of 250–350 beats/min. Typically the ventricular rate is one-half of the atrial rate. Classically, atrial flutter waves are seen as regular saw-tooth-like atrial activity, most prominent in the inferior leads. When the ventricular rate is regular and not a simple fraction of the atrial rate, complete heart block should be suspected, which may be a manifestation of digitalis



toxicity. Multifocal atrial tachycardia (MAT) requires three or more consecutive P waves of different morphologies at a rate of >100 beats/min. There may be an irregular ventricular rate. This is common in digitalis toxicity, hypokalemia, and severe cardiac and pulmonary diseases, or with certain drugs (theophylline or adrenergic drugs). Complete AV block would have a significantly slower ventricular rate, and P waves would occur at irregular intervals.

08-163. +Car+Adm. A 66-year-old female presents for a preoperative evaluation prior to elective podiatric surgery. She has no complaints other than her foot problem, and says she feels well. On examination she has an irregularly irregular heart rate with a 2/6 holosystolic murmur. An EKG reveals atrial fibrillation with a rate of 110 beats/min. Echocardiography shows mild to moderate mitral regurgitation and a dilated left atrium, but is otherwise normal. Which one of the following is the most appropriate initial treatment for this patient?
A) Digoxin, 0.125 mg/day
B) Quinidine gluconate, 324 mg 3 times daily
C) Atenolol (Tenormin), 25 mg/day
D) Sustained-release nifedipine (Adalat, Procardia), 180 mg/day
E) Unfractionated heparin sodium, 5000 units subcutaneously 3 times daily

Atrial fibrillation. **08-163. ANS=C.** The primary goals of atrial fibrillation treatment are rate control and prevention of thromboembolism. Guidelines recommend rate control with atenolol, metoprolol, diltiazem, or verapamil (SOR A). Digoxin does not control the heart rate with stress. Quinidine is proarrhythmic and does not control the heart rate. Nifedipine does not control the heart rate, and heparin does not provide adequate anticoagulation or control the heart rate.

09-009. +Neu+Adm. A 55-year-old male who had a recent episode of atrial fibrillation that converted in the emergency department is asymptomatic and currently in sinus rhythm. He is in good health otherwise and has no history of hypertension, diabetes mellitus, heart failure, transient ischemic attack, or stroke. Which one of the following would be best for preventing a stroke in this patient? A) Aspirin B) Clopidogrel (Plavix), 75 mg daily C) Warfarin (Coumadin), with a goal INR of 1.5–2.5 D) Warfarin, with a goal INR of 2.0–3.0 E) Warfarin, with a goal INR of 2.5–3.5

UpToDate: Patients with a CHADS2 **score of 0** are at low risk for ischemic stroke or peripheral embolization (0.5 percent per year in the absence of warfarin) and **can be managed with aspirin.** Patients with a CHADS2 **score ≥3 are at high risk** (5.3 to 6.9 percent per year) and should, **in the absence of a contraindication, be treated with warfarin**. Patients with a CHADS2 **score of 1 or 2 are at intermediate** risk (1.5 to 2.5 percent per year). In this group, the **choice** between warfarin therapy and aspirin **will depend upon many factors, including patient preference**.

Atrial fibrillation. **09-009.** Stroke, risk. **Ans: A.** The absolute rate of stroke depends on age and comorbid conditions. The **stroke risk index CHADS**, used to quantify risk of stroke for patients who have atrial fibrillation and to aid in the selection of antithrombotic therapy, is a mnemonic for individual stroke risk factors: **C (congestive heart failure), H (hypertension), A (age ≥□75), D (diabetes mellitus), and S (secondary prevention** for prior ischemic stroke or transient attack—most experts include patients with a systemic embolic event). Each of **these clinical parameters is assigned one point, except for secondary prevention, which is assigned 2** points. Patients are considered to be at low risk with a score of 0, at intermediate risk with a score of 1 or 2, and at high risk with a score ≥3. **Experts typically prefer treatment with aspirin rather than warfarin when the risk of stroke is low.**

09-064. +Car+Cel. A 72-year-old male presents to your clinic in atrial fibrillation with a rate of 132 beats/min. He has hypertension, but no history of heart failure or structural heart disease. He is otherwise healthy and active. The best INITIAL approach to his atrial fibrillation would be A) rhythm control with antiarrythmics and warfarin (Coumadin) only if he cannot be consistently maintained in sinus rhythm B) rhythm control with antiarrythmics and warfarin regardless of maintenance of sinus rhythm C) ventricular rate control with digoxin, and warfarin for anticoagulation D) ventricular rate control with digoxin, and aspirin for anticoagulation E) ventricular rate control with a calcium channel blocker or B-blocker, and warfarin for anticoagulation

Atrial fibrillation. **09-064. Stroke, risk.** Atrial fibrillation, thromboembolic disease prevention. **ANS=E.** Randomized, controlled trials have indicated that in most patients with **atrial fibrillation, rate control is the best initial management.** Patients who were stratified to the rhythm control arm of these trials did not have lower morbidity or mortality and were more likely to suffer from adverse drug effects and increased hospitalizations. **The most efficacious drugs for rate control are calcium channel blockers and B-blockers. Digoxin is less effective for rate control and its role should be limited to a possible additional drug for those not controlled with a B-blocker or calcium channel blocker, or for patients with significant left ventricular systolic dysfunction**. **In patients 65 years of age or older or with one or more risk factors for stroke, the best choice for anticoagulation to prevent thromboembolic disease is warfarin.** If rhythm control is successful and sinus rhythm is maintained, the thromboembolic rate is equivalent to that seen with a rate control strategy. Thus, the data suggests that patients managed with a rhythm control strategy should be

	maintained on anticoagulation regardless of whether they are consistently in sinus rhythm.
10-055. +Neu+Cel.* Which one of the following would be most appropriate for stroke prevention in a patient with hypertension, diabetes mellitus, and atrial fibrillation? A) Clopidogrel (Plavix) B) Aspirin C) Dipyridamole (Persantine) D) Warfarin (Coumadin) E) Enoxaparin (Lovenox)	Atrial fibrillation. **10-055.* Stroke, risk;** atrial fibrillation**. ANS=D.** The CHADS2 score is a validated clinical prediction rule for determining the risk of stroke and who should be anticoagulated. Points are assigned based on the patient's comorbidities. **One point is given for each of the following: history of congestive heart failure (C), hypertension (H), age ≥75 (A), and diabetes 2 mellitus (D). Two points are assigned for a previous stroke or TIA (S).** For patients with a score of 0 or 1, the risk of stroke is low and warfarin would not be recommended. **Warfarin is the agent of choice for the prevention of stroke in patients with atrial fibrillation and a score ≥2.** In these patients, the risk of stroke is higher than the risks associated with taking warfarin. Enoxaparin is an expensive injectable anticoagulant and is not indicated for the long-term prevention of stroke.
07-181. +Nep+Adm. A 76-year-old female is hospitalized for fever and weakness of several days' duration. Her history and physical findings are otherwise unremarkable except for a temperature of 37.1 deg C (100.2 deg F), a pulse rate of 100 beats/min, and a blood pressure of 95/55 mm Hg. A urinalysis reveals 10–15 WBCs/hpf and a urine culture reveals methicillin-sensitive *Staphylococcus aureus*. The most appropriate action at this point is to A) reculture the urine, as the bacteria on the first urine culture is most likely a skin contaminant B) obtain a blood culture and examine the patient for a portal of entry C) obtain a blood culture and start the patient on intravenous vancomycin (Vancocin) D) start the patient on oral cephalexin (Keflex)	Bacteremia**. 07-181.** *Staphylococcus aureus* is an unusual genitourinary pathogen; when found in the urine, it should be assumed to have migrated from a primary location. **ANS=B**. The patient should be examined carefully for a portal of entry such as a skin ulcer, intravenous site, or area of dermatitis. An echocardiogram is often required to rule out endocarditis. Methicillin-sensitive *S. aureus* can be treated with a penicillinase-resistant penicillin or a first-generation cephalosporin. Vancomycin should be reserved for treating methicillin-resistant *S.aureus*. Although oral cephalexin can be used to treat methicillin-sensitive *S. aureus*, this particular patient is too ill and needs to be evaluated for bacteremia.
08-178. +Gas+Adm. A 70-year-old female with type 2 diabetes mellitus is admitted to the hospital with a 4-week history of fever, anorexia, and weight loss. Two blood cultures are positive for *Streptococcus bovis*. In addition to being treated for the infection, she should be evaluated for which one of the following? A) B-cell lymphoma B) T-cell lymphoma C) Multiple myeloma D) Lung cancer E) Colorectal cancer	Bacteremia**. 08-178.** *Streptococcus bovis.* **ANS=E.** For unknown reasons, ***Streptococcus bovis* bacteremia or endocarditis is associated with a high incidence of occult colorectal malignancies.** It may also occur with upper gastrointestinal cancers. Radiography or endoscopy is indicated.
08-141. +Ref+Cfp. The most common cause of abnormal vaginal discharge in a sexually active 19-year-old female is A) *Candida albicans* B) *Trichomonas vaginalis* C) *Staphylococcus* D) group B *Streptococcus* E) mixed vaginal flora	Bacterial vaginosis. **08-141.** Bacterial vaginosis is the most common cause of acute vaginitis, accounting for up to 50% of cases in some populations. **ANS=E.** It is usually caused by a shift in normal vaginal flora. Mixed vaginal flora is considerably more common as a cause of vaginal discharge than *C. albicans* and *T. vaginalis*. **Uptodate: TREATMENT OF NONPREGNANT WOMEN**: **Metronidazole** — Metronidazole is the most successful therapy. Most comparative studies using multiple divided-dose oral regimens for one week achieved early rates of clinical cure in excess of 90 percent, and cure rates (by Amsel criteria) of approximately 80 percent at four weeks. **Treatment in pregnancy: Symptomatic BV infection** — All women with symptomatic BV should be treated to relieve bothersome symptoms. Oral treatment is effective and has not been associated with adverse fetal or obstetrical effects [104-109]. The therapeutic options include [58]: Metronidazole 500 mg orally twice daily for seven days. OR Metronidazole 250 mg orally three times daily for seven days OR Clindamycin 300 mg orally twice daily for seven days. Some clinicians avoid use of metronidazole in the first trimester because it crosses the placenta, and thus has a potential for teratogenicity.
07-016. +Non+Adm. A 42-year-old white male who has been obese for many years seeks your advice about bariatric surgery. He has controlled hypertension and his body mass index (BMI) is 46 kg/m2. Which one of the following would you tell him is the leading cause of death from this surgery? A) Infection B) Pulmonary embolism C) Ischemic bowel D) Malabsorption E) Myocardial infarction	Bariatric surgery. **07-016.** pulmonary embolism. **ANS=B.** According to the International Bariatric Surgery Registry, **the leading cause of death following surgery is pulmonary embolism. Indications for bariatric surgery include a BMI of 40 kg/m2 or higher, or a BMI of 35 kg/m2 with serious comorbid factors such as diabetes mellitus, obstructive sleep apnea, or coronary artery disease.**
08-067. +Res+Csp. Which one of the following is the leading cause of death following bariatric surgery? A) Pulmonary embolism B) Adult respiratory distress syndrome C) Peritonitis secondary to an anastomotic leak D) Sepsis related to a wound infection E) Hemorrhage from an anastomotic ulcer	Bariatric surgery. **08-067.** Pulmonary embolism. **ANS=A. Pulmonary emboli, anastomotic leaks, and respiratory failure are responsible for 80% of deaths in the 30 days following bariatric surgery**, with death from pulmonary embolism being the most frequent cause. **Wound infections and marginal ulcers are not uncommon complications** of this type of surgery.
10-240. +Int+Adm.>L* At a routine annual visit, a 31-year-old inner-city elementary school teacher asks you about a lesion on the nail of her ring finger, shown in **Figure 8**. On examination, you note that her other nails all have a slight linear depression or groove. Which one of the following is the most likely cause of this problem? A) A paronychial fungal infection B) Psoriasis C) Iron deficiency D) Lead exposure E) A traumatic/metabolic event	Beau's lines**. 10-240.** Fingernails and toenails are often overlooked as clues to systemic illness. **ANS=E**. Like hair shafts, they document a history of the body during the past several months. **The symmetric depression across the nail plate growing toward the distal edge of the nail shown here represents significant trauma to the body some weeks ago.** These classic lines are called Beau's lines. **No treatment is required.** Atlas of clinical Diagnosis, 2nd Edition: **Transverse sulci, or Beau's lines, affecting the surface of all the nails at corresponding levels represent a transient arrest of nail growth caused by an illness. As the growth rate is around O.lmm a day, it is possible to estimate the approximate time of the previous illness that has marked the nails** (5 months in 10.79).

08-146. +Pbc+Cel. Which one of the following should be avoided when treating pain in the elderly?
A) Fentanyl (Sublimaze)
B) Hydrocodone
C) Meperidine (Demerol)
D) Morphine
E) Oxycodone (OxyContin)

Beers criteria**. 08-146. ANS=C.** According to the Beers criteria, a list of drugs that should generally be avoided in older adults, meperidine should not be used in the elderly because its metabolite can accumulate and cause seizures. The other medications are not listed in the Beers criteria and are not contraindicated in the elderly.
The list of drugs below is a summary of information from the following report in *Archives of Internal Medicine*:

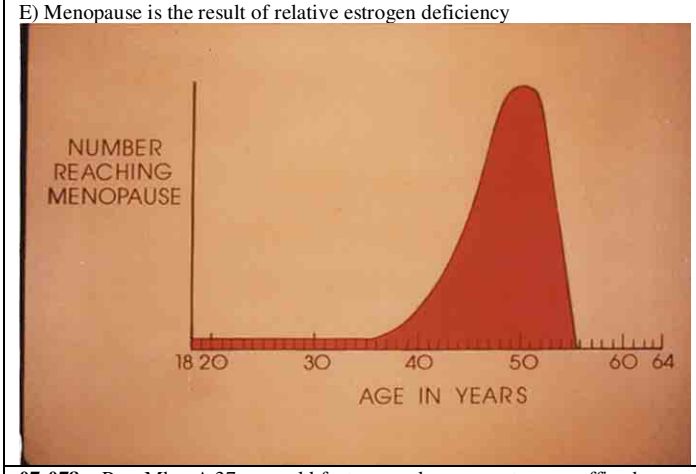
D	oxazepam (Serax)
dessicated thyroid	oxybutynin (Ditropan)
dexchlorpheniramine (Polaramine)	**P**
diazepam (Valium)	pentazocine (Talwin)
dicyclomine (Bentyl)	perphenazine-amitriptyline (Triavil)
digoxin (Lanoxin)	piroxicam (Feldene)
diphenhydramine (Benadryl)	promethazine (Phenergan)
dipyridamole (Persantine)	propantheline (Pro-Banthine)
disopyramide (Norpace, Norpace CR)	propoxyphene (Darvon) and combination products
doxazosin (Cardura)	**Q**
doxepin (Sinequan)	quazepam (Doral)
E	**R**
ergot mesyloids (Hydergine)	reserpine (Serpalan, Serpasil)
estrogens	**T**
ethacrynic acid (Edecrin)	temazepam (Restoril)
F	thioridazine (Mellaril)
ferrous sulfate (iron)	ticlopidine (Ticlid)
fluoxetine (Prozac)	triazolam (Halcion)
flurazepam (Dalmane)	trimethobenzamide (Tigan)
G	tripelennamine
guanadrel (Hylorel)	
guanethidine (Ismelin)	[**End of** *list***.**]
H	
halazepam (Paxipam)	
hydroxyzine (Vistaril, Atarax)	
hyoscyamine (Levsin, Levsinex)	

A	**I**
alprazolam (Xanax)	indomethacin (Indocin, Indocin SR)
amiodarone (Cordarone)	isoxsuprine (Vasodilan)
amitriptyline (Elavil)	**K**
amphetamines	ketorolac (Toradol)
anorexic agents	**L**
B	lorazepam (Ativan)
barbiturates	**M**
belladonna alkaloids (Donnatal)	meperidine (Demerol)
bisacodyl (Dulcolax)	meprobamate (Miltown, Equanil)
C	mesoridazine (Serintil)
carisoprodol (Soma)	metaxalone (Skelaxin)
cascara sagrada	methocarbamol (Robaxin)
chlordiazepoxide (Librium, Mitran)	methyldopa (Aldomet)
chlordiazepoxide-amitriptyline (Limbitrol)	methyldopa-hydrochlorothiazide (Aldoril)
chlorpheniramine (Chlor-Trimeton)	methyltestosterone (Android, Virilon, Testrad)
chlorpropamide (Diabinese)	mineral oil
chlorzoxazone (Paraflex)	**N**
cimetidine (Tagamet)	naproxen (Naprosyn, Avaprox, Aleve)
clidinium-chlordiazepoxide (Librax)	Neoloid
clonidine (Catapres)	nifedipine (Procardia, Adalat)
clorazepate (Tranxene)	nitrofurantoin (Macrodantin)
cyclandelate (Cyclospasmol)	**O**
cyclobenzaprine (Flexeril)	orphenadrine (Norflex)
cyproheptadine (Periactin)	oxaprozin (Daypro)

07-154. +Neu+Adm. A 53-year-old male accountant comes to your office with progressive facial weakness on the left side that began yesterday. He also reports pain behind the left ear and decreased lacrimation from the left eye. He has been in good health and had his yearly physical examination 1 week ago, which was normal. His lipid levels, chemistry profile, and CBC were all normal. He has not been involved in any outdoor activities, nor does he engage in any high-risk sexual behavior. On examination, the forehead is smooth bilaterally and there is flattening of the left nasolabial fold and decreased ability to close the left eye. The mouth appears to be drawn to the right. The remainder of his general examination and neurologic examination are normal. Which one of the following would be the most appropriate management at this time?
A) Carotid ultrasonography
B) High-resolution CT

Bell's palsy**. 07-154.** Acute partial or complete paralysis of the peripheral facial nerves is called Bell's palsy. **ANS=E.** The etiology is still unknown, but it could be genetic, metabolic, autoimmune, vascular, entrapment, or infectious. There is reasonable evidence indicating that the condition may be due to reactivation of herpes simplex virus, resulting in a viral-induced neuritis. Associated infections may be viral (herpes simplex, herpes zoster, HIV, mumps, adenovirus, coxsackievirus, polio, Epstein-Barr virus, influenza) or bacterial (otitis media, Lyme disease, syphilis, leprosy). Women who are pregnant have a risk three times higher than that of nonpregnant women. Sarcoidosis, multiple sclerosis, and post-infectious demyelination are other possibilities. Hypertension, diabetes mellitus, and hypothyroidism may be risk factors, but are probably not etiologic agents.
The key diagnostic point is determining the time of onset. If the onset occurs over a day or two and maximal paralysis is reached in 3 weeks or less, it is likely a

C) MRI with gadolinium enhancement D) Aspirin and observation E) Prednisone and valacyclovir (Valtrex)	Bell's palsy. A prolonged, slowly progressive, or relapsing course suggests tumor, especially if there is no recovery. Examination for middle ear disease and checking for parotid masses should be part of the evaluation. Tests may be necessary if the etiologies noted above have been ruled out. There is **some evidence to show that treatment with prednisone and an antiviral agent such as valacyclovir is beneficial**.
09-122. +Rem+Adm. During a comprehensive health evaluation a 65-year-old African-American male reports mild, very tolerable symptoms of benign prostatic hyperplasia, rated as a score of 7 on the American Urological Association Symptom Index. He has never smoked, and his medical history is otherwise unremarkable. Objective findings include an enlarged prostate that is firm and nontender, with no nodules. A urinalysis is normal and his prostate-specific antigen level is 1.8 ng/mL. Based on current evidence, which one of the following treatment options is most appropriate at this time? A) Observation, with repeat evaluation in 1 year B) Saw palmetto C) An alpha-receptor antagonist D) A 5-a-reductase inhibitor E) Urologic referral for transurethral resection of the prostate	Benign prostatic hyperplasia (BPH). **09-122. ANS=A.** Watchful waiting with annual follow-up is appropriate for men with mild benign prostatic hyperplasia (BPH). Prostate-specific antigen (PSA) levels correlate with prostate volume, which may affect the treatment of choice, if indicated (SOR C). **PSA levels >2.0 ng/mL for men in their 60s correlate with a prostatic volume >40 mL.** This patient's PSA falls below this level. **In men with a prostatic volume >40 mL, 5-a-reductase inhibitors should be considered for treatment** (SOR A). **alpha-Blockers provide symptomatic relief in men whose disease has progressed to the point that they have moderate to severe BPH symptoms** (SOR A). A recent high-quality, randomized, controlled trial found **no benefit from saw palmetto with regard to symptom relief or urinary flow after 1 year of therapy**. The American Urological Association does not recommend the use of phytotherapy for BPH. **Surgical consultation is appropriate when medical therapy fails or the patient develops refractory urinary retention, persistent hematuria, or bladder stones.**
07-003. +Pbs+Com. The specificity of a screening test is best described as the proportion of persons A) with the condition who test positive B) with the condition who test negative C) with the condition who test positive, compared to the total number screened D) without the condition who test positive E) without the condition who test negative	Biostatistics. **07-003.** Specificity. **ANS=E.** A screening test's specificity is the proportion of persons *without* the condition who test negative for that condition. In other words, it is a measure of the test's ability to properly identify those who do not have the disease. Conversely, the sensitivity of a screening test is the proportion of those *with* the condition who test positive. The other options listed describe false-negatives, false-positives, and prevalence.
07-141. +Pbs+Com. Results of a clinical study show a relative risk reduction (RRR) of 33% and an absolute risk reduction (ARR) of 20%. There are 1000 patients each in the treatment and control groups. To help determine the potential benefit of the treatment it is necessary to identify the number needed to treat (NNT). Which one of the following is the NNT for this clinical study? A) 3 B) 5 C) 13 D) 130 E) The number cannot be determined from the information provided	Biostatistics. **07-141.** Number needed to treat (NNT). **ANS=B.** To a practicing physician, the number needed to treat (NNT) is one of the most useful calculations for assessing the benefit of a treatment. Simplified, the NNT is the number of patients necessary to treat in order for one patient to benefit. The relative risk reduction (RRR), often quoted in the press or by those promoting a treatment, can be misleading to both the general public and to physicians. Much more useful is the absolute risk reduction (ARR); NNT is the mathematical reciprocal of ARR (i.e., 1/ARR).
08-044. +Pbs+Com. In a study to evaluate a test as a screen for the presence of a disease, 235 of the 250 people with the disease had a positive test and 600 of the 680 people without the disease had a negative test. Based on this data, the specificity of the test for the disease is A) 235/250 = 94% B) 15/250 = 6% C) 600/680 = 88% D) 80/680 = 12% E) 15/80 = 19%	Biostatistics. **08-044.** Specificity**. ANS=C.** The specificity of a test for a disease is the proportion or percentage of those without the disease who have a negative test. In this case, option A is the sensitivity, i.e., the proportion of those with the disease who have a positive test. Option B is the false-negative rate and option D is the false-positive rate. Option E is the ratio of false-negative tests to false-positive tests, a meaningless ratio. The predictive values of positive and negative tests are extremely important characteristics of a screening test. Determination of these values requires knowledge of the prevalence of the disease in the population screened, as well as the sensitivity, specificity, and false-positive and false-negative rates. Since the prevalence of most diseases is low, the percentage of those with a positive test (the predictive value of a positive test) is relatively low, even when sensitivity and specificity are high. When prevalence is low, however, the predictive value of a negative test is very high and may approach 100%.
08-111. +Pbs+Com. Which one of the following best defines the sensitivity of a diagnostic test for a particular disease? A) The test's accuracy in correctly identifying patients without the disease B) The test's accuracy in correctly identifying patients with the disease C) The difference between the false-positive and false-negative rates D) A value calculated from the test's specificity	Biostatistics. **08-111.** Sensitivity is the ability of a test to identify patients who actually have the disease, or the true-positive rate. **ANS=B.** Independent of the sensitivity is the test's specificity, which is the ability to correctly identify patients who do not have the disease, or the true-negative rate. The greater the test's specificity, the lower the false-positive rate; the greater the test's sensitivity, the lower the false-negative rate.
09-008. +Pbc+Com. In the development of clinical guidelines, which one of the following is rated as the strongest and highest-quality evidence? A) Evidence from randomized, placebo-controlled studies B) Evidence from nonrandomized, double-blind, placebo-controlled studies C) Evidence from nonrandomized, double-blind, crossover, placebo-washout–controlled studies D) Evidence obtained from well-designed cohort or case-control analytical studies from more than one center or research group E) Evidence based on reports of expert committees or opinions of respected authorities in the appropriate specialty area	Biostatistics. **09-008.** Randomized, controlled studies yield stronger evidence than other types of studies, especially case-control or cohort studies, because randomization provides the greatest safeguard against unanticipated study bias. **ANS: A.** Evidence obtained from randomized, controlled studies is considered level 1 (strongest) by the U.S. Preventive Services Task Force. Evidence obtained from nonrandomized, controlled studies is considered level 2a; well-designed case-control and cohort studies are considered level 2b; and reports of expert committees or respected authorities are considered level 3 (weakest).
09-039. +Pbc+Com. A new drug treatment is shown to reduce the incidence of a complication of a disease by 50%. If the usual incidence of this complication were 1% per year, how many patients with this disease would have to be treated with this medication for 1 year to prevent one occurrence of this complication? A) 20 B) 50 C) 100 D) 200 E) 500	*Biostatistics.* **09-039.** ***Number needed to treat (NNT).*** Considering relative risk reduction without also considering the absolute rate can distort the importance of a therapy. A useful way to assess the importance of a therapy is to determine the ***NNT*** to benefit one patient. To calculate this number, **the percentage of absolute risk reduction of a particular therapy is divided into 100.** In the case in question, the absolute risk reduction is 0.5% (0.5×.01), i.e. 50% of 1% or half of 1% which is .5%. Thus, the number-needed-to-treat for the example cited is 200 (100/0.5).
09-108. +Pbs+Com. A study finds that the positive predictive value of a new test for breast cancer is 75%, which means A) if 100 patients with known breast cancer have the test, 75 (75%) will have a positive test result B) if 100 patients	*Biostatistics.* **09-108.** *Positive predictive value* refers to the percentage of patients with a positive test for a disease who actually have the disease. **ANS=C.** The *negative predictive value* of a test is the proportion of patients with negative test

with no breast cancer have the test, 75 (75%) will have a negative test C) 75% of patients who test positive actually have breast cancer D) 75% of patients who test negative do not have breast cancer	results who do not have the disorder. The percentage of patients with a disorder who have a positive test for that disorder is a test's *sensitivity*. The percentage of patients without a disorder who have a negative test for that disorder is a test's *specificity*.
09-120. +Pbc+Com. When a screening test identifies a cancer earlier, thereby increasing the time between diagnosis and death without prolonging life, this is called A) length-time bias B) lead-time bias C) a false-positive screening test D) increasing the positive predictive value of the screening test E) attributable risk	Biostatistics. **09-120.** *Lead-time bias* is when a screening test identifies a cancer earlier, thereby increasing the time between diagnosis and death without actually prolonging life. **ANS=B.** *Length-time bias* is when a screening test finds a disproportionate number of cases of slowly progressive disease and misses the aggressive cases, thereby leading to an overestimate of the effectiveness of the screening. A *false-positive* test is one that suggests cancer when no cancer exists. The *positive predictive value* is the proportion of positive test results that are true positives. *Attributable risk* is the amount of difference in risk for a disease that can be accounted for by a specific risk factor.
10-099. +Pbc+Com .* A 69-year-old female presents with postmenopausal bleeding. You consider whether to begin your evaluation with vaginal probe ultrasonography to assess the thickness of her endometrium. In evaluating the usefulness of this test to either support or exclude a diagnosis of endometrial cancer, which one of the following statistics is most useful? A) Likelihood ratio B) Number needed to treat C) Prevalence D) Incidence E) Relative risk	Biostatistics. **10-099.** Likelihood ratio**. ANS=A.** There has been a large increase in the number of diagnostic tests available over the past 20 years. Although tests may aid in supporting or excluding a diagnosis, they are associated with expense and the potential for harm. In addition, the characteristics of a particular test and how the results will affect management and outcomes must be considered. **The statistics that are clinically useful for evaluating diagnostic tests include the positive predictive value, negative predictive value, and likelihood ratios. Likelihood ratios indicate how a positive or negative test correlates with the likelihood of disease. Ratios greater than 5–10 greatly increase the likelihood of disease, and those less than 0.1–0.2 greatly decrease it.** In the example given, if the patient's endometrial stripe is >25 mm, the likelihood ratio is 15.2 and her post-test probability of endometrial cancer is 63%. However, if it is ≤4 mm, the likelihood ratio is 0.02 and her post-test probability of endometrial cancer is 0.2%. **The number needed to treat is useful for evaluating data regarding treatments, not diagnosis.** Prevalence is the existence of a disease in the current population, and incidence describes the occurrence of new cases of disease in a population over a defined time period. **The relative risk is the risk of an event in the experimental group versus the control group in a clinical trial.**
10-237. +Pbc+Com. Which one of the following interpretations of **Figure 5** is most accurate? A) Surgical menopause is on the increase B) Menopause is occurring at an earlier age C) The mean age for reaching menopause is 50 D) One hundred percent of this sample reached menopause by age 60 E) Menopause is the result of relative estrogen deficiency 	Biostatistics. **10-237.** Epidemiologic data. **ANS=D.** The most efficient method of gathering epidemiologic data is to study a representative sample rather than the entire population subject to the event. The measurements obtained are still affected by sampling variation, however, due to the effect of chance. In the figure shown, only one of the listed conclusions can be inferred: 100% of the sample selected reached menopause by age 60. This does not imply that all women reach menopause by age 60. No conclusions regarding the plausible causes of menopause, surgical or hormonal, are valid on the basis of this graph. Although 18 years is the earliest age of menopause represented on this particular graph, a comparative conclusion cannot be drawn in the absence of corresponding comparative data. This graph illustrates a skewed, or asymmetric, distribution. Therefore, the mean (arithmetic average) age of menopause is different from the median age or middle value in the sequence from highest to lowest. Whereas the median age of menopause is approximately 50, the mean age is closer to 45, due to the skewing effect of the younger age groups represented.
07-078. +Psy+Mhe. A 37-year-old factory worker comes to your office because his wife thinks he has a problem. He takes no drugs and has no significant past medical history other than an episode of depression several years ago. He is not currently depressed. He says that he feels "great," has plenty of energy, and is the "fastest assembler in the plant." However, he does admit to being more irritable than usual and often feeling restless. On weekends and holidays he goes 48 hours without sleeping, choosing instead to spend time on the Internet, "looking at stuff I shouldn't see and buying stuff I can't afford." He admits that he sometimes oversteps social boundaries by calling friends at inappropriate times of the day or expounding on his intense religious convictions. Which one of the following is the most likely diagnosis? A) Attention deficit disorder B) Bipolar II disorder C) Generalized anxiety disorder D) Borderline personality disorder E) Schizophrenia	Bipolar. **07-078.** Bipolar II disorder, hypomania. **ANS=B.** This patient's symptoms are most consistent with bipolar II disorder/ hypomania. According to the *DSM-IV*, **bipolar II disorder is characterized by one or more major depressive episodes accompanied by at least one hypomanic episode. Hypomanic episodes consist of an elevated mood, often with expansive or irritable qualities.** Patients with hypomania feel like they have **abundant energy and often speak rapidly or interrupt others repeatedly. They usually are convinced of their own talent and often have intense religious and/or sexual interests. They usually have a decreased need for sleep, spend money beyond their means, and take unnecessary risks.** Their intense social interest may cause them to call friends at inappropriate times, especially late at night. A diagnosis of bipolar II disorder requires a history of depression and a hypomanic state at some time in the past that caused impaired relationships or function and that is not explained by a medical condition, drugs, or other psychiatric diagnosis (i.e., schizophrenia). **However, if symptoms have ever been fully manic, the diagnosis would be bipolar I disorder.** Symptoms of attention deficit disorder (ADD) persist into adulthood in up to 50% of children diagnosed with ADD, and can be similar to those in this patient. There is insufficient information from his history regarding childhood symptomatology to support a diagnosis of ADHD.

	Although the patient notes irritability and restlessness, he does not report excessive anxiety and worry, which are the central symptoms of generalized anxiety disorder. **Borderline personality disorder is characterized by a similar pattern of marked impulsivity and poor social boundaries. However, it is diagnosed primarily in women (75%),** and this patient apparently has been able to maintain a stable marital relationship up to this point, which would be unusual.
07-126. +Psy+Mhe . A 30-year-old female presents with a complaint of years of recurrent insomnia. She often lies awake with her mind "racing," so she uses alcohol nightly to help her fall asleep. She also has trouble focusing at work. She has been treated for depression several times since age 22, but she does not improve with antidepressant therapy. She has no family history of psychiatric disorders. Which one of the following statements is true regarding this patient? A) She most likely suffers from obstructive sleep apnea B) Although she does not have a family history of bipolar disorder, her presentation is compatible with hypomania C) She should begin taking venlafaxine (Effexor) to treat her depression D) Once her sleep issues are addressed, stimulant therapy for attention-deficit disorder should be considered	Bipolar. **07-126.** Bipolar II disorder, hypomania. **07-126. ANS=B.** This patient has many features of bipolar II disorder, which is defined as hypomania plus at least one episode of depression. While the patient does not have a family history suggestive of bipolar disorder (which is highly heritable), his insomnia, racing thoughts, and trouble focusing are compatible with hypomania. Unresponsiveness or worsening with antidepressant treatment also suggests bipolar disorder; therefore, trying another antidepressant without a concomitant mood stabilizer is inappropriate. Stimulant therapy also is inappropriate, at least until the mania is controlled, especially with a history of alcohol misuse. This patient has many psychiatric clues that make obstructive sleep apnea unlikely.
07-226. +Psy+Adm. A 62-year-old male recently moved and presents to your office for an initial examination. He has bipolar disorder that has been treated with lithium for many years. Which one of the following should be monitored at regular intervals in patients taking lithium? A) Adrenal and thyroid function B) Liver and adrenal function C) Liver and thyroid function D) Renal and thyroid function E) Renal and liver function	Bipolar. **07-226. lithium use. ANS=D.** Lithium is a mood-stabilizing agent that is used to treat acute manic episodes of bipolar disorder. **Long-term complications include the potential for renal impairment and hypothyroidism**. **It is recommended that renal function be tested every 2–3 months for 6 months and every 6–12 months thereafter**. **Thyroid function should be evaluated once or twice during the first 6 months of treatment and every 6–12 months thereafter**.
09-127. +Res+Adm. An anxious 30-year-old white female comes to the emergency department with shortness of breath, circumoral paresthesia, and carpopedal spasms. Which one of the following sets of blood gas values is most consistent with this clinical picture? A) pH 7.25 (N 7.35–7.45), pCO2 25 mm Hg (N 35–45), pO2 100 mm Hg (N 80–100) B) pH 7.25, pCO2 50 mm Hg, pO2 80 mm Hg C) pH 7.50, pCO2 25 mm Hg, pO2 100 mm Hg D) pH 7.55, pCO2 50 mm Hg, pO2 80 mm Hg	Blood gases. **ANS=C.** Anxiety, shortness of breath, paresthesia, and carpopedal spasm are characteristic of psychogenic hyperventilation. **Respiratory alkalosis secondary to hyperventilation is diagnosed when arterial pH is elevated and pCO2 is depressed**. **Low pH is characteristic of acidosis, either respiratory or metabolic**, and **elevated pH with elevated pCO2 is characteristic of metabolic alkalosis with respiratory compensation**.
10-052. +Gas+Adm. An 82-year-old male nursing-home resident is sent to the emergency department with lower abdominal pain and bloody diarrhea. He has a history of multi-infarct dementia, hypertension, and hyperlipidemia. On examination he is afebrile, and a nasogastric aspirate is negative for evidence of bleeding. Which one of the following is the most likely cause of this patient's bleeding? A) Peptic ulcer disease B) Ischemic colitis C) Diverticular bleeding D) Angiodysplasia E) Infectious colitis	Blood in stool. **10-052.** Ischemic colitis. **ANS=B.** This patient most likely has ischemic colitis, given the abdominal pain, bloody diarrhea, and cardiovascular risks. Peptic ulcer disease is unlikely because the nasogastric aspirate was negative. Diverticular bleeding and angiodysplasia are painless. Infectious colitis is associated with fever.
10-202. +Gas+Adm.* A 70-year-old Asian male presents with hematochezia. He has stable vital signs. Lower endoscopy is performed, but is unsuccessful due to active bleeding. Which one of the following would be most appropriate at this point? A) Abdominal CT B) A barium enema C) A technetium-99m blood pool scan D) Exploratory laparotomy E) A small-bowel radiograph	Blood in stool. Hematochezia**. 10-202. ANS=C.** In most patients with heavy gastrointestinal bleeding, localizing the bleeding site, rather than diagnosing the cause of the bleeding, is the most important task. A lower GI series is usually nondiagnostic during heavy, active bleeding. A small-bowel radiograph may be helpful after the active bleeding has stopped, but not during the acute phase of the bleeding. A blood pool scan allows repeated scanning over a prolonged period of time, with the goal of permitting enough accumulation of the isotope to direct the arteriographer to the most likely source of the bleeding. If the scan is negative, arteriography would be unlikely to reveal the active source of bleeding, and is also a more invasive procedure. Exploratory laparotomy may be indicated if a blood pool scan or an arteriogram is nondiagnostic and the patient continues to bleed heavily.
10-069. +Psy+Mhe. A 25-year-old female comes to your office requesting a referral to an otolaryngologist for surgery on her nose. She states that her nose is too large and that "something must be done." She has already seen multiple family physicians, as well as several otolaryngologists. She is 168 cm (66 in) tall and weighs 64 kg (141 lb). A physical examination is normal, and even though she initially resists a nasal examination, it also is normal. The size of her nose is normal. Which one of the following is the most likely cause of this patient's concern about her nose? A) Obsessive-compulsive disorder B) Anorexia nervosa C) Depression D) Body dysmorphic disorder	Body dysmorphic disorder. **10-069.** Body dysmorphic disorder is an increasingly recognized somatoform disorder that is clinically distinct from obsessive-compulsive disorder, eating disorders, and depression. **ANS=D.** Patients have a preoccupation with imagined defects in appearance, which causes emotional stress. Body dysmorphic disorder may coexist with anorexia nervosa, atypical depression, obsessive-compulsive disorder, and social anxiety. Cosmetic surgery is often sought. SSRIs and behavior modification may help, but cosmetic procedures are rarely helpful.
08-062. +Res+Adm. A 32-year-old white male teacher is seen for a paroxysmal cough of 5 days' duration. He tells you that a student in his class was diagnosed with pertussis 3 weeks ago. Which one of the following would be the best treatment? A) Amoxicillin B) Azithromycin (Zithromax) C) Cephalexin (Keflex) D) Ciprofloxacin (Cipro) E) Doxycycline	*Bordetella pertussis*. **08-062. ANS=B.** Macrolides are considered first-line therapy for *Bordetella pertussis* infection. Trimethoprim/sulfamethoxazole is considered second-line therapy.

10-011. +Res+Cca. Which one of the following is an appropriate rationale for antibiotic treatment of *Bordetella pertussis* infections? A) It delays progression from the catarrhal stage to the paroxysmal stage B) It reduces the severity of symptoms C) It reduces the duration of illness D) It reduces the risk of transmission to others E) It reduces the need for hospitalization	*Bordetella pertussis.* **10-011. ANS=D.** Antibiotic treatment for pertussis is effective for eradicating bacterial infection but not for reducing the duration or severity of the disease. The eradication of infection is important for disease control because it reduces infectivity. Antibiotic treatment is thought to be most effective if started early in the course of the illness, characterized as the catarrhal phase. The paroxysmal stage follows the catarrhal phase. The CDC recommends macrolides for primary treatment of pertussis. The preferred antimicrobial regimen is azithromycin for 3–5 days or clarithromycin for 7 days. These regimens are as effective as longer therapy with erythromycin and have fewer side effects. Children under 1 month of age should be treated with azithromycin. There is an association between erythromycin and hypertrophic pyloric stenosis in young infants. Trimethoprim/sulfamethoxazole can be used in patients who are unable to take macrolides or where macrolide resistance may be an issue, but should not be used in children under the age of 2 months. Fluoroquinolones have been shown to reduce pertussis in vitro but have not been shown to be clinically effective (SOR A).
08-004. +Ref+Cfp. Regular breast self-examinations to screen for breast cancer A) are performed by most women in the United States B) reduce mortality due to breast cancer C) reduce all-cause mortality in women D) are recommended by the U.S. Preventive Services Task Force E) increase the number of breast biopsies performed	Breast cancer. **08-004.** Most women do not regularly perform breast self-examinations, even though it allows motivated women to be in control of this aspect of their health care. **ANS=E.** Evidence from large, well-designed, randomized trials of adequate duration has shown that the performance of regular breast self-examinations by trained women does not reduce breast cancer–specific mortality or all-cause mortality. The U.S. Preventive Services Task Force found insufficient evidence (an I rating) to recommend breast self-examinations. A Cochrane review concluded that breast self-examinations have no beneficial effect and increase the number of biopsies performed.
08-052. +Ref+Cfp. In patients with breast cancer, the most reliable predictor of survival is A) estrogen receptor status B) cancer stage at the time of diagnosis C) tumor grade D) histologic type E) lymphatic or blood vessel involvement	Breast cancer. **08-052.** The most reliable predictor of survival in breast cancer is the stage at the time of diagnosis. **ANS=B.** Tumor size and lymph node involvement are the main factors to take into account. Other prognostic parameters (tumor grade, histologic type, and lymphatic or blood vessel involvement) have been proposed as important variables, but most microscopic findings other than lymph node involvement correlate poorly with prognosis. Estrogen receptor (ER) status may also predict survival, with ER-positive tumors appearing to be less aggressive than ER-negative tumors.
09-021. +Ref+Cfp. A 45-year-old female with no family history of breast cancer presents for a routine examination. She has no constitutional symptoms or obvious breast abnormalities, and a clinical breast examination is negative. U.S. Preventive Services Task Force recommendations advise that until 50 years of age the patient should A) perform monthly breast self-examinations B) have mammography every 1–2 years C) have cintimammography every 1–2 years D) have breast ultrasonography annually E) have a breast MRI every 1–2 years These guidelines differ from those of the American Cancer Society (ACS). **The ACS mammogram guidelines call for yearly mammogram screening beginning at age 40 for women at average risk of breast cancer. Meantime, the ACS says the breast self-exam is optional in breast cancer screening.** According to the USPSTF, women who have screening mammograms die of breast cancer less frequently than do women who don't get mammograms. However, the USPSTF says the benefits of screening mammograms don't outweigh the harms for women ages 40 to 49. Potential harms may include false-positive results that lead to unneeded breast biopsies and accompanying anxiety and distress. What Mayo Clinic recommends: At Mayo Clinic, the current practice is to continue to recommend an annual screening mammogram beginning at the age of 40, which aligns with the ACS recommendation.	Breast cancer. **09-021.** screening. Breast cancer screening included self-examination and clinical examination on a regular basis. However, **self-examination** has been shown to be potentially harmful because it leads to an increase in biopsies but does not decrease mortality; it is therefore **no longer recommended. Mammography is recommended every 1–2 years in women 40–50 years old, with digital mammography being more sensitive.** Ultrasonography and scintimammography are not recommended for screening, but may be used in the evaluation of a palpable breast lesion. MRI is also not recommended as a routine screening tool, but may be appropriate in high-risk women. As of 2011, there are **differing mammogram guidelines**: In 2009**, the USPSTF** — a group of health experts that reviews published research and makes recommendations about preventive health care — issued revised mammogram guidelines. Those guidelines include the following: ■**Screening mammograms should be done every two years beginning at age 50 for women at average risk of breast cancer.** ■Screening mammograms before age 50 should not be done routinely and should be based on a woman's values regarding the risks and benefits of mammography. ■Doctors should not teach women to do breast self-exams. ■There is insufficient evidence that mammogram screening is effective for women age 75 and older, so specific recommendations for this age group were not included.
10-013. +Pbc+Com**.** >L* Which one of the following is true concerning breast cancer screening? A) It is useful for detecting premalignant conditions B) It can predict which of the discovered cancers are indolent, with a low potential for harm C) The decrease in mortality from breast cancer can be attributed almost entirely to early detection D) It has resulted in an increase in the diagnosis of localized disease E) It has resulted in a significant decrease in the incidence of regional and metastatic disease	Breast cancer. **10-013.** screening. **Breast cancer screening has resulted in an increase in the diagnosis of localized disease without a commensurate decrease in the incidence of more widespread disease (regional and metastatic disease). ANS=D.** Unfortunately, it cannot predict which of the discovered cancers are more aggressive, and cannot accurately detect premalignant lesions. The decrease in the mortality rate of breast cancer is due both to earlier detection and better follow-up medical care.
10-143. +Ref+Cel+Cfp.>L* A 67-year-old white female has a DXA scan with a resulting T-score of –2.7. She has a strong family history of breast cancer. Which one of the following would be the most appropriate treatment for this patient? A) A bisphosphonate B) Raloxifene (Evista) C) Calcitonin nasal spray (Miacalcin) D) Teriparatide (Forteo) E) Conjugated estrogens (Premarin)	Breast cancer. **10-143.** 67 y/o white female with DXA scan T-score of –2.7, and strong family history of breast cancer. Most appropriate treatment for this patient? **Raloxifene is a selective estrogen receptor modulator. While it increases the risk of venous thromboembolism, it is indicated in this patient to decrease the risk of invasive breast cancer** (SOR A). **ANS=B.** Bisphosphonates inhibit osteoclastic activity. Zoledronic acid, alendronate, and risedronate decrease both hip and vertebral fractures, whereas ibandronate decreases fracture risk at the spine only. Calcitonin nasal spray is an antiresorptive spray that decreases the incidence of vertebral compression fractures. Teriparatide is a recombinant human parathyroid hormone with potent bone anabolic activity, effective against

	vertebral and nonvertebral fractures. **Hormone replacement therapy is recommended for osteoporosis only in women with moderate or severe vasomotor symptoms. The lowest possible dose should be used for the shortest amount of time possible (SOR C).**
10-144. +Ref+Csp.* A 50-year-old white female comes to you because she has found a breast mass. Your examination reveals a firm, fixed, nontender, 2-cm mass. No axillary nodes are palpable, nor is there any nipple discharge. You send her for a mammogram, and fine-needle aspiration is performed to obtain cells for cytologic examination. The mammogram is read as "suspicious" and the fine-needle cytology report reads, "a few benign ductal epithelioid cells and adipose tissue." Which one of the following would be the most appropriate next step? A) A repeat mammogram in 3 months B) Repeat fine-needle aspiration in 3 months C) An excisional biopsy of the mass D) Referral for breast irradiation E) Referral to a surgeon for simple mastectomy	Breast cancer. **10-144. B**reast mass**. ANS=C.** In the ideal setting, the accuracy of fine-needle aspiration may be over 90%. Clinical information is critical for interpreting the results of fine-needle aspiration, especially given the fact that the tissue sample is more limited than with a tissue biopsy. It is crucial to determine whether the findings on fine-needle aspiration explain the clinical findings. Although the report from the mammogram and the biopsy are not ominous in this patient, they do not explain the clinical findings. Immediate repeat fine-needle aspiration or, preferably, a tissue biopsy is indicated. Proceeding directly to therapy, whether surgery or irradiation, is inappropriate because the diagnosis is not clearly established. Likewise, any delay in establishing the diagnosis is not appropriate.
07-032. +Res+Adm. You see a 55-year-old female for the first time. She has a 2-year history of chronic daily cough; thick, malodorous sputum; and occasional hemoptysis. She has been treated with antibiotics for recurrent respiratory infections, but is frustrated with her continued symptoms. She has never smoked. Her FEV1:FVC ratio is 60% and a CT scan shows bronchial wall thickening and luminal dilation. The most likely diagnosis is A) emphysema B) bronchiectasis C) chronic bronchitis D) bronchiolitis E) asthma	Bronchiectasis. **07-032.** Bronchiectasis is an illness of the bronchi and bronchioles involving obstructive and infectious processes that injure airways and cause luminal dilation. **ANS=B.** In addition to daily viscid, often purulent sputum production with occasional hemoptysis, wheezing and dyspnea occur in 75% of patients. Emphysema and chronic 1 bronchitis, forms of COPD, also cause a decreased FEV :FVC ratio, but the baseline sputum is generally mucoid and luminal dilatation of bronchi is not characteristically present. Bronchiolitis is usually secondary to respiratory syncytial virus infection in young children. Asthma is not characterized by the sputum and CT findings seen in this patient.
07-069. +Res+Cca. A 20-month-old white female is brought to your office with a 2-day history of poor appetite, fever, and cough. She was born at term, has no history of previous illness, and is up-to-date on her immunizations. On examination she has a low-grade fever, clear rhinorrhea, mild tachypnea with bilateral wheezes and rhonchi, and a pulse oximetry reading of 90%. You send the child to the hospital for laboratory studies, a chest film, and observation. The laboratory reports a positive rapid diagnostic assay for respiratory syncytial virus (RSV) from a nasopharyngeal specimen. Based on the most likely diagnosis, which one of the following treatment options is indicated? A) Amoxicillin B) Methylprednisolone (Medrol) C) Oxygen D) Palivizumab (Synagis)	Bronchiolitis. **07-069.** Respiratory syncytial virus (RSV) causes acute respiratory tract illness in patients of all ages. **ANS=C.** In infants and young children, **RSV is the most important cause of bronchiolitis and pneumonia.** Rapid diagnostic assays, including immunofluorescent and enzyme immunoassay techniques for detection of viral antigen in nasopharyngeal specimens, are available commercially and are generally reliable. **Unless there is evidence of a suppurative complication, such as otitis media, the treatment of RSV bronchiolitis is supportive (e.g., with hydration and supplemental oxygen).** It is currently unclear whether there is a direct relationship between RSV bronchiolitis and a predisposition to asthma. **In hospitalized infants with RSV bronchiolitis, corticosteroids are not effective and are not indicated.** Antimicrobial agents such as amoxicillin are rarely indicated because bacterial lung infection and bacteremia are uncommon in children hospitalized with RSV bronchiolitis. Antimicrobial agents may be indicated with a suppurative complication. **Palivizumab, a humanized mouse monoclonal antibody administered intramuscularly, is available to reduce the risk of RSV hospitalization in high-risk children.** This medication is not indicated in this case because of a negative past history. **It is indicated for prophylaxis only in selected infants and children with chronic lung disease (CLD, formerly called bronchopulmonary dysplasia) of prematurity, a history of preterm birth (<35 weeks gestation), or congenital heart disease.** Palivizumab is administered every 30 days, beginning in early November, with 4 subsequent monthly doses.
07-188. +Res+Cca. An otherwise healthy 1-year-old male is brought to your office because of increased respiratory effort, wheezing, and rhinorrhea. He has no fever. On examination he is found to have an increased respiratory rate and mild retractions. A chest film shows no foreign body or infiltrates. Oxygen saturation is 94%. Management should include which one of the following? A) A trial of nebulized albuterol B) Nebulized epinephrine C) Oxygen D) Antibiotics E) Corticosteroids	Bronchiolitis. **07-188. ANS=A.** This presentation is consistent with bronchiolitis, which is a response to a viral respiratory infection. American Academy of Pediatrics guidelines for the management of bronchiolitis do not recommend routine use of any treatment, recommending instead that the choice be based on the specific needs of the child. **If the child responds to a trial of albuterol, then treatment can be continued**; otherwise, evidence shows no benefit. Antibiotics are indicated for signs of bacterial infection. Oxygen is indicated if the saturation is less than 90%. Corticosteroids have not been shown to be of benefit.
08-127. +Res+Cca. You see a 9-month-old male with a 1-day history of cough and wheezing. He has previously been healthy and was born after an uncomplicated term pregnancy. He is up to date on his immunizations. On examination his temperature is 38.6°C (101.5°F) and his respiratory rate is 30/min. He has diffuse wheezing and his oxygen saturation on room air is 94%. Because it is midwinter, you obtain a swab for influenza, which is negative. A chest radiograph shows peribronchiolar edema. Appropriate management would include which one of the following? A) Supportive care only B) Inhaled corticosteroids C) Ribavirin (Rebetol) D) Palivizumab (Synagis) E) Supplemental oxygen	Bronchiolitis. **08-127.** Respiratory syncytial virus (RSV). This child has a RSV infection. **ANS=A.** Supportive care is the mainstay of therapy. If the child can take in fluids by mouth and tolerate room air, outpatient management with close physician contact as needed is reasonable, especially in the absence of significant underlying risk factors. **Routine use of corticosteroids is not recommended (SOR B). Although up to 60% of infants hospitalized for bronchiolitis receive corticosteroid therapy, studies have not provided sufficient evidence to support their use**. Inhaled corticosteroids have not been shown to be beneficial, and the safety of high doses in infants is unclear. Supplemental oxygen should be administered if functional oxygen saturation (SpO2) persistently falls below 90% and can be discontinued when an adequate level returns (SOR C). Antiviral therapy for RSV bronchiolitis is controversial because of its marginal benefit, cumbersome delivery, potential risk to caregivers, and high cost (SOR B). Studies of **ribavirin in patients with bronchiolitis have produced inconsistent findings**. **Palivizumab is a preventive measure, and is not used for treatment of the active disease**. It may be **considered in select infants and children with**

	prematurity, chronic lung disease of prematurity, or congenital heart disease (SOR A). **If used, it should be administered intramuscularly in five monthly doses of 15 mg/kg, usually beginning in November or December** (SOR C).
09-043. +Res+Cca. A previously healthy 18-month-old male is brought to your office with a 2-day history of cough and fever. On examination the child has a temperature of 38.3°C (100.9°F), a respiratory rate of 30/min, and mild retractions and mild wheezes bilaterally. Oxygen saturation is 90%. The most appropriate initial management would be A) azithromycin (Zithromax) B) a short course of corticosteroids C) aerosolized racemic epinephrine every 4 hours D) postural drainage E) a single treatment with aerosolized albuterol, continued only if there is a positive response	**Bronchiolitis**. **09-043.** ANS=E. Evidence supports **a trial of an inhaled bronchodilator, albuterol, or epinephrine, with treatment continued only if the initial dose proves beneficial**. There is no evidence to support the use of antibiotics unless another associated infection is present (e.g., otitis media). Neither corticosteroids nor postural drainage has been found to be helpful.
10-116. +Res+ Cca. A 10-week-old term male infant is brought to your office with a 2-day history of difficulty breathing. He has been healthy since birth, with the exception of a 3-day episode of wheezing and rhinorrhea 3 weeks ago. Your initial examination shows an alert infant with increased work of breathing, rhinorrhea, and wheezing. His oxygen saturation is 93% and his temperature is 38.4°C (101.1°F). Which one of the following would be most appropriate at this point? A) Antigen testing or another rapid assay B) A baseline chest radiograph C) A trial of nebulized albuterol (AccuNeb) D) Advising the parents that the child can safely be returned to day care tomorrow	Bronchiolitis**. 10-116. ANS=C.** The American Academy of Pediatrics guideline on the diagnosis and management of bronchiolitis recommends against the use of laboratory or radiographic studies to make the diagnosis, although additional testing may be appropriate if there is no improvement. Bronchiolitis can be caused by a number of different viruses, alone or in combination, and the knowledge gained from virologic testing rarely influences management decisions or outcomes for the vast majority of children. **While the guideline does not support *routine* use of bronchodilators in the management of bronchiolitis, it does allow for a trial of bronchodilators as an option in selected cases, and continuation of the treatment if the patient shows objective improvement in respiratory status**. Bronchodilators have not been shown to affect the course of bronchiolitis with respect to outcomes. The guideline places considerable emphasis on hygienic practices, including the use of alcohol-based hand sanitizers before and after contact with the patient or inanimate objects in the immediate vicinity. Education of the family about hygienic practices is recommended as well. **Returning the child to day care the next day is potentially harmful.**
07-083. +Res+Com. Which one of the following is true regarding acute bronchitis? A) The associated cough typically lasts more than 2 weeks B) Fever, tachypnea, and rales are typical of acute bronchitis in young patients C) B-Agonists are indicated for treatment D) Antimicrobial agents are indicated for treatment E) Purulent sputum implies a bacterial etiology	Bronchitis. **07-083. ANS=A.** The cough of acute bronchitis typically lasts 2 weeks and frequently up to 20 days. Fever, tachypnea, and rales in young patients are typical of pneumonia, not bronchitis. Both antimicrobials and B-agonists are of questionable benefit in patients with acute bronchitis. Viruses are the most common cause of acute bronchitis, and **purulent sputum reflects desquamation of the airway, with the expectorated matter being mostly epithelial cells.** **Epocrates:** Acute illness with cough in a patient without underlying respiratory problems; usually caused by a viral infection. Cough is typically worse at night or with exercise; lasts >2 weeks in 50% and 4 weeks in 25% of patients; may be associated with bronchospasm and/or excessive mucus production. Diagnosis is primarily clinical. Other causes for acute cough such as pneumonia, asthma, or postnasal drip should be ruled out if suspected. Treatment is aimed at symptom reduction until infection is resolved and bronchial damage repaired. Antibiotics have minimal benefit, while cough suppressants or bronchodilators may reduce symptoms in some patients. Complications are rare; the primary complication is a postbronchitis syndrome, which can produce a cough lasting several months. Treatment Options: Acute: without significant wheezing, cough associated with increased activity, or nocturnal cough: observation. Significant wheezing, cough associated with increased activity, or nocturnal cough: short-acting beta-agonist, bronchodilator, antitussives, Pelargonium (Based on a small number of studies conducted in eastern Europe, the biological Pelargonium sidoides has been shown to reduce acute bronchitis symptom duration and intensity. Pelargonium, though, comes in a variety of formulations and is not widely available outside eastern Europe at this time). Ongoing: cough persists beyond 4 week: short-acting beta-agonist, bronchodilator. Continued cough not responding to symptomatic care and producing purulent sputum: antibiotics.
07-198. +Res+Adm. The most common cause of hemoptysis seen in the primary care setting is A) pulmonary embolism B) lower respiratory tract infection C) lung cancer D) heart failure E) asthma	Bronchitis. **07-198. Hemoptysis**. Infection of the **lower respiratory tract causes well over half of all cases of hemoptysis, with bronchitis implicated more often than pneumonia**. **ANS=B**. Lung cancer should always be considered, as it may account for up to a quarter of hemoptysis cases. Pulmonary embolism is a much less common cause.
10-220. +Psy+Mhe. A 19-year-old college student comes to your office with her mother. The mother reports that her daughter has frequently been observed engaging in binge eating followed by induced vomiting. She has also admitted to using laxatives to prevent weight gain. Which one of the following laboratory abnormalities is most likely to be found in this patient? A) Hypokalemia B) Hypoglycemia C) Hyponatremia D) Hypercalcemia E) Hypermagnesemia	Bulimia**. ANS=A.** The patient described is likely suffering from bulimia. These patients use vomiting, laxatives, or diuretics to prevent weight gain after binge eating. This often causes a loss of potassium, leading to weakness, cardiac arrhythmias, and respiratory difficulty. The levels of other electrolytes are not as dramatically affected.
09-071. +Pbs+Mhe. The best available evidence supports which one of the following guidelines for discussing serious illnesses? A) Physicians should delay having a detailed discussion with the patient about the expected prognosis of cancer until staging is completed	Cancer prognosis guidelines. **ANS=A.** It is best to discuss prognosis after accurate cancer staging, when specific details about survival rates will give a much clearer and more accurate picture. After assessing the patient's readiness to receive prognostic information, the physician should focus on communicating an accurate

B) For patients who are ambivalent about knowing their prognosis, the discussion should focus on optimal potential outcomes and providing hope, even if this is unrealistic C) Physicians should delay discussions about palliative care until curative measures have failed D) Physicians should respect the family's wishes regarding how much information to share with the patient	prognosis without giving a false sense of hope. Using simultaneous-care models, physicians can provide palliative and curative care at the same time. Physicians should initiate a discussion about the availability of coordinated, symptomdirected services such as palliative care early in the disease process; as the disease progresses, patients should transition from curative to palliative therapy. How much information to share with the patient depends on the physician's assessment of the patient's level of understanding about the disease and how much patients themselves want to know.
10-203. +Non+Euc.**?*** A patient presenting with severe carbon monoxide poisoning should be treated with A) inhaled helium B) supplemental oxygen C) intravenous calcium gluconate D) intravenous iron E) intravenous magnesium	Carbon monoxide poisoning. **ANS=B.** Patients with carbon monoxide poisoning should be treated immediately with normobaric oxygen, which speeds up the excretion of carbon monoxide.
10-082. +Non+Csp.>L* A 72-year-old female sees you for preoperative evaluation prior to cataract surgery. Her history and physical examination are unremarkable, and she has no medical problems other than bilateral cataracts. Which one of the following is recommended prior to surgery in this patient? A) An EKG only B) An EKG and chest radiography C) A CBC only D) A CBC and serum electrolytes E) No testing	Cataract surgery, preoperative testing. **ANS=E.** According to a recent Cochrane review, **routine preoperative testing prior to cataract surgery does not decrease intraoperative or postoperative complications** (SOR A). The American Heart Association recommends against routine preoperative testing in asymptomatic patients undergoing low-risk procedures, since the cardiac risk associated with such procedures is less than 1%.
07-149. +Hem+Com. A CBC obtained as part of a life insurance examination of a healthy 33-year-old African-American male reveals "clumped platelets." Which one of the following should you do next? A) Repeat the platelet count using a specimen collection tube with an alternative anticoagulant B) Refer the patient to a hematologist for bone marrow evaluation C) Hospitalize the patient for aggressive antiplatelet therapy and parenteral anticoagulation D) Treat the result as a laboratory error and take no further action	CBC findings. **07-149.** Clumped platelets usually are an artifact secondary to antibodies to the anticoagulant used to obtain blood for a CBC. **ANS=A**. An alternative anticoagulant, usually citrate, should be used, and the test repeated to determine an accurate count before undertaking any additional measures.
08-063. +Pbc+Cca. In the United States the most common form of child abuse is A) physical abuse B) emotional abuse C) sexual abuse D) child neglect	Child abuse. **08-063. ANS=D.** Neglect is the most common form of child abuse (60% of cases) and is the most common cause of death in abused children. It is defined by the Office on Child Abuse and Neglect as failure to provide for a child's basic physical, emotional, educational/cognitive, or medical needs.
09-018. +Pbs+Com. A 4-year-old male is brought to your office for evaluation of fever, coryza, and cough. On examination, the child appears mildly ill but in no respiratory distress. His temperature is 37.4°C (99.3°F) and other vital signs are within the normal range. An HEENT examination is significant only for light yellow rhinorrhea and reddened nasal mucous membranes. Lung auscultation reveals good air flow with a few coarse upper airway sounds. While performing the examination you note multiple red welts and superficial abrasions scattered on the chest and upper back. When you question the parents, they tell you the marks are where "the sickness is leaving his body," and were produced by rubbing the skin with a coin. This traditional healing custom is practiced principally by people from which geographic region? A) Sub-Saharan Africa B) Southeast Asia C) The Middle East D) Caribbean islands E) Andean South America	Child abuse. **09-018.** Coin rubbing is a traditional healing custom practiced primarily in east Asian countries such as Cambodia, Korea, China, and Vietnam. **ANS: B.** The belief is that one's illness must be drawn out of the body, and the red marks produced by rubbing the skin with a coin are evidence of the body's "release" of the illness. These marks may be confused with abuse, trauma from some other source, or an unusual manifestation of the illness itself.
10-024. +Ref+Cca. Which one of the following confirmed findings in a 3-year-old female is diagnostic of sexual abuse? A) Bacterial vaginosis B) Genital herpes C) Gonorrhea D) Anogenital warts E) Hepatitis B	Child abuse. **10-024.** Sexual abuse**. ANS=C.** The diagnosis of any sexually transmitted or associated infection in a postnatal prepubescent child should raise immediate suspicion of sexual abuse and prompt a thorough physical evaluation, detailed historical inquiry, and testing for other common sexually transmitted diseases. Gonorrhea, syphilis, and postnatally acquired *Chlamydia* or HIV are virtually diagnostic of sexual abuse, although it is possible for perinatal transmission of *Chlamydia* to result in infection that can go unnoticed for as long as 2–3 years. Although a diagnosis of genital herpes, genital warts, or hepatitis B should raise a strong suspicion of possible inappropriate contact and should be reported to the appropriate authorities, other forms of transmission are common. Genital warts or herpes may result from autoinoculation, and most cases of hepatitis B appear to be contracted from nonsexual household contact. Bacterial vaginosis provides only inconclusive evidence for sexual contact, and is the only one of the options listed for which reporting is neither required nor strongly recommended.
09-213. +Psy+Cca. The physician counseling a 4-year-old child about the death of a loved one should keep in mind that children in this age group A) often feel no sense of loss B) often believe they are somehow responsible for the death C) should not attend a funeral D) should usually be told the loved one is having a long sleep E) usually accept the finality of death with little question	Child counselling. **09-213.** Recommendation. **ANS=B.** Children from the ages of 2 to 6 often believe they are somehow responsible for the death of a loved one. The emotional pain may be so intense that the child may react by denying the death, or may somehow feel that the death is reversible. If children wish to attend a funeral, or if their parents want them to, they should be accompanied by an adult who can provide comfort and support. Telling a child the loved one is asleep or that he or she "went away" usually creates false hopes for return, or it may foster a sleep phobia.
10-158. +Pbs+Cca. A 16-year-old male is brought to your office by his mother for "stomachaches." On the review of systems he also complains of headaches, occasional bedwetting, and trouble sleeping. His examination is within normal	Child counselling. **10-158.** Childhood bullying has potentially serious implications for bullies and their targets. **ANS=C.** The target children are typically quiet and sensitive, and may be perceived to be weak and different.

limits. His mother says that he is often in the nurse's office at school, and doesn't seem to have any friends. When you discuss these problems with him, he admits to being teased and called names at school. Which one of the following would be most appropriate? A) Explain that he must try to conform to be more popular B) Explain that these symptoms are a stress reaction and will lessen with time C) Explore whether his school counselor has a process to address this problem D) Order a TSH level	Children who say they are being bullied must be believed and reassured that they have done the right thing in acknowledging the problem. Parents should be advised to discuss the situation with school personnel. Bullying is extremely difficult to resolve. Confronting bullies and expecting victims to conform are not successful approaches. The presenting symptoms are not temporary, and in fact can progress to more serious problems such as suicide, substance abuse, and victim-to-bully transformation. These are not signs or symptoms of thyroid disease. The Olweus Bullying Prevention Program developed in Norway is a well documented, effective program for reducing bullying among elementary and middle-school students by altering social norms and by changing school responses to bullying incidents, including efforts to protect and support victims. Students who have been bullied regularly are more likely to carry weapons to school, be in frequent fights, and eventually be injured.
08-160. +Ref+Mac. A 26-year-old gravida 2 para 1 presents at 30 weeks gestation with a complaint of severe itching. She has excoriations from scratching in various areas. She says that she had the same problem during her last pregnancy, and her medical records reveal a diagnosis of intrahepatic cholestasis of pregnancy. Elevation of which one of the following is most characteristic of this disorder? A) g-Glutamyltransferase (GGT) B) Bile acids C) Direct bilirubin D) Indirect bilirubin E) Prothrombin time	Cholestasis. **08-160.** Intrahepatic cholestasis of pregnancy classically presents as severe pruritus in the third trimester. **ANS=B.** Characteristic findings include the absence of primary skin lesions and elevation of serum levels of total bile acids. Jaundice and elevated bilirubin levels may or may not be present. The GGT usually is normal or modestly elevated, which can help differentiate this condition from other cholestatic liver diseases. The prothrombin time usually is normal, but if elevated it may reflect a vitamin K deficiency from malabsorption. Uptodate: TREATMENT — Treatment for ICP focuses on reducing symptoms and preventing maternal and fetal complications. Several drugs have been studied, and most focus on relieving symptoms. Ursodeoxycholic acid (UDCA) has emerged as the most promising treatment.
10-010. +Gas+Mac. >L**?*** A 21-year-old primigravida at 28 weeks gestation complains of the recent onset of itching. On examination she has no obvious rash. The pruritus started on her palms and soles and spread to the rest of her body. Laboratory evaluation reveals elevated serum bile acids and mildly elevated bilirubin and liver enzymes. The most effective treatment for this condition is A) triamcinolone (Kenalog) cream B) cholestyramine (Questran) C) diphenhydramine (Benadryl) D) doxylamine succinate E) ursodiol (Actigall)	Cholestasis. **10-010. Intrahepatic cholestasis of pregnancy. ANS=E.** This patient's symptoms and laboratory values are most consistent with intrahepatic cholestasis of pregnancy. **Ursodiol has been shown to be highly effective in controlling the pruritus and decreased liver function** (SOR A) **and is safe for mother and fetus.** Topical antipruritics and oral antihistamines are not very effective. **Cholestyramine may be effective in mild or moderate intrahepatic cholestasis, but is less effective and safe than ursodiol.**
07-111. +Car+Com+Adm. A 58-year-old white female who has always been in good health sees you for a routine checkup. She has recently had two friends affected by cardiovascular disease, and asks if she should be taking any drugs to help her stay healthy. She does not smoke and her blood pressure is 130/85 mm Hg. Her total cholesterol level is 230 mg/dL, with an HDL level of 70 mg/dL and an LDL level of 130 mg/dL. Her father had heart problems beginning at age 65. You recommend exercise, maintaining ideal weight, and staying on a low-saturated fat diet. Which one of the following additional recommendations would be most appropriate? A) Hydrochlorothiazide to lower her blood pressure to <120/80 mm Hg, plus aspirin, 81 mg/day, and no additional medications B) Hydrochlorothiazide, a statin to lower her LDL to <130 mg/dL, and aspirin, 81 mg/day C) Aspirin, 81 mg/day, and no additional medications D) Hydrochlorothiazide plus a statin, and no additional medications E) No medications	Cholesterol. **07-111. Recommendations; ANS=E.** According to the Adult Treatment Panel III, the first step in deciding treatment thresholds for cholesterol is to determine the number of **risk factors for a cardiovascular event**. **Risk factors** to be considered include **HDL <35 mg/dL, smoking, hypertension, family history of a first degree relative with premature atherosclerotic vascular disease (male <45, female <55), and age (male >55, female >65).** In addition, **an HDL-cholesterol level >60 mg/dL is considered a negative risk factor.** Given these thresholds, this patient has no risk factors for heart disease and is at low risk for a cardiovascular event. Her father's history of heart problems at age 65 is not a risk factor. Her blood pressure is in the prehypertensive range, but she does not need pharmacologic treatment. Her total cholesterol is mildly elevated, but the HDL level is high and treatment is not indicated to lower her LDL level since she is at low risk. The Women's Health Initiative showed that given this patient's low cardiac risk, aspirin is more likely to cause gastrointestinal bleeding or serious bleeding following trauma than to protect her from a cardiac event. Her main strategy for avoiding cardiovascular problems should be to live a healthy lifestyle and stay off medications, unless her risk factors change.
08-152. +Pbc+Adm. A 55-year-old white male sees you for follow-up after a recent lipid panel revealed no improvement in his hyperlipidemia. His total cholesterol level is 275 mg/dL, with an LDL-cholesterol level of 180 mg/dL, an HDL-cholesterol level of 35 mg/dL, and a triglyceride level of 275 mg/dL. These numbers are similar to two previous lipid panels obtained over the last several months, despite attempts at lifestyle changes. He has adequately treated essential hypertension, with a blood pressure of 125/83 mm Hg. There is no history of diabetes mellitus or tobacco use, and no family history of premature coronary heart disease. A physical examination is unremarkable except for a BMI of 33 kg/m^2 and a waist circumference of 107 cm (42 in). His fasting blood glucose level is 107 mg/dL. After discussion with the patient, you decide to start prescription drug therapy. The initial target of this therapy should be to reach his goal level of A) LDL cholesterol B) HDL cholesterol C) non-HDL cholesterol D) triglycerides E) fasting blood glucose **As of 2011, AHA primary LDL cholesterol goals (http://www.americanheart.org/presenter.jhtml?identifier=4704):**	Cholesterol. **08-152.** Recommendation. **ANS=A.** This patient meets the criteria for **metabolic syndrome**. **In addition to lifestyle changes, pharmacologic treatment for his hyperlipidemia should be considered. The initial goal of this therapy should be to reach his LDL-cholesterol goal, usually using a statin. After achievement of this goal, non-HDL cholesterol is the secondary target for therapy. Non-HDL cholesterol is calculated by subtracting HDL cholesterol from total cholesterol. The non-HDL cholesterol goal is 30 mg/dL higher than the LDL-cholesterol goal.** According to AHA, **metabolic syndrome diagnosed** by the presence of three or more of these components: **Elevated waist circumference: Men — ≥ 40 inches** (102 cm), **Women — ≥35 inches** (88 cm). **Elevated triglycerides**: Equal to or greater than 150 mg/dL. **Reduced HDL ("good") cholesterol: Men — < 40 mg/dL, Women — < 50 mg/dL**. **Elevated blood pressure: ≥ 130/85 mm Hg. Elevated fasting glucose: ≥100 mg/dL.** **AHA recommendations (still valid in 2011): If your total cholesterol is 200 mg/dL or more, or your HDL cholesterol is less than 40 mg/dL (for men) and less than 50 mg/dL (for women), you need to have a lipoprotein profile done to determine your LDL cholesterol and triglyceride levels.** Set appropriate management goals based on your LDL cholesterol level and other risk factors. **1) LDL cholesterol < 160 mg/dL if no more than one risk factor is present.** **2) LDL cholesterol < 130 mg/dL (less than 100 mg/dL is an option) if two or more risk factors are present and 10-year CHD risk is less than 20 percent.** **3) LDL cholesterol < 100 mg/dL (less than 70 mg/dL is an option for very high-risk patients) if two or more risk factors are present and 10-year CHD risk is 20 percent or higher or if person has diabetes.**
09-144. +Car+Adm. **In a patient with hypertriglyceridemia**, the National	Cholesterol. **09-144.** non-HDL. **ANS=A. In a patient with**

Cholesterol Education Program recommends that **a reasonable goal for non-HDL cholesterol is no more than** A) 30 mg/dL above the LDL-cholesterol level B) 40 mg/dL above the LDL-cholesterol level C) 50 mg/dL above the LDL-cholesterol level D) 60 mg/dL above the LDL-cholesterol level E) 90 mg/dL above the LDL-cholesterol level	**hypertriglyceridemia, a reasonable goal for non-HDL cholesterol is no more than 30 mg/dL above the LDL-cholesterol level.** The National Cholesterol Education Program's Adult Treatment Panel III recommends a goal non–HDL cholesterol level of no more than 30 mg/dL greater than the LDL-cholesterol level. This is based on a "normal" very low density lipoprotein cholesterol level being defined as that present when triglycerides are <150 mg/dL. This value typically is ≤□30 mg/dL. Conversely, **when triglyceride levels are >150 mg/dL, very low density lipoprotein is usually >30 mg/dL.**
09-229. +Car+Adm. A 52-year-old white male is being considered for pharmacologic treatment of hyperlipidemia because of an LDL-cholesterol level of 180 mg/dL. Before beginning medication for his hyperlipidemia, he should be screened for A) hyperthyroidism B) hypothyroidism C) Addison's disease D) Cushing's disease E) pernicious anemia	Cholesterol. **09-229.** Hyperlipidemia**. ANS=B.** According to the National Cholesterol Education Program Adult Treatment Panel III Report of 2001, **any person with elevated LDL cholesterol or any other form of hyperlipidemia should undergo clinical or laboratory assessment to rule out secondary dyslipidemia** before initiation of lipid-lowering therapy. **Causes of secondary dyslipidemia include diabetes mellitus, hypothyroidism, obstructive liver disease, chronic renal failure, and some medications.**
10-076. +Car+Adm.>L?* A 45-year-old white female with elevated cholesterol and coronary artery disease comes in for a periodic fasting lipid panel and liver enzyme levels. She began statin therapy about 2 months ago and reports no problems. Laboratory testing reveals an LDL-cholesterol level of 70 mg/dL, an HDL-cholesterol level of 55 mg/dL, an alanine aminotransferase (ALT) level of 69 U/L (N 7–30), and an aspartate aminotransferase (AST) level of 60 U/L (N 9–25). Which one of the following would be most appropriate at this time? A) Continue the current therapy with routine monitoring B) Decrease the dosage of the statin and monitor liver enzymes C) Discontinue the statin and monitor liver enzymes D) Discontinue the statin and begin niacin E) Substitute another statin	Cholesterol. **10-076.** LDL and HDL. **ANS=A.** The patient is at her LDL and HDL goals and has no complaints, so she should be continued on her current regimen with routine monitoring (SOR C). **Research has proven that up to a threefold increase above the upper limit of normal in liver enzymes is acceptable for patients on statins.** Too often, slight elevations in liver enzymes lead to unnecessary dosage decreases, discontinuation of statin therapy, or additional testing.
10-126. +Car+Adm.* A 52-year-old hypertensive male has had two previous myocardial infarctions. In spite of his best efforts, he has not achieved significant weight loss and he finds it difficult to follow a heart-healthy diet. He takes rosuvastatin (Crestor), 20 mg/day, and his last lipid profile showed a total cholesterol level of 218 mg/dL, a triglyceride level of 190 mg/dL, an HDL-cholesterol level of 45 mg/dL, and an LDL-cholesterol level of 118 mg/dL. Which one of the following would be the most appropriate change in management? A) Increase the rosuvastatin dosage B) Add atorvastatin (Lipitor) C) Add niacin D) Add fenofibrate (Lipofen, Tricor) E) Add ezetimibe (Zetia)	Cholesterol. **10-126.** LDL. **ANS=A.** This patient's goal LDL-cholesterol level is 70 mg/dL, and he is not at the maximum dosage of a potent statin. There is no data that shows that adding a different statin will be beneficial, and outcomes data for the other actions is lacking. **For patients not at their goal LDL-cholesterol level, the maximum dosage of a statin should be reached before alternative therapy is chosen.** **Uptodate: Rosuvastatin Max dose: 40mg/day. Dosage adjustment with concomitant medications: Cyclosporine: Rosuvastatin dose should not exceed 5 mg/day. With Gemfibrozil, atazanavir/ritonavir, or lopinavir/ritonavir: Rosuvastatin dose should not exceed 10 mg/day.**
10-205. +Car+Adm. A patient who underwent coronary bypass grafting several months ago has been intolerant of all medications for cholesterol lowering. However, on the recommendation of a friend, he began taking red yeast rice that he purchased at a natural healing store. His cholesterol level has improved with this product and he has tolerated it so far. You should consider monitoring which one of the following in this patient, based on the active ingredient in red yeast rice? A) WBC count B) Platelet count C) Prothrombin time D) Liver enzymes E) Kidney function tests	Cholesterol. **10-205.** **Red yeast rice (*Monascus purpureus*)** is a widely available dietary supplement that has been used as an herbal medication in China for centuries. **ANS=D. In recent years it has been used for alternative management of hyperlipidemia in the U.S.** Extracts of red yeast rice **contain several active ingredients**, including monacolin K and other monacolins, **that have HMG-CoA reductase inhibitory activity and are considered to be naturally occurring forms of lovastatin. Red yeast rice extract lowers total cholesterol, LDL-cholesterol, and triglycerides.** It may be useful for patients unable to tolerate statins due to myalgias, but **requires periodic monitoring of liver enzymes** because its metabolic effects and potential for consequences are similar to those of statins.
09-049. +Res+Csp. Which one of the following is the most likely cause of chronic unilateral nasal obstruction in an adult? A) Nasal septal deviation B) Foreign-body impaction C) Allergic rhinitis D) Adenoidal hypertrophy	Chronic unilateral nasal obstruction. **09-049.** Ans=A. **The most common cause of nasal obstruction in all age groups is the common cold**, which is classified as mucosal disease. Anatomic abnormalities, however, are **the most frequent cause of constant unilateral obstruction, with septal deviation being most common**. Foreign-body impaction is an important, but infrequent, cause of unilateral obstruction and purulent rhinorrhea. Mucosal disease is usually bilateral and intermittent. Adenoidal hypertrophy is the most common tumor or growth to cause nasal obstruction, followed by nasal polyps, but both are less frequent than true anatomic causes of constant obstruction.
07-234. +Res+Adm. A 57-year-old male presents with a 1-week history of cough and fever. His WBC count is 13,000/mm3 (N 4300–10,800) and a chest radiograph reveals a left lower lobe infiltrate. The community has recently had multiple cases of infection with the BI/NAP1 strain of *Clostridium difficile*. Which one of the following would be the most appropriate initial therapy in this patient? A) A penicillin B) A macrolide C) A quinolone D) A cephalosporin E) Metronidazole (Flagyl)	*Clostridium difficile* colitis**. 07-234.** *Pneumonia; Clostridium difficile* colitis **prevention in pneumonia patients. ANS=B.** Penicillins, cephalosporins, and quinolones are highly associated with *Clostridium difficile* colitis, but macrolides are not. Metronidazole would not be an appropriate treatment for pneumonia. Hint: **M**acrolides: **A**zithromycin, **C**larithromycin, **E**rythromycin (Think of **MAC Eats MacDonald's**). **Aminoglycosides: G**entamicin, **N**eomycin, **A**mikacin, **T**obramycin, **S**treptomycin. **"Mean" GNATS** cannot kill anaerobes.
08-132. +Gas+Adm. A 54-year-old white female has been taking amoxicillin for 1 week for sinusitis. She has developed diarrhea and has had 6–8 stools per day for the past 2 days. Examination shows the patient to be well hydrated with normal vital signs and a normal physical examination. The stool is positive for occult	*Clostridium difficile* colitis**. 08-132. ANS=B.** Many antibiotics can induce pseudomembranous colitis. Although oral vancomycin was once the initial drug of choice for *C. difficile*, oral metronidazole is now the first-line agent because of cost considerations and because of concerns about the development of

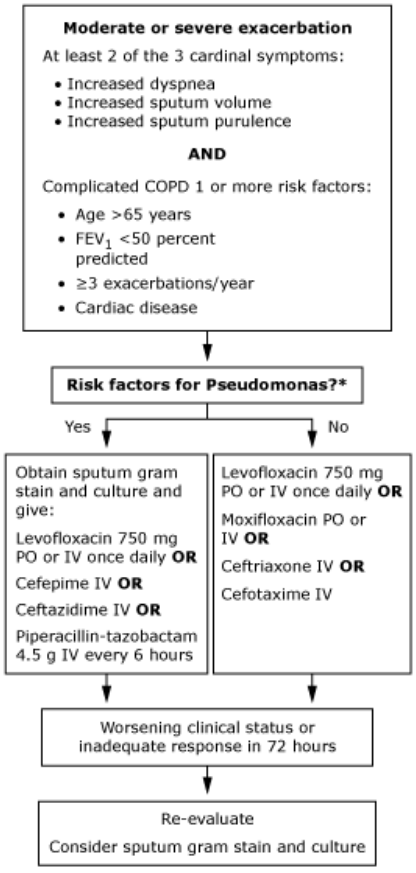
blood, and a stool screen for *Clostridium difficile* toxin is positive. The most appropriate treatment at this time would be A) vancomycin (Vancocin) intravenously B) metronidazole (Flagyl) orally C) trimethoprim/sulfamethoxazole (Bactrim, Septra) orally D) ciprofloxacin (Cipro) orally	vancomycin-resistant organisms. If the patient has refractory symptoms despite treatment with oral metronidazole, then oral vancomycin would be appropriate.
09-176. +Gas+Adm. A 70-year-old African-American male who has been hospitalized for 2½ weeks for heart failure develops severe, persistent diarrhea. For the past 3 days he has had abdominal cramps and profuse, semi-formed stools without mucus or blood. The patient's current medications include captopril (Capoten), digoxin, furosemide (Lasix), subcutaneous heparin, spironolactone (Aldactone), and loperamide (Imodium). He has coronary artery disease, but has been relatively pain free since undergoing coronary artery bypass surgery 4 years ago. An appendectomy and cholecystectomy were performed in the past, and the patient has since been free of gastrointestinal disease. On physical examination his blood pressure is 100/80 mm Hg, pulse 100 beats/min and regular, and temperature 37.0°C (98.6°F). He has mild jugular venous distention and crackles at both lung bases. Examination of his heart is unremarkable, although there is 1+ dependent edema. His abdomen is diffusely tender without masses or organomegaly. Findings on a rectal examination are normal. The results of routine laboratory tests, including a CBC, chemistry profile, EKG, and urinalysis, are all normal. The stool examination shows numerous white blood cells. Of the following, the most likely diagnosis is A) viral gastroenteritis B) *Clostridium difficile* colitis C) ulcerative colitis D) gluten-sensitive enteropathy (celiac sprue) E) digoxin toxicity	*Clostridium difficile*. **09-176. ANS=B.** This patient most likely has *Clostridium difficile* colitis, suggested by semiformed rather than watery stool, fecal leukocytes (not seen in viral gastroenteritis or sprue), and a hospital stay greater than 2 weeks. While this disease has traditionally been associated with antibiotic use, it is posing an increasing threat to patients in hospitals and chronic-care facilities who have not been given antibiotics. The primary sources for infection in such cases have been toilets, bedpans, floors, and the hands of hospital personnel. Prompt recognition and treatment is essential to prevent patient relapse and to minimize intramural epidemics. The diarrhea of ulcerative colitis usually contains blood and occurs intermittently over a protracted course. Digoxin toxicity is likely to be accompanied by electrocardiographic and laboratory abnormalities, particularly hyper- or hypokalemia.
10-212. +Gas+Adm.>L* A 68-year-old male was seen in a local urgent-care clinic 6 days ago for upper respiratory symptoms and was started on cefuroxime (Ceftin). He presents to your office with a 2-day history of 4–5 watery stools per day with no blood or mucus. He is afebrile and has a normal abdominal and rectal examination. A stool guaiac test is negative, and a stool sample is sent for further testing. What is the best initial management for this patient? A) Stop the cefuroxime B) Start ciprofloxacin (Cipro) C) Start metronidazole (Flagyl) D) Start loperamide (Imodium) E) Recommend probiotics until he completes the course of cefuroxime	*Clostridium difficile*. **10-212.** Diarrhea**,** *Clostridium difficile*–associated. **ANS=A.** This patient is at high risk for *Clostridium difficile*–associated diarrhea, based on his age and his recent broad-spectrum antibiotic use. The initial management is to stop the antibiotics. Treatment should not be initiated unless the stool is positive for toxins A and B. The recommended initial treatment for *C. difficile* enteritis is oral metronidazole. Probiotics may be useful for prevention, but their use is controversial. Loperamide should be avoided, as it can slow down transit times and worsen toxin-mediated diarrhea.
07-006. +Gas+Adm. A 35-year-old white female presents to your office with a history of three episodes of intense right upper quadrant pain over the last few weeks. Each attack developed a few hours after her evening meal, lasted 1–2 hours, and was accompanied by nausea. Between episodes she feels fine. She went to the emergency department after the third episode, and blood tests and a sonogram of the gallbladder were negative. Which one of the following would you recommend? A) Weight loss through a combination of diet and exercise B) A low-fat diet C) A nuclear scan of the gallbladder D) A CT scan of the abdomen E) Endoscopic retrograde cholangiopancreatography (ERCP)	Colic, biliary. **07-006.** gallbladder; biliary dyskinesia**. ANS=C.** This patient has biliary colic but does not have gallstones. Most such patients have biliary dyskinesia, which can be assessed well by a nuclear scan of the gallbladder with injection of cholecystokinin. Although some controversy exists with regard to this problem, confirmed cases tend to have a good response to cholecystectomy.
07-115. +Gas+Cca. A 3-month-old male is brought to your office by his exhausted parents. The child is bottle fed with cow's milk formula. For the past 3 weeks he has cried uncontrollably for several hours most evenings. He refuses the bottle and cannot be distracted. There has been no vomiting, although he frequently "spits up" when carried, rocked, or burped. His mother describes 2–3 normal bowel movements a day. Your examination is unremarkable. The child is gaining weight appropriately. The most likely diagnosis is A) pyloric stenosis B) annular pancreas C) infantile colic D) Hirschsprung's disease E) casein allergy	Colic, infantile. **07-115. ANS=C.** The most widely accepted definition of infantile colic is the **Wessel definition, which describes colic as "unexplained paroxysmal bouts of fussing and crying that lasted >3 hours a day, for >3 days a week, for >3 weeks duration."** The **absence of vomiting** and the **normal stools** make the other diagnoses unlikely.
08-192. +Gas+Cca. Current thinking regarding infantile colic is that the cause is A) malabsorption B) overfeeding C) excessive air swallowing D) unknown E) parental anxiety	Colic, infantile. **08-192.** Colic is a frustrating condition for parents and doctors alike. **ANS=D.** The parents would like an explanation and relief, and physicians would like to offer these things. At this time, however, in spite of numerous studies and theories, the cause of colic remains unknown.
07-109. +Gas+Pbc+Com. A 57-year-old male has laboratory screening performed prior to his annual examination. One of his six fecal occult blood tests is positive. A CBC, chemistry panel, lipid panel, and prostate-specific antigen level are all normal. Which one of the following would be the most appropriate course of action? A) Repeat the fecal occult blood testing in 3 months B) Perform a rectal examination in the office, and if a stool guaiac is negative repeat the fecal occult blood testing in 3 months C) Refer for colonoscopy D) Refer for flexible sigmoidoscopy E) Refer for pre- and post-contrast CT of the abdomen and pelvis	Colon cancer. **07-109.** recommendations. **ANS=C. Asymptomatic persons between 50 and 80 years of age should be screened for colon cancer**. A single fecal occult blood test (FOBT) performed in the office after a digital rectal examination is an inadequate screen, with significant false-negative and false-positive rates. Annual six-sample FOBT (two samples from three different bowel movements) improves colon cancer detection but can still have false-negative results. **If any of the six samples tests positive for occult blood, colonoscopy is recommended.**
07-120. +Pbc+Adm. A 58-year-old white male has a negative screening colonoscopy. He has no symptoms and no family history of colon carcinoma. His next screening colonoscopy should be scheduled in A) 1 year B) 3 years C) 5 years D) 10 years	Colon cancer. **07-120.** recommendations; **ANS=D.** The evidence supports a 10-year interval for colonoscopy in patients less than 80 years old. For patients **with a family history of colon cancer a 5-year interval is recommended, or 3 years if benign polyps are found.** Screening in patients over 80 years old is controversial.
08-201. +Gas+Csp. A 53-year-old male presents for follow-up after a routine screening colonoscopy. He is healthy and takes no medications, and his family history is negative for colon cancer. During a thorough, relatively easy colonoscopy to the cecum, two rectal polyps measuring 0.7 mm were removed, both of which were found to be hyperplastic on pathologic analysis. His next	Colon cancer. **08-201.** Risk factors for proximal neoplasia include high-grade dysplasia, three or more adenomas, adenomas with villous features, and an adenoma ≥1 cm in size. **ANS=E.** For patients with one or more of these findings, follow-up colonoscopy in 3 years is recommended. **The clinical benefit of follow-up surveillance colonoscopy in patients with one or two small**

surveillance colonoscopy should be in A) 1 year B) 3 years C) 5 years D) 7 years E) 10 years	**adenomas has never been demonstrated.** Distal hyperplastic polyps are not markers for proximal or advanced neoplasia. Patients with this finding on colonoscopy should be considered to have a normal colonoscopy and the interval until the next colonoscopy should be 10 years.
09-092. +Gas+Adm. A 55-year-old male is found to have three hyperplastic polyps on a routine screening colonoscopy. He has no personal or family history of colon cancer. This patient's next colonoscopy should be in A) 1 year B) 3 years C) 5 years D) 10 years	Colon cancer. **09-092.** screening, recommendations. **ANS=D.** Colonoscopy is the gold standard for screening for colon cancer. Because of differences in recommended screening intervals, the American Cancer Society and the U.S. Multi-Society Task Force on Colorectal Cancer issued recommendations for follow-up in 2006 to bring some uniformity to the guidelines. **Patients with hyperplastic polyps are considered to have normal colonoscopy findings and can be followed up in 10 years, unless they have hyperplastic polyposis syndrome.** Patients with one or two small adenomas (<1 cm, with no- or low-grade dysplasia) are considered at low risk and can be followed up in 5–10 years, depending on family history, previous colonoscopy findings, and patient and physician preference. Patients with three or more small adenomas, or one adenoma >1 cm3 in size should be followed up in years if the adenomas are completely removed. Patients who have had a sessile adenoma removed piecemeal should have repeat colonoscopy in 2–6 months to make sure that the polyp has been completely removed. Other factors that influence the screening interval include the quality of the preparation and the ability of the physician to see the entire colon. Although this patient had three hyperplastic polyps removed, he is at low risk for colon cancer and should have repeat screening at the normal 10-year interval.
10-032P. +Gas+Csp.**?** On his first screening colonoscopy, a 67-year-old male is found to have a 0.5-cm adenomatous polyp with low-grade dysplasia. According to current guidelines, when should this patient have his next colonoscopy? A) 6 months B) 1 year C) 3 years D) 5 years E) Screening is no longer necessary	Colon cancer. **10-032.** colonoscopy**. ANS=D.** Overuse of colonoscopy has significant costs. In response to these concerns, the American Cancer Society and the U.S. Multi-Society Task Force on Colorectal Cancer collaborated on a consensus guideline on the use of surveillance colonoscopy. According to these guidelines, **patients with one or two small (<1 cm) tubular adenomas, including those with only low-grade dysplasia, should have their next colonoscopy in 5–10 years** (SOR B).
10-127. +Gas+Csp.>L* Screening for colon cancer would be recommended for which one of the following patients? A) A 35-year-old male whose mother was diagnosed with colon cancer at age 52 B) A 40-year-old female whose mother was diagnosed with colon cancer at age 54 C) A 44-year-old female whose father had a tubular adenoma <1 cm in size removed during colonoscopy at age 50 D) A 46-year-old male whose paternal uncle was diagnosed with colon cancer at age 51 E) A 48-year-old female whose father was diagnosed with colon cancer at age 74	Colon cancer. **10-127. ANS=B.** A history of a first degree relative diagnosed with colon cancer before age 60 predicts a higher lifetime incidence of colorectal cancer (CRC) and a higher yield on colonoscopic screening. The overall colon cancer risk for these persons is three to four times that of the general population. Screening should consist of colonoscopy, beginning either at age 40 or 10 years before the age at diagnosis of the youngest affected relative, whichever comes first. The 2008 update of the guidelines on screening for CRC published by the American College of Gastroenterology no longer recommends earlier screening for patients who have a single first degree relative with CRC diagnosed at 60 years of age or after. Another change in this guideline is that an increased level of screening is no longer recommended for a simple family history of adenomas in a first degree relative.
07-197. +Pbs+Mac. A pregnant 20-year-old female is diagnosed with a *Chlamydia* infection. She is treated and the infection is cured, but she tests positive again at a follow-up visit. In this situation, contacting her sexual partners is considered a reasonable breach of confidentiality because A) there is a public health risk B) there is a risk to the fetus C) the patient's *Chlamydia* infection has become resistant to antibiotics D) there is a risk of pelvic inflammatory disease	Confidentiality. **07-197. ANS=A.** There are three situations when a breach of confidentiality is justified: abuse of a vulnerable person (child or elderly), a public health risk (communicable disease), or substantial danger to the patient or others. While *Chlamydia* is not usually considered life-threatening or dangerous, it is communicable. Contacting sexual partners to notify and treat them to stem the spread of disease is recommended.
10-170. +End+Euc. A mother brings her 2-month-old infant to the emergency department because of profuse vomiting and severe diarrhea. The infant is dehydrated, has a cardiac arrhythmia, appears to have ambiguous genitalia, and is in distress. This presentation suggests a diagnosis of A) acute gastroenteritis B) hypertrophic pyloric stenosis C) congenital adrenal hyperplasia D) congenital intestinal malrotation E) Turner's syndrome	Congenital adrenal hyperplasia. **10-170.** Congenital adrenal hyperplasia is a family of diseases caused by an inherited deficiency of any of the enzymes necessary for the biosynthesis of cortisol. **ANS=C.** In patients with the salt-losing variant, symptoms begin shortly after birth with failure to regain birth weight, progressive weight loss, and dehydration. Vomiting is prominent, and anorexia is also present. Disturbances in cardiac rate and rhythm may occur, along with cyanosis and dyspnea. In the male, various degrees of hypospadias may be seen, with or without a bifid scrotum or cryptorchidism.
07-051. +Pbc+Cca. A 7-year-old African-American male is brought to your office with a 1-day history of purulent, crusted eyelashes in the morning, and red eye. There is no history of visual change, foreign body, or injury. The child is otherwise in good health and has normal developmental milestones. No fever or respiratory distress is noted. A clinical diagnosis of bacterial conjunctivitis is made. The mother is anxious to keep the child in school. Which one of the following would be the most appropriate time for the child to return to school? A) Once treatment is started B) When there is no crusting or drainage in the morning C) After 1 week of treatment D) When the absence of fever for 24 hours is documented E) When there is resolution of conjunctival erythema	Conjunctivitis. **07-051.** bacterial. **ANS=A.** **Once therapy is initiated, children with bacterial conjunctivitis should be allowed to remain in school**. Careful hand hygiene is important, however, and behavior must be appropriate to maintain adequate hygiene. No specific length of treatment or evidence of clinical response is required before returning to school.
07-082. +Pbs+Com. One year after being diagnosed with early Alzheimer's disease, one of your long-time patients develops symptomatic carotid stenosis. A vascular surgeon has recommended surgical treatment, but the patient's family is	Consent. **07-082.** Decision-making capacity. The **primary care physician can assess a patient's decision-making capacity based on ability to reason, communicate, understand the proposed treatment, and grasp the**

uncertain whether he should have the surgery or whether he is capable of making the decision. The children are evenly split in their opinion regarding the surgery, and they ask your opinion about this decision. Which one of the following is true regarding this situation? A) The patient is incapable of making this decision because of his dementia B) The Mini-Mental State Examination score determines competence C) The patient should be evaluated by a psychiatrist D) A judicial determination of competence should be obtained E) The patient's decision-making capacity can be adequately assessed by clinical evaluation	**consequences of accepting or declining the suggested treatment. ANS=E.** Formal mental status testing and determination of capacity are different functions. However, there is a certain level of cognitive impairment where a patient simply lacks any ability to receive and process health information. At somewhat higher levels of cognition a patient might lack specific mental abilities, but still be able to satisfy the requirements for making treatment decisions. Accurate mental status testing is helpful for assessing the capacity to choose; however, there is not a specific score that determines capacity. Determination of capacity does not require legal intervention or psychiatric expertise. There is no specific test for decision-making capacity. Competence is a legal term in this situation. Decisions regarding competence are judicial determinations when evaluating the capacity of a person to make nonmedical decisions such as financial decisions. Under the law, adults are presumed to be competent until a specific action of the appropriate court finds them otherwise.
08-114. +Pbc+Euc. A 7-year-old male is hospitalized after sustaining abdominal trauma in an accident. The child is conscious. His pulse rate is 150 beats/min, his systolic blood pressure is palpated at 60 mmHg, and his respiratory rate is 40/min. His hemoglobin level is 4.0 g/dL because of trauma-related blood loss. His clinical condition is deteriorating despite an infusion of intravenous volume expanders, but the parents are Jehovah's Witnesses and refuse to consent to a blood transfusion because of their religious convictions. Your prognosis is that without a blood transfusion the patient will die. According to medical-legal precedent, which one of the following is correct? A) The patient should receive the transfusion regardless of the parents' wishes B) The patient can be transfused regardless of the parents' wishes once he becomes asystolic C) The parents may refuse the transfusion if they are in agreement D) The parents may refuse the transfusion if the patient identifies himself as a Jehovah's Witness E) The parents may refuse the transfusion if there is a legally executed advance directive	Consent. **08-114. ANS=A.** The refusal to accept any medical intervention, including life-saving blood transfusions, has been well established for adults who have the ability to definitively communicate their wishes. Also, parents have the power to give or withhold consent to medical treatment on behalf of their children. However, Western courts have deemed that parents cannot refuse emergency, life-saving treatment to children based on these principles: (1) the child's interests and those of the state outweigh parental rights to refuse medical treatment; (2) parental rights do not give parents life and death authority over their children; and (3) parents do not have an absolute right to refuse medical treatment for their children, if that refusal is regarded as unreasonable.
09-202. +Pbs+Com. In which one of the following scenarios would additional consent from a child's parent or guardian be necessary prior to treatment? A) A 6-year-old female with divorced parents who lives primarily with her mother is brought to the clinic by her father to discuss his concerns of possible abuse B) An 8-year-old unconscious male is brought to the emergency department by a neighbor after falling out of a tree and striking his head C) A 13-year-old male is brought to the clinic by a babysitter with a note giving permission to treat signed by a parent D) A 15-year-old female who is considered emancipated under state law comes to your office to discuss family planning E) A 16-year-old female who has driven herself to her clinic appointment reports a 2-day history of ear pain; she says her mother made this appointment for her	Consent. **09-202.** Informed consent. **ANS=E.** Informed consent to treat is considered an important ethical and legal part of caring for children and adolescents. Some situations can become confusing when trying to balance the need for treatment, a child's assent, and a parent or guardian's permission. In most states, 18 is the age when legal decisions can be made; however, in some states it is 21. Children under the age of majority must have proof of permission to treat from a parent or guardian for non-emergent care. This does not apply to emergency situations in which a delay in care could result in serious harm. Another exception to parental consent is when a child is considered emancipated under state law. This can happen with a court order, or (in some states) if the child is married, is a parent, is in the military, or is living independently. Either biologic parent can consent to treatment unless one of them is explicitly denied guardianship. If a child presents with a non-emergent condition and does not have evidence of permission from a parent or guardian, permission should be sought before the physician interaction takes place.
10-137. +Pbs+Mhe. When obtaining informed consent from a patient, which one of the following is NOT required for a patient to legally have decision-making capacity? A) The absence of mental illness B) The ability to express choice C) The ability to understand relevant information D) The ability to engage in reasoning E) The ability to appreciate the significance of information and its consequences	Consent. **10-137.** Decision-making capacity**. ANS=A. Patients with mental illness may have decision-making capacity if they are able to understand and communicate a rational decision.** The key factors to consider in determining decision-making capacity include whether the patient can express a choice, understand relevant information, appreciate the significance of the information and its consequences, and engage in reasoning as it relates to medical treatment.
07-013. +Gas+Cca. A 6-year-old male is brought to your office with abdominal pain of 6 months' duration. He has a history of constipation, with passage of hard, large-caliber stools approximately once a week. Encopresis also is a problem, with accidental passage of loose stool. His general examination is negative, but he and his mother refuse to allow a digital rectal examination. He does have a normal anal wink and cremasteric reflex. Which one of the following tests would be most appropriate at this time? A) CT of the abdomen B) Ultrasonography C) A barium enema D) An abdominal plain film E) Referral for pediatric colonoscopy	Constipation. **07-013.** Functional**. ANS=D.** A child passing infrequent, large-caliber stools, often with fecal soiling, suggests functional constipation. Encopresis often results from passage of loose stool around hardened stool in the rectal vault. A physical examination will sometimes reveal palpable stool in the left lower quadrant. If possible, a digital rectal examination should be done. If this isn't possible, a plain-film abdominal radiograph will likely reveal a fecal impaction. A CT scan and a barium enema are not as helpful. Functional constipation can be managed without colonoscopy. Constipation in children older than 1 year of age is functional in more than 95% of cases. However, causes of organic constipation include Hirschsprung's disease, hypothyroidism, hypercalcemia, hypokalemia, diabetes mellitus, diabetes insipidus, cystic fibrosis, gluten enteropathy, spinal cord lesions, neurofibromatosis, heavy metal poisoning, medication side effects, developmental delay, and sexual abuse.
07-225. +Gas+Adm. A 69-year-old white male with severe chronic low back pain is treated with oxycodone, 80 mg twice daily and 15 mg every 4 hours for breakthrough pain. Which one of the following is the best initial regimen to prevent associated constipation? A) Docusate sodium/senna B) Sorbitol C) Lactulose D) Weekly enemas E) No prophylactic treatment	Constipation. **07-225. opiods. ANS=A. Patients taking opioids should receive prophylactic laxatives consisting of a stool softener (docusate sodium) and a bowel stimulant (senna),** as long as diarrhea is not present. If this measure fails, an osmotic agent, such as sorbitol or lactulose, should be added.
07-130. +Ref+Cfp. Which one of the following FDA-approved regimens interrupts a pregnancy once implantation has occurred? A) Levonorgestrel (Plan B), two 0.75-mg tablets taken 12 hours apart B) Ethinyl	Contraception. **07-130.** Emergency contraception refers to the use of medications to prevent pregnancy in the event of unprotected intercourse or failure of a method of contraception. **ANS=C**. Many emergency contraception regimens have been

estradiol/levonorgestrel, two 100 ug/0.75-mg doses taken 12 hours apart C) Mifepristone (RU-486), taken as a single dose D) Ethinyl estradiol/levonorgestrel, two 100 ug/0.5-mg doses taken 12 hours apart (the Yuzpe regimen) E) No currently approved regimen	studied and utilized. The mechanism of action for these regimens is uncertain and might include inhibiting ovulation, interfering with tubal transport, preventing implantation, or stimulating regression of the corpus luteum. Several regimens are approved for emergency contraception but must be used within 72 hours after unprotected intercourse to be effective. These regimens are not effective following implantation. **Mifepristone (RU-486) is the only FDA-approved regimen that interrupts a pregnancy after implantation has occurred.** It is used for early pregnancy termination, rather than emergency contraception.
07-194. +Ref+Cfp. Which one of the following is seen in patients receiving injectable depot medroxyprogesterone acetate (DMPA)? A) More regular and predictable menstrual periods B) Improvement in acne C) Fewer migraine headaches compared to patients using combination oral contraceptives D) Increased bone density E) Minor weight loss	Contraception. **07-194.** Depot medroxyprogesterone acetate (DMPA) is useful in women with contraindications to estrogen use (migraines, deep-vein thrombosis, cigarette smoking in those over age 35). **ANS=C.** Amenorrhea and irregular bleeding are the most common adverse effects of DMPA. Other side effects include irritability, depression, weight gain, hair loss, and acne. Acne and other skin problems are related to the drug's androgenicity. DMPA is associated with an increase in bone resorption and a significant reduction in bone mineral density, presumably due to the induction of estrogen deficiency. In women of normal weight, DMPA has been shown to cause no statistically significant change in weight; however, in obese adolescents using DMPA there is an increased likelihood of weight gain compared to oral contraceptives and nonhormonal contraception.
08-018. +Ref+Cfp. A 34-year-old female who delivered a healthy infant 18 months ago complains of a milky discharge from both nipples. She reports that normal periods have resumed since cessation of breastfeeding 6 months ago. She takes ethinyl estradiol/norgestimate (Ortho Tri-Cyclen) for birth control. A complete review of systems is otherwise negative. The most likely cause of the discharge is A) a medication side effect B) breast cancer C) a hypothalamic tumor D) hypothyroidism	Contraception. **08-018.** Galactorrhea**. ANS=A.** This patient has galactorrhea, which is defined as a milk-like discharge from the breast in the absence of pregnancy in a non-breastfeeding patient who is more than 6 months post partum. It is more common in women ages 20–35 and in women who are previously parous. It also can occur in men. Medication side effect is the most common etiology. **The most common pharmacologic cause of galactorrhea is oral contraceptives. Oral contraceptives that contain estrogen can both suppress prolactin inhibitory factor and stimulate the pituitary directly, both of which can cause galactorrhea.** Other medications that can cause galactorrhea include metoclopramide, cimetidine, risperidone, methyldopa, codeine, morphine, verapamil, SSRIs, butyrophenones, dopamine-receptor blockers, tricyclics, phenothiazines, and thioxanthenes. Breast cancer is unlikely to present with a bilateral milky discharge. The nipple discharge associated with cancer is usually unilateral and bloody. Pituitary tumors are a pathologic cause of galactorrhea due to the hyperprolactinemia that is caused by the blockage of dopamine from the hypothalamus, or by the direct production of prolactin. However, patients often have symptoms such as headache, visual disturbances, temperature intolerance, seizures, disordered appetite, polyuria, and polydipsia. Patients with prolactinomas often have associated amenorrhea. These tumors are associated with marked levels of serum prolactin, often >200 ng/mL. Hypothalamic lesions such as craniopharyngioma, primary hypothalamic tumor, metastatic tumor, histiocytosis X, tuberculosis, sarcoidosis, and empty sella syndrome are significant but infrequent causes of galactorrhea, and generally cause symptoms similar to those of pituitary tumors, particularly headache and visual disturbances. It is rare for primary hypothyroidism to cause galactorrhea in adults. Symptoms that would be a clue to this diagnosis include fatigue, constipation, menstrual irregularity, weight changes, and cold intolerance.
08-172. +Ref+Cfp. The American College of Obstetricians and Gynecologists and the American Academy of Pediatrics support the advance provision of drugs and instructions for emergency contraception to sexually active women, so that they have ready access to them if they are needed. The evidence shows that advance provision of emergency contraception A) decreases pregnancy rates on a population level B) decreases the time from unprotected sex to use of emergency contraception C) decreases contraception use by the patient prior to sexual activity D) increases rates of sexually transmitted infection E) increases rates of unprotected intercourse	Contraception. **08-172.** advance provision of emergency contraception. A Cochrane review including randomized, controlled trials (RCTs) compared standard access to emergency contraception (EC) with advance provision. The review found eight trials, five of which were conducted in the U.S. **ANS=B** Two of the RCTs were sufficiently powered to show a difference in pregnancy rates. No study showed that giving advance EC reduced pregnancy rates on a population level. However, women who were provided with advance EC took the pills an average of approximately 15 hours sooner than women without advance access. Five studies that reported on contraception use did not show a difference in type or frequency of regular contraception use among women who were provided advance EC. Women randomized to the advance EC groups were 2.5 times more likely to use EC once, and 4 times more likely to use it 2 or more times, compared to those without advance access. Three studies reported rates of sexually transmitted infection and none found differences between the advance and standard access EC groups. Six studies reported rates of unprotected sexual intercourse and found no difference. The Cochrane review concludes that advance access to EC appears to be safe, but does not reduce pregnancy on a population level. However, advance provision might be beneficial because it increases the speed and frequency of EC use.
10-065. +Ref+Cfp. A healthy 48-year-old female consults you about continuing the use of her estrogen/progestin oral contraceptives. She has regular menstrual periods, is not hypertensive or diabetic, and does not smoke. What advice would you give her? A) She should stop the oral contraceptives B) She should switch to a progestin-only pill C) She should discontinue the contraceptive for 1 month, and if FSH is then elevated to postmenopausal levels, the pills should be stopped D) She can safely continue to take the contraceptive if screening for	Contraception. **10-065. Healthy women may continue combination birth control pills into their fifties, and this patient has no contraindications. ANS=E.** Screening for thrombophilic conditions is not indicated due to the low yield. FSH levels are not specific enough to evaluate the effect of stopping the contraceptive.

thrombophilic conditions is negative E) It is safe to continue the oral contraceptives	
10-141. +End+Adm.**?** A 34-year-old female with a history of bilateral tubal ligation consults you because of excessive body and facial hair. She has a normal body weight, no other signs of virilization, and regular menses. Which one of the following is the most appropriate treatment for her mild hirsutism? A) Spironolactone (Aldactone) B) Leuprolide (Lupron) C) Prednisone D) Metformin (Glucophage)	Contraception. **10-141.** Hirsutism. **10-141. I**n premenopausal women. **ANS=A.** Antiandrogens such as spironolactone, along with oral contraceptives, are recommended for treatment of hirsutism in premenopausal women (SOR C). In addition to having side effects, prednisone is only minimally helpful for reducing hirsutism by suppressing adrenal androgens. Leuprolide, although better than placebo, has many side effects and is expensive. Metformin can be used to treat patients with polycystic ovarian syndrome, but this patient does not meet the criteria for this diagnosis.
10-035. +Psy+Mhe. A 31-year-old female who is a successful professional photographer complains of hoarseness that started suddenly 3 weeks ago. She says she can remember exactly what day it was, because her divorce became final the next day. The day the problem began, she was only able to whisper from the time she woke up, and she is able to speak only in a weak whisper while relating her history. She does not appear to strain while speaking. She does not smoke, has had no symptoms of an upper respiratory infection, and has no pain, cough, or wheezing. She is on a proton pump inhibitor prescribed by an urgent care provider 2 weeks ago. This has not changed her symptoms. She takes no other medications and has no known allergies. A head and neck examination, including indirect laryngoscopy, is within normal limits. Which one of the following is the most likely diagnosis? A) Muscle tension aphonia B) Laryngopharyngeal reflux C) Spasmodic dysphonia D) Vocal abuse E) Conversion aphonia	Conversion aphonia. **10-035. ANS=E.** This patient has conversion aphonia. In this condition, the patient loses his or her spoken voice, but the whispered voice is maintained. The vocal cords appear normal, but if observed closely by an otolaryngologist, there is a loss of vocal cord adduction during phonation, but normal adduction with coughing or throat clearing. This often occurs after a traumatic event (in this case a divorce) (SOR C). Muscle tension aphonia presents with strained, effortful phonation, vocal fatigue, and normal vocal cords. It is caused by excessive laryngeal or extralaryngeal tension associated with a variety of factors, including poor breath control and stress, for example. The patient with laryngopharyngeal reflux presents with a raspy or harsh voice. The hoarseness is usually worse early in the day and improves as the day goes by. There is usually associated heartburn, dysphagia, and/or throat clearing. The patient with spasmodic dysphonia (also known as laryngeal dystonia) has a halting, strangled vocal quality. It is a distinct neuromuscular disorder of unknown cause. Uncontrolled contractions of the laryngeal muscles cause focal laryngeal spasm. The hoarseness of vocal abuse is usually worse later in the day after effortful singing or talking. The history usually reveals vocal cord abuse, such as with an untrained singer or some other situation that increases demands on the voice. Nodules or cysts may be seen on the vocal cords with this condition.
07-153. +Res+Adm. Which one of the following is most effective in limiting the complications of COPD? A) Pneumococcal vaccination B) Smoking cessation C) Oral corticosteroids D) Albuterol E) Theophylline	COPD. **07-153.** Smoking cessation is the only intervention that has been shown to slow the progression of COPD and limit complications. **ANS=B.** Albuterol and theophylline will improve acute problems, but will not slow disease advancement. Corticosteroids are not indicated for chronic management. Although pneumococcal vaccine is administered frequently, there is very little evidence to support a direct benefit in preventing complications of COPD.
07-219. +Res+Adm. A 60-year-old white male comes to your office for evaluation of a chronic cough productive of large amounts of sputum, accompanied by dyspnea on exertion. He has smoked 2 packs of cigarettes a day for the past 40 years. The best diagnostic test for evaluating this problem is A) arterial blood gases B) a1-antitrypsin C) brain natriuretic peptide (BNP) D) CT of the chest E) spirometry	COPD. **07-219. ANS=E.** In patients with suspected COPD, the best diagnostic test is office spirometry. If the FEV1 /FVC ratio is <70% and the FEV1 is <80% of predicted, the patient has COPD. This generally occurs in mid- to late life. While cigarette smoking is the largest single risk factor, only 20% of smokers develop clinically significant COPD. The second most common risk factor is a1-antitrypsin deficiency, which causes 1% of cases. These patients present with cough, sputum production, and dyspnea on exertion. They often experience orthopnea soon after reclining, whereas patients with heart failure typically experience orthopnea several hours after reclining, when fluid mobilizes from the lower extremities.
08-038. +Res+Adm. A 66-year-old male smoker is being evaluated for a persistent cough and difficulty breathing. Spirometry confirms a fixed obstructive pathology with an FEV1 of about 50% of predicted for size and age. His oxygen saturation is 89%–90% on room air. Which one of the following would be most effective to prevent worsening of this patient's condition? A) A combined inhaled corticosteroid and long-acting B-agonist B) A long-acting anticholinergic agent C) Long-term oral corticosteroids D) Oxygen therapy E) Smoking cessation	COPD. **08-038. ANS=E.** This patient has moderate to severe COPD. Smoking cessation is the single most important therapeutic intervention in patients with this condition and should be a priority of care. No existing medications have been shown to modify the long-term decline in lung function that is typical of COPD, but smoking cessation does prevent this decline. Long-term use of oxygen in COPD patients who also have chronic, severe hypoxia (<88% saturation) can improve quality of life and prolong survival; however, oxygen cannot prevent further decline in lung function. Long-term use of oral corticosteroids is discouraged because of an unfavorable risk-to-benefit ratio.
08-182. +Rep+Adm. A 70-year-old male sees you because of slowly increasing problems with COPD. He has had frequent exacerbations requiring emergency department visits. He currently uses a tiotropium (Spiriva) inhaler once a day, as well as an albuterol (Proventil) inhaler, 2 puffs 4 times a day as needed. An examination shows decreased breath sounds throughout, and an oxygen saturation of 92%. Spirometry shows he has severe COPD (stage III); his FEV1 /FVC ratio is 65% of predicted and his FEV1 is 45% of predicted. The most reasonable change in treatment would be to add A) oxygen, 2 L/min while sleeping B) inhaled fluticasone (Flovent), 2 puffs twice daily C) oral low-dose prednisone daily D) oral theophylline (Uniphyl) twice daily	COPD. **08-182. ANS=B.** This patient is suffering from severe COPD (stage III) and has a history of frequent exacerbations. The addition of a corticosteroid inhaler for patients with severe disease has been found to significantly decrease the number of exacerbations, but has no effect on overall mortality. Side effects of oral candidiasis and easy bruising of the skin are increased. Continuous oxygen has been shown to improve overall mortality and endurance in patients with an oxygen saturation of 88% or less, but has not been shown to improve quality of life in those with mild hypoxemia or if used only at night. Oral prednisone has been shown to be effective when used to treat acute exacerbations, but when used on a chronic basis it is no more effective than corticosteroid inhalers. Chronic oral prednisone is also associated with significant side effects, and therefore is not generally recommended. Oral theophylline has not been shown to be of benefit in either preventing exacerbations or improving quality of life, and has significant side effects of gastrointestinal toxicity, seizures, and arrhythmias. It should be reserved for carefully selected patients only.
09-086. +Res+Adm. Which one of the following is recommended in the treatment of all four stages of COPD, from mild through very severe? A) Scheduled oral mucolytics such as N-acetylcysteine (Mucomyst) B) Scheduled inhaled corticosteroids such as fluticasone (Flovent HFA) C) Scheduled long-acting	COPD. **09-086. ANS=E. Short-acting bronchodilators such as albuterol and ipratropium are recommended on an as-needed basis for treatment of breathlessness in stage I (mild) COPD. They are also recommended for as-needed use in stage II (moderate), stage III (severe), and stage IV (very**

inhaled bronchodilators such as salmeterol (Serevent) D) Scheduled long-acting anticholinergics such as tiotropium (Spiriva) E) Short-acting inhaled B2-agonists such as albuterol (Ventolin HFA), as needed for dyspnea	**severe) COPD**. Long-acting bronchodilators such as salmeterol or tiotropium are recommended for stages II, III, and IV. Inhaled corticosteroids are recommended for stages III and IV. Mucolytics can be considered for stages III and IV.
09-152. +Res+Adm. The use of a corticosteroid inhaler in patients with stable chronic obstructive lung disease has been shown to A) increase the risk for osteoporotic fracture B) increase the risk for pneumonia C) produce no change in patients' perceptions of quality of life D) reduce overall mortality	COPD. **09-152.** COPD is the fourth leading cause of death in the United States. **ANS=B.** Stopping smoking and the use of continuous oxygen, when necessary, are the main interventions that have been shown to lessen overall mortality in this illness. **The use of corticosteroid inhalers for COPD has received mixed reviews. Studies show an increase in the incidence of pneumonia, which is directly related to the dosage**. There are also **concerns about the potential for an increase in fractures**; however, a meta-analysis of multiple studies has not shown this to be the case. There has been no improvement in overall mortality with the use of the corticosteroidinhalers; nevertheless, on questionnaires patients indicate an improvement in quality of life and fewer bronchitis exacerbations.
10-004. +Res+Adm.**?*** A 52-year-old female with a 60-pack-year history of cigarette smoking and known COPD presents with a 1-week history of increasing purulent sputum production and shortness of breath on exertion. Which one of the following is true regarding the management of this problem? A) Antibiotics should be prescribed B) Intravenous corticosteroids are superior to oral corticosteroids C) Inhaled corticosteroids should be started or the dosage increased D) Levalbuterol (Xopenex) is superior to albuterol E) Acetylcysteine should be given if the patient is hospitalized	COPD. **10-004. Antibiotic use in moderately or severely ill patients with a COPD exacerbation reduces the risk of treatment failure or death, and may also help patients with mild exacerbations**. **ANS=A.** Brief courses of systemic corticosteroids shorten hospital stays and decrease treatment failures. Studies have not shown a difference between oral and intravenous corticosteroids. Inhaled corticosteroids are not helpful in the management of an acute exacerbation. Levalbuterol and albuterol have similar benefits and adverse effects. Acetylcysteine, a mucolytic agent, has not been shown to be helpful for routine treatment of COPD exacerbations. **Uptodate:** Antibiotic treatment of acute exacerbations of COPD in hospitalized patients:  * Pseudomonas risk factors: - Frequent administration of antibiotics (4 or more courses over the past year). - Recent hospitalization (2 or more days' duration in the past 90 days). - Isolation of Pseudomonas during a previous hospitalization. - Severe underlying COPD (FEV1 <50 percent predicted)
10-080. +Res+Adm. A 60-year-old female with moderate COPD presents with ongoing dyspnea in spite of treatment with both an inhaled long-acting B-agonist and a long-acting anticholinergic agent. Your 2 evaluation reveals an oxygen saturation of 88% and a PaO of 55%. Echocardiography reveals a normal ejection fraction but moderate pulmonary hypertension. Which one of the following would be most appropriate at this time? A) No changes in the current medical regimen B) Supplemental oxygen C) Low-dose sildenafil (Revatio) D) Nifedipine (Procardia)	COPD. **10-080. ANS=B.** This patient with moderate COPD and moderate nonpulmonary arterial hypertension pulmonary hypertension is hypoxic and meets the criteria for use of supplemental oxygen (SOR A). Sildenafil and nifedipine are utilized in pulmonary arterial hypertension, but evidence is lacking for their use in pulmonary hypertension associated with chronic lung disease and/or hypoxemia. Low-dose prednisone may be a future option.

E) Low-dose prednisone	
10-209. +Res+Adm.>L A 55-year-old male presents to your office for evaluation of increasing dyspnea with exertion over the past 2 weeks. He has smoked 2 packs of cigarettes per day since the age of 20. He has had a chronic cough for years, along with daily sputum production. He was given an albuterol inhaler for wheezing in the past, which he uses intermittently. On examination he has a severe decrease in breath sounds, no evidence of jugular venous distention, no cardiac murmur, and no peripheral edema. A chest film shows hyperinflation, but no infiltrates or pleural effusion. 1 Office spirometry shows that his FEV is only 55% of the predicted value. You consider using inhaled corticosteroids as part of the treatment regimen for this patient. This has been shown to A) increase cataract formation B) increase the incidence of fracture C) increase the risk of pneumonia D) slow the progression of the disease E) improve overall mortality from the disease	COPD. **10-209.** COPD has several symptoms, including poor exercise tolerance, chronic cough, sputum production, dyspnea, and signs of right-sided heart failure. **ANS=C.** The most common etiology is cigarette smoking. A patient with any combination of two of these findings, such as a 70-pack-year history of smoking, decreased breath sounds, or a history of COPD, likely has airflow obstruction, defined as an FEV1 ≤60% of the predicted value. In stable COPD, treatment is reserved for patients who have symptoms and airflow obstruction. Treatment options for monotherapy are all similar in effectiveness and include long-acting inhaled anticholinergics, long-acting B-agonists, and inhaled corticosteroids. Inhaled corticosteroids will not reduce mortality or affect long-term progression of COPD. However, they do reduce the number of exacerbations and the rate of decline in the quality of life. There appears to be no increase in cataract formation or rate of fracture. These agents do have side effects, including candidal infection of the oropharynx, hoarseness, and an increased risk of developing pneumonia.
10-232. +Res+Adm.* A 56-year-old female has a 35-pack-year smoking history. She is concerned that she may have COPD, although she has no history of chronic cough, chest pain, or other pulmonary symptoms. Her family history is remarkable for a mother with COPD who was a smoker, but there is no family history of a1-antitrypsin disease. Which one of the following would you recommend with regard to screening spirometry? A) Screening, based on her age B) Screening, based on her family history C) Screening, based on her smoking history D) No screening, based on lack of benefit	COPD. **10-232.** COPD is the fourth leading cause of death in the United States. **ANS=D.** The diagnosis is made by documenting airflow obstruction in the presence of symptoms and/or risk factors. Airflow limitation cannot be accurately predicted by the history and examination. The U.S. Preventive Services Task Force recently concluded that there is "moderate certainty" that screening asymptomatic patients for COPD using spirometry has little or no benefit and is not recommended. This recommendation applies to otherwise healthy individuals without a family history of a1-antitrypsin disease.
07-162. +Car+Com. Coronary arteriography would be indicated for which one of the following? A) A 45-year-old policeman with intermittent chest discomfort suggestive of angina pectoris who has a negative exercise stress test B) A 38-year-old asymptomatic bank officer with a family history of "heart disease" who is to undergo hernia repair C) A 72-year-old female with hypertension, asymptomatic PVCs on EKG, hyperlipidemia for which she refuses treatment, and worsening of her longstanding esophageal reflux pain D) A 57-year-old anxious female with sharp anterior chest pain and a mid-systolic click and murmur	Coronary arteriography. **07-162. I**ndication. **ANS=A. Patients with careers that involve the safety of others (e.g., police officers and pilots) who have questionable symptoms and nondiagnostic stress testing, with reasonable doubt about significant coronary artery disease, are candidates for arteriography.** A young male in otherwise good health does not need additional cardiac evaluation. Exercise stress testing might be indicated for the patient with worsening of her typical pain if her symptoms are unexplained by evaluation of the gastrointestinal tract. Patients with mitral valve prolapse do not usually require catheterization for diagnosis of chest pain.
10-009. +Car+Adm. Which one of the following is the recommended duration of dual antiplatelet therapy after placement of a drug-eluting coronary artery stent? A) 1 week B) 1 month C) 2 months D) 3 months E) 1 year	Coronary artery stent. **10-009. ANS=E.** The recommended duration of dual antiplatelet therapy following placement of a drug-eluting coronary artery stent is 1 year (SOR C). The recommended dosages of dual antiplatelet therapy are aspirin, 162–325 mg, and clopidogrel, 75 mg, or prasugrel, 10 mg. Ticlopidine is an option for patients who do not tolerate clopidogrel or prasugrel. The minimum recommended duration of dual antiplatelet therapy is 1 month with bare-metal stents, 3 months with sirolimus-eluting stents, and 6 months with other drug-eluting stents.
08-153. +Res+Cca. Which one of the following is recommended for the treatment of cough and cold symptoms in children younger than 2 years of age? A) Cough suppressants and humidified air B) Intranasal decongestants C) Nonsedating antihistamines and decongestants D) Nasal saline with bulb suction E) Antibiotics and hydration	Cough and cold products. **08-153.** Cough and cold in children **< 2y/o. ANS=D.** No medication available in the United States has been shown to effectively treat cough or cold symptoms in children younger than 2 years of age. However, many agents are commonly prescribed despite reports of numerous minor, and some serious, adverse effects. For this reason, the American Academy of Pediatrics and the American Academy of Family Physicians recommend using only nasal saline, bulb suction, humidified air, and good hydration in children younger than 2 years of age.
10-118. +Res+Cca.* The FDA recommends that over-the-counter cough and cold products not be used in children below the age of A) 1 year B) 2 years C) 3 years D) 4 years E) 5 years	Cough and cold products. **10-118. ANS=B.** In 2008 the FDA issued a public health advisory for parents and caregivers, recommending that over-the-counter cough and cold products not be used to treat infants and children younger than 2 years of age, because serious and potentially life-threatening side effects can occur from such use. These products include decongestants, expectorants, antihistamines, and antitussives.
07-007. +Pbs+Com+Cel. An elderly female who has been your patient for several years is discovered lying on the floor of her kitchen by a Meals-on-Wheels volunteer. She is transported to the hospital in an unresponsive state. After a thorough evaluation, you diagnose a massive cerebral infarct. On several previous occasions the patient verbalized to you her desire to not be subjected to life-prolonging treatments should she ever be rendered incapacitated; however, she declined your suggestion that she confirm this in writing. The patient is admitted to the hospital with "do not resuscitate" (DNR) orders and supportive measures are instituted. A neurology consultant evaluates her and agrees that her condition is terminal and irreversible. The patient's nephew is angered by the DNR status and, noting that she has Medicare coverage, demands every medical treatment that might prolong his aunt's life, including resuscitation. Which one of the following would be the best course of action in terms of legality and ethics? A) Institution of aggressive medical therapies, including full resuscitation in the event of cardiac	CPR. **07-007.** Futile treatments. **ANS=D.** An adult patient or their legally authorized representative has the right to refuse any medical treatment, regardless of its likelihood of success; however, there is no legal right to receive any and all treatment demanded. When patients have explicit advance directives in writing, their wishes are clear. **When no written document exists, but the patient's desire is well known to his or her physician, the physician is ethically bound to honor these wishes.** This **responsibility must be balanced against the physician's ethical obligation not to perform futile treatments of no benefit to the patient.** A family member acting as a medical decision-making proxy is obligated to represent what they believe to be the patient's wishes, even in the face of conflict with their personal beliefs. This case highlights two commonly encountered issues: **honoring the patient's wishes when there is conflicting evidence of what their wishes may be, and withholding medically futile treatment.** In this case, the futility of the patient's condition overrides any

arrest and ventilator support in the event of respiratory arrest B) Continuation of a supportive treatment plan, provided full resuscitation is initiated in the event of cardiac arrest and ventilator support is provided in the event of respiratory arrest C) Performance of full CPR for cardiopulmonary arrest, but no ventilator support for respiratory failure D) Continuation of the current treatment plan	confusion as to her wishes, and the admission treatment plan is the most appropriate. Naturally, it would be best to discuss this with the nephew and attempt to arrive at a consensus, with the patient's best interest being the primary concern.
09-187. +Non+Euc. What is the recommended compression-to-breath ratio for basic life support with a single rescuer for a 2-year-old child? A) 10:2 B) 15:2 C) 20:2 D) 25:2 E) 30:2	CPR. **09-187. ANS=E.** For a single rescuer performing CPR on a 2-year-old, the ratio is 30 compressions to 2 ventilations. The compression rate should be approximately 100 beats/min, and the chest should be compressed one-third to one-half its depth with each compression. Compressions can be accomplished with one hand, the heel of one or both hands, or the heel of one hand with the second hand on top.
10-026. +Non+Euc.>L An obese, hypertensive 53-year-old physician suffers a cardiac arrest while making rounds. He is resuscitated after 15 minutes of CPR, but remains comatose. Which one of the following is associated with the lowest likelihood of neurologic recovery in this situation? A) Duration of CPR >10 minutes B) No pupillary light reflex at 30 minutes C) No corneal reflex at 2 hours D) No motor response to pain at 6 hours E) Myoclonic status epilepticus at 24 hours	CPR. **10-026.** Cardiac arrest**. 10-026.** lowest likelihood of neurologic recovery**. ANS=E.** It is difficult to establish a prognosis in a comatose patient after a cardiac arrest. The duration of CPR is not a factor, and the absence of pupillary and corneal reflexes, as well as motor responses to pain, are not reliable predictors before 72 hours. Myoclonic status epilepticus at 24 hours suggests no possibility of a recovery.
08-229. Rep+Cca. A previously healthy 20-month-old female is brought to the urgent-care clinic during the evening with a barking cough. On examination her rectal temperature is 37.9°C (100.2°F), respiratory 2 rate 18/min, heart rate 120 beats/min, and O saturation 94%. She has stridor, with mild substernal retractions only when her temperature was taken. Which one of the following would be most appropriate at this point? A) Dexamethasone, 0.6 mg/kg orally or intramuscularly as a single dose B) Guaifenesin/pseudoephedrine elixir orally until symptoms improve C) Azithromycin (Zithromax) orally for 5 days D) Observation in the clinic, and if there is improvement, a 5-day course of dexamethasone	Croup. **08-229.** Croup can be classified as spasmodic croup, laryngotracheitis, laryngotracheobronchitis (LTB), laryngotracheobroncheopneumonia (LTBP), or laryngeal diphtheria. **ANS=A**. Mild croup is manifested by an occasional barking cough with no stridor at rest, and mild or absent intercostal retractions. Moderate croup presents with a more frequent barking cough, stridor with suprasternal and sternal retractions at rest, but no agitation. Severe croup includes more prominent inspiratory and expiratory stridor with agitation and distress. There is good evidence that corticosteroids produce significant improvement. The regimens studied most frequently have consisted of single-dose dexamethasone (0.6 mg/kg orally or intramuscularly), with some studies including up to four more doses over a 2-day period. Longer courses of corticosteroids have not proven to be more effective and may be harmful, leading to secondary infections. Racemic epinephrine by nebulization is indicated in severe croup. Antitussives and decongestants have not been studied and are not recommended. Antibiotics are indicated in LTB and LTBP, which can be diagnosed on the basis of crackles and wheezing on examination, or by an abnormal chest radiograph. Laryngotracheitis can sometimes be associated with a bacterial infection, but should be suspected only after a patient does not improve with corticosteroids and epinephrine.
09-007. +Res+Euc. Which one of the following is true concerning the use of dexamethasone to treat acute laryngotracheitis (croup)? A) A single dose is adequate for treatment B) It commonly leads to a secondary bacterial infection due to immunosuppression C) It increases the need for hospitalization D) It is indicated only for patients with severe croup	Croup. **09-007.** Ans: A**. Treatment with corticosteroids is now routinely recommended for acute laryngotracheitis** (croup). A single dose of dexamethasone, either orally or intramuscularly, is appropriate. Prolonged courses of corticosteroids provide no additional benefit and may lead to secondary bacterial or fungal infections. Secondary infections rarely occur with single-dose treatment. Corticosteroid therapy shortens emergency department stays and decreases the need for return visits and hospitalizations. It is indicated for patients with croup of any severity.
09-211. +Res+Cca. A 2-year-old Hispanic male with a 3-day history of nasal congestion presents with a barking cough and hoarseness. He is afebrile. The examination reveals tachypnea, inspiratory and expiratory stridor, noticeable intercostal retractions, and good color. Which one of the following is indicated? A) Albuterol syrup and the use of a humidifier B) Inhaled albuterol (Proventil, Ventolin) C) Aerosolized epinephrine and intramuscular dexamethasone D) Visualization of the epiglottis, and ceftriaxone (Rocephin)	Croup. **09-211.** Laryngotracheobronchitis, viral or croup. **ANS=C.** This child has a history and physical findings typical of viral laryngotracheobronchitis, or croup. In rare instances, this illness can be complicated by critical upper airway obstruction. The symptoms of cough, respiratory stridor, and distress result from edema of the subglottic portion of the upper airway. Humidification of inspired air is sometimes beneficial, but the child should not be sent home until improvement is demonstrated. **Because this child has stridor and intercostal retractions, aerosolized epinephrine is indicated, along with intramuscular dexamethasone, and hospitalization may be required for observation and continued treatment.** Antibiotics do not have a role in the treatment of viral croup, and attempted visualization of the epiglottis is not indicated since it will increase the child's anxiety and worsen the symptoms.
07-106. +Pbc+Adm+Com. A healthy 45-year-old male comes to your office for a routine visit. Findings are normal on a review of systems and physical examination. After you discuss the findings and provide routine counseling about a healthy lifestyle, the patient asks if he should have a full-body CT scan just to make sure he is healthy. Which one of the following would be appropriate advice? A) This is a reasonable option, but most insurance companies will not pay for it B) The chance of finding an abnormality is very low, but for a person anxious about his or her health the reassurance is worth the expense C) The amount of radiation exposure from low-dose full-body CT is minimal D) In a healthy patient, incidental findings will lead to unnecessary biopsies, anxiety, and significant radiation exposure	CT scan. **07-106.** recommendation. **ANS=D.** With financial incentives driving the health care industry, full-body CT has been promoted by private scanning facilities. However, the U.S. Preventive Services Task Force, the American College of Radiology, and many other organizations that have studied full-body CT screening are opposed to it. No study has shown the final outcome of such screening to be in the best interest of the patient, and it may actually be detrimental. Although the initial cost of $1000 may seem high by itself, the final cost also includes the expense of further testing due to false-positive findings, the time taken off work for the initial test, and the time required for any further tests and consultations that might take place. Various studies have shown that significant disease is found in 1.9%–2.0% of those scanned, yet 87%–91% of all patients scanned will have positive findings. Of these, 37% will be asked to undergo further studies to prove the findings are benign. Findings such as noncalcified pulmonary nodules will either necessitate procedures such as lung needle biopsies or wedge resections, or will be left alone, causing increased anxiety to the patient and also affecting the patient's future insurability. The radiation exposure from a full-body CT scan is estimated to be equivalent to 500

	chest radiographs, or 100 chest radiographs for low-dose scanning.
10-135. +Pbc+Com.>L Which one of the following is true regarding the risk of inducing cancer with CT scanning? A) CT of the chest is associated with a greater risk than CT of the head B) The risk increases with age at the time of the scan C) Males have a greater risk of ultimately developing CT-induced lung cancer than females D) Current techniques with rapid scanners make the risk comparable to that associated with standard radiographs of the same area E) The risk in neonates is markedly reduced because of the efficiency of DNA repair processes at this age	CT scan. **10-135.** risk. **ANS=A.** CT of the chest or abdomen leads to significantly more radiation exposure and cancer risk than CT of the brain. Younger patients, including neonates, have a greater lifetime risk of developing cancer after radiation exposure, and CT imaging carries substantially more risk than plain radiographs of the same area. Women are at greater risk for developing lung cancer after a chest CT than men, and CT also increases their risk of developing breast cancer.
07-091. +Pbs+Com. Cultural traditions and ceremonies sometimes mandate actions that conflict with standard treatment regimens. Which one of the following patients would require modification of a medication schedule? A) A Malaysian male experiencing *koro* B) A Muslim during Ramadan C) A Mexican affected with *bilis* D) A Jehovah's Witness observing his birthday E) A Chinese-American grandmother receiving cupping treatments	Cultural sensitivity. **07-091. ANS=B.** In a nation as diverse as the United States, cultural sensitivity on the part of the prescribing physician is an essential component for negotiating a successful therapeutic regimen. Culture-based belief systems can be quite complex and confusing to those unfamiliar with them, but this is often overcome when the physician demonstrates sincere interest, understanding, and respect for each patient. The month-long daytime fast observed during Ramadan generally requires an adaptive dosing schedule. Jehovah's Witnesses do not, as a rule, celebrate birthdays. Cupping treatment does not affect timing of medications. *Koro* is a delusional state in which the affected man has a sensation that his penis is shrivelling or being drawn into his abdomen. It would not affect a medication regimen. *Bilis* is an outburst of anger.
08-154. +Pbs+Com. The Current Procedural Terminology (CPT) code to document a patient encounter can be determined by the amount of face-to-face time spent with the patient when A) the office visit exceeds 1 hour B) counseling or coordinating care accounts for more than 50% of the face-to-face time spent with the patient C) the intensity of the visit supports a higher code than is supported by the level of history, examination, and medical decision making D) a comprehensive history and examination or complex medical decision making is conducted E) considerable time is spent outside the office visit coordinating prior authorizations or referrals on behalf of the patient	Current Procedural Terminology (CPT). **08-154. ANS=B.** The times published for Current Procedural Terminology codes are typical for each level of office visit, but there is no requirement associated with them unless counseling or coordination of care accounts for more than 50% of the face-to-face time of the encounter. In such cases physicians are able to code on the basis of time.
08-074. +Int+Cca. A 5-year-old white male has an itchy lesion on his right foot. He often plays barefoot in a city park that is subject to frequent flooding. The lesion is located dorsally between the web of his right third and fourth toes, and extends toward the ankle. It measures approximately 3 cm in length, is erythematous, and has a serpiginous track. The remainder of his examination is within normal limits. Which one of the following is the most likely cause of these findings? A) Dog or cat hookworm (*Ancylostoma* species) B) Dog or other canid tapeworm (*Echinococcus granulosus*) C) Cat protozoa (*Toxoplasma gondii*) D) Dog or cat roundworm (*Toxocara canis* or *T. mystax*)	Cutaneous larva migrans**. 08-074. ANS=A.** This patient has cutaneous larva migrans, a common condition caused by dog and cat hookworms. Fecal matter deposited on soil or sand may contain hookworm eggs that hatch and release larvae, which are infective if they penetrate the skin. Walking barefoot on contaminated ground can lead to infection. Echinococcosis (hydatid disease) is caused by the cestodes (tapeworms) *Echinococcus granulosus* and *Echinococcus multilocularis*, found in dogs and other canids. It infects humans who ingest eggs that are shed in the animal's feces and results in slow-growing cysts in the liver or lungs, and occasionally in the brain, bones, or heart. Toxoplasmosis is caused by the protozoa *Toxoplasma gondii*, found in cat feces. Humans can contract it from litter boxes or feces-contaminated soil, or by consuming infected undercooked meat. It can be asymptomatic, or it may cause cervical lymphadenopathy, a mononucleosis-like illness; it can also lead to a serious congenital infection if the mother is infected during pregnancy, especially during the first trimester. Toxocariasis due to *Toxocara canis* and *Toxocara cati* causes visceral or ocular larva migrans in children who ingest soil contaminated with animal feces that contains parasite eggs, often found in areas such as playgrounds and sandboxes.
09-160. +Non+Adm. The induction or inhibition of the cytochrome P450 (CYP) enzyme is responsible for many adverse drug reactions. Which one of the following is an *inducer* of the cytochrome P450 enzyme? A) Ciprofloxacin (Cipro) B) Fluconazole (Diflucan) C) Phenytoin (Dilantin) D) Clarithromycin (Biaxin) E) Grapefruit juice	Cytochrome P450. **09-160.** phenytoin. **ANS=C.** All of the drugs listed are inhibitors of the cytochrome P450 enzyme except phenytoin, which is a potent inducer. Grapefruit juice is also a cytochrome P450 enzyme inhibitor. **Inducers** Quinidine* Barbiturates Phenytoin Rifampin Griseofulvin Carbamazepine St. John's wort **Inhibitors** Isoniazid Sulfonamides Cimetidine Ketoconazole Erythromycin Grapefruit juice **Inducers:** Queen Barb takes Phen-phen and Refuses Greasy Carb Shakes. **Inhibitors:** Inhibitors Stop Cyber-Kids from Eating Grapefruit. *Quinidine can both induce and inhibit different isoforms of P-450. Induction is the more important effect.
10-115. +Pbc+Com.>L* Which one of the following is true regarding death certificates? A) The immediate cause of death is the final or terminal cause of death, such as cardiac arrest B) A physician can certify a death from a natural cause but a coroner or medical examiner must certify a death due to any other cause C) In a case of unknown or probable cause of death, the manner of death is designated as "uncertain" D) Death certificates are part of the patient's medical record and, as such, are confidential and regulated by HIPAA laws E) In a case of death due to an accidental fall, the immediate attending physician	Death certificates**. 10-115. ANS=B.** It would be difficult to overstate the importance of death certificates, especially in an era of increasing reliance on evidence-based medicine, yet physicians receive inadequate training in this important area, and their performance on this task remains less than ideal. Death certificates are the primary tool for measuring the mortality rate and its many ramifications in socioeconomic matters such as research funding, estate settlement, financial matters, and other legal concerns. Most problems with death certificates stem from a failure to complete them correctly. Notably, one study showed a 50% decrease in errors after primary care physicians attended a 75-minute educational session. Only coroners and medical examiners can complete a death certificate when the manner of death is not natural. The immediate cause of

must complete the death certificate	death is a specific etiology, not a general concept. "Uncertain" is not a manner of death, but "undetermined" may be used by coroners and medical examiners. The death certificate is a public document when filed.
10-201. +Non+Cca.>L* A 26-month-old child presents with a 2-day history of 6–8 loose stools per day and a low-grade fever. When evaluating the child to determine whether he is dehydrated, which one of the following would NOT be useful? A) Skin turgor B) Capillary refill time C) Respiratory rate and pattern D) The BUN/creatinine ratio E) The serum bicarbonate level	Dehydration**. 10-201.** capillary refill time**. ANS=D. The most useful findings for identifying dehydration are prolonged capillary refill time, abnormal skin turgor, and abnormal respiratory pattern** (SOR C). **Capillary refill time is not affected by fever and should be less than 2 seconds.** Skin recoil is normally instantaneous, but recoil time increases linearly with the degree of dehydration. The respiratory pattern should be compared with age-specific normal values, but will be increased and sometimes labored, depending on the degree of dehydration. **Unlike in adults, calculation of the BUN/creatinine ratio is not useful in children.** Although the normal BUN level is the same for children and adults, the normal serum creatinine level changes with age in children. **In combination with other clinical indicators, a low serum bicarbonate level (<17 mmol/L) is helpful in identifying children who are dehydrated, and a level <13 mmol/L is associated with an increased risk of failure of outpatient rehydration efforts.**
07-010. +Neu+Adm. Which one of the following is the leading risk factor for delirium? A) Alcohol abuse B) Depression C) Dementia D) Malnutrition E) Stroke	Delirium**. 07-010. ANS=C.** The cause of delirium is typically multifactorial. The development of delirium involves the complex interaction between the vulnerable patient (one with predisposing factors) and exposure to precipitating factors. Delirium affects 10%–30% of hospitalized patients who are medically ill. The prevalence is even higher in certain subgroups. For example, 25% of hospitalized patients with cancer, 30%–40% of hospitalized patients with HIV infection, and more than 50% of postoperative patients develop delirium during hospitalization. Among nursing-home residents older than 75, up to 60% may have delirium at any time. Dementia is the leading risk factor for delirium, and fully two-thirds of delirium cases occur in patients with dementia. The underlying vulnerability of the brain in patients with dementia may predispose them to the development of delirium as a result of insults related to acute medical illnesses, medications, or environmental changes. Unless the physician recognizes that dementia is a risk factor for delirium, the confusion and agitation associated with delirium can mistakenly be attributed to preexisting dementia. This can lead to a failure to search for underlying medical conditions or to discontinue medications that may be causing the delirium.
09-161. +Psy+Cel. A 72-year-old Hispanic female with moderately severe Alzheimer's disease is hospitalized for treatment of a fracture of the left humerus. The first night after admission she becomes confused and agitated. The most appropriate management at this point is which one of the following? A) Physical restraints B) Benzodiazepines for agitation C) Meperidol (Demerol) for pain control D) Moving the patient to the intensive-care unit for better monitoring E) Having a bedsitter or family member stay in the room to reassure and orient the patient	Delirium. **09-161.** Alzheimer's disease. **ANS=E. Delirium is a frequent complication of hospital admission in older patients, especially those with preexisting dementia. Orientation and reassurance in a quiet environment will usually be effective in treating the confusion and agitation, once serious causes of the delirium have been ruled out. Benzodiazepines and meperidol have been reported to cause delirium.** Physical restraints and restrictive environments (e.g., intensive-care units) can predispose to delirium and are best avoided if possible.
09-188. +Psy+Mhe. Which one of the following is associated with an increased risk of delirium in hospitalized patients? A) Not having family members present at the time of admission B) Vision or hearing impairment C) Repeated reorientation for patients with cognitive impairment D) Early mobilization	Delirium. **09-188. ANS=B.** Delirium occurs in 11%–42% of hospitalized patients. Risk factors for delirium in hospitalized patients include vision impairment, hearing impairment, dehydration, immobility, cognitive impairment, and sleep deprivation. Repeated reorientation of patients with cognitive impairment, early mobilization, and minimizing unnecessary noise or stimulation are all effective interventions for reducing the risk of delirium in hospitalized patients. Not having family members available at the time of admission has no effect on the incidence of delirium.
07-022. +Psy+Mhe. Which one of the following is true regarding placement of a percutaneous endoscopic gastrostomy (PEG) tube in severely demented patients? A) Survival is prolonged B) Aspiration risk is reduced C) Pressure ulcer risk is increased D) Patient comfort is enhanced E) Nutritional status is improved	Dementia**. 07-022. ANS=C.** Nearly 5 million adults in the United States have dementia and that number is expected to quadruple to 22 million in 50 years. Percutaneous endoscopic gastrostomy (PEG) tubes are increasingly placed, despite a paucity of evidence for their benefit. Bedfast, incontinent, demented patients with PEG tubes are more likely to be restrained, while at the same time producing more urine, thereby increasing the risk for pressure ulcers. Neither survival nor nutritional status has been found to be improved through the use of PEG tubes. Since stomach contents and saliva cannot be kept out of the airways after PEG placement, aspiration risk is not reduced. Tube-fed patients may be denied the pleasure of eating and/or made uncomfortable by the tube or by frequent repositioning or restraining. No studies suggest that tube feeding makes demented patients more comfortable.
07-158. +Pbc+Cel. An elderly male with mild dementia is involved in a motor vehicle accident, and his son is concerned that it may no longer be safe for him to drive. Which one of the following has the legal authority to revoke or restrict this patient's driver's license? A) The patient's son B) A psychiatric consultant C) The person designated as having power of attorney D) The family physician E) A representative of the state department of motor vehicles	Dementia. **07-158. D**river license revocation. **ANS=E**. The family physician or a consulting psychiatrist can make recommendations regarding driving, and the patient's family or the person designated as having power of attorney can withhold access to a vehicle, but the state motor vehicle department reserves final judgement in these situations, and may require a driving test.
07-189. +Neu+Mhe. A 72-year-old Asian-American female is brought to your office by her husband because he thinks she might have Alzheimer's disease. For the past 3 months she has complained of confusion, poor appetite, and lack of	Dementia. **07-189.** Pseudodementia. **ANS=D.** Instead of dementia, this patient has signs of **pseudodementia or depression, which usually has an abrupt onset**. **Memory usually is intact when adequate time is taken to carefully evaluate**

energy. She has been unable to do routine housework. On brief questioning, her short-term recall seems to be impaired, but a more detailed examination indicates that her memory is fine. Which one of the following is the most likely diagnosis? A) Alzheimer's disease B) Lewy body dementia C) Frontotemporal dementia D) Pseudodementia E) Mild cognitive impairment	**the patient.** The onset of Alzheimer's disease, however, is gradual and includes memory loss. Lewy body dementia is associated with hallucinations, and the onset is gradual. Frontotemporal dementia generally occurs before age 60. The onset of mild cognitive impairment is gradual and includes memory loss.
08-016. +Neu+Cel. A 68-year-old African-American female is brought to your office by her daughter, who tells you that her mother has recently been exhibiting short-term memory loss and confusion. For example, she has difficulty remembering how to get dressed appropriately and sometimes forgets to turn off the oven after using it. These symptoms developed fairly abruptly. The patient's medical problems include type 2 diabetes mellitus, hypertension, hypercholesterolemia, and osteoarthritis. She had a stroke last year and has residual mild hemiparesis. A physical examination is normal except for mild hemiparesis. On cognitive testing she is able to recall only one of three words, and all the numbers are on one side on the clock-drawing test. Which one of the following types of dementia is most likely in this patient? A) Alzheimer's disease B) Dementia with Lewy bodies C) Vascular dementia D) Frontotemporal dementia E) Multisystem atrophy	Dementia**. 08-016. vascular. ANS=C.** This patient's history and examination meet the criteria for vascular dementia published by the National Institute of Neurological Disorders and Stroke, and the Association Internationale pour la Neurosciences (NINDS-AIREN). Significant findings include cognitive decline from a previously higher level of functioning, manifested by impairment of memory and of two or more cognitive domains, and evidence of cerebrovascular disease by focal signs on neurologic examination, consistent with stroke. To fully meet the NINDS-AIREN criteria, she would need to have neuroimaging that demonstrates characteristic vascular dementia lesions.
08-109. +Neu+Cel A 75-year-old male is brought to your office by his wife, who states that he has had mental difficulties in recent months, such as not being able to balance their checkbook or plan for his annual visit with the accountant. He was able to capably perform these activities in the past. She also tells you that he has reported seeing animals in the room with him that he can describe vividly. He naps for 3 or more hours each day, and stares blankly for long periods of time. He seems almost normal at times, but appears very confused at other times. This confusion seems to come and go randomly. He also has been dreaming a lot, and has fallen more than once recently. His only medication is aspirin, 81 mg/day. On examination the patient walks slowly with a somewhat stooped posture and almost falls when turning around. He has only minimal facial expressiveness. No tremor is noted, and the remainder of the examination is normal. He is able to recall three words out of three, but clock drawing is abnormal. Laboratory studies are normal, and a CT of the brain shows changes of aging. What type of dementia does this patient most likely have? A) Dementia with Lewy bodies B) Dementia of Parkinson's disease C) Alzheimer's disease D) Frontotemporal dementia E) Vascular dementia	Dementia. **08-109.** Dementia with Lewy bodies**. ANS=A.** This patient has dementia with Lewy bodies, which is the second most common histopathologic type of dementia after Alzheimer's disease. He demonstrates **typical symptoms and signs of dementia with Lewy bodies, including well-formed hallucinations, vivid dreams, fluctuating cognition, sleep disorder with periods of daytime sleeping, frequent falls, deficits in visuospatial ability (abnormal clock drawing), and REM sleep disorder (vivid dreams).** In **Alzheimer's disease the predominant early symptom is memory impairment, without the other symptoms found in this patient.** In **dementia of Parkinson's disease, extrapyramidal symptoms such as tremor, bradykinesia, and rigidity precede the onset of memory impairment by more than a year**. Patients with **vascular dementia have risk factors and symptoms of stroke. Frontotemporal dementia presents with behavioral changes, including disinhibition, or language problems such as various types of aphasia.**
10-130. +Psy+Adm.**?*** A 58-year-old male presents with recent behavior and personality changes, and you suspect dementia. Which one of the following is most likely to present in this manner? A) Alzheimer's disease B) Vascular dementia C) Mixed Alzheimer's disease and vascular dementia D) Frontotemporal dementia E) Progressive supranuclear palsy	Dementia. **10-130.** Frontotemporal dementia is the second most common cause of early-onset dementia. **ANS=D.** It often presents with behavioral and personality changes. Examples include disinhibition, impairment of personal conduct, loss of emotional sensitivity, loss of insight, and executive dysfunctions. Alzheimer's disease presents with memory loss and visuospatial problems. Vascular dementia is associated with risk factors for stroke, or occurs in relation to a stroke, with a stepwise progression. Alzheimer's disease and vascular dementia can occur together, with features of both. Progressive supranuclear palsy is characterized by early falls, vertical (especially downward) gaze, axial rigidity greater than appendicular rigidity, and levodopa resistance.
07-164. +Non+Adm. A 50-year-old female is ill with an abrupt onset of fever to 39.4E C (103.0E F), frontal headaches, severe sore throat, and myalgia. She has just returned from a 1-week cruise to the Caribbean, where she participated in island tours. Her husband, a physician, says that her symptoms resemble those of infectious mononucleosis, but he is concerned that she may have something else. Which one of the following is the most likely diagnosis? A) *Salmonella* B) Norovirus C) Leptospirosis D) Dengue fever E) Hepatitis B	Dengue fever. **ANS=D.** With the rising popularity of international travel to exotic locations, family physicians are encountering more febrile patients who have recently visited tropical countries. This patient has contracted dengue fever, an illness that closely resembles infectious mononucleosis, but with symptoms that usually are more severe. It is endemic in many tropical and subtropical countries, principally Mexico, the Caribbean, and Central and South America. The diagnosis is clinical and can be confirmed with a fourfold increase in antibody titers. Treatment is symptomatic. *Norovirus* infection, while associated with cruise ships, mainly causes gastrointestinal problems. The other responses would be unlikely with this clinical scenario.
09-159. +Psy+Mac. Which one of the following is appropriate at the routine postpartum visit? A) A CBC B) Screening for depression C) Thyroid function tests D) Glucose tolerance testing E) A urine dipstick	Depression, Postpartum. **09-159.** Postpartum. **ANS=B.** Screening for **postpartum depression is recommended as part of the routine postpartum visit.** The use of a screening tool for depression is recommended, such as the Edinburgh Postnatal Depression Scale. This scale has been shown to increase the identification of women at high risk for depression. A CBC or urine dipstick is recommended only for patients who have an indication for them, and should not be routinely ordered. Thyroid function tests and glucose tolerance testing are recommended for patients who are either symptomatic or at high risk for disease.
10-225. +Psy+Mhe. Which one of the following is true concerning postpartum depression? A) It has no effect on cognitive development of the child	Depression, Postpartum**. 10-225. ANS=D. Thyroid function must be evaluated in women with postpartum depression since both hyperthyroidism and hypothyroidism are more common post partum**. **Postpartum depression may**

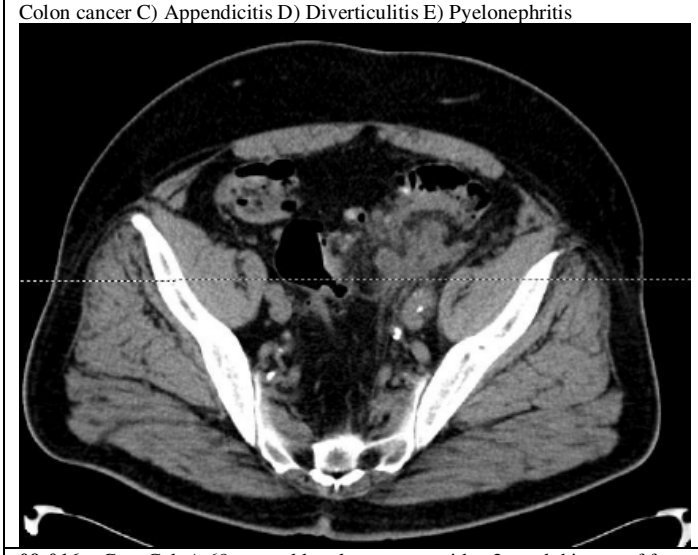
B) It is directly related to the desired gender of the infant C) It is usually transient, lasting about 10 days D) Thyroid function should always be assessed in women with postpartum depression	**impair cognitive and behavioral development in the child.** It is not related to the desired gender of the child, breastfeeding, or education level of the mother. It should be differentiated from the short-term "baby blues" that resolve within about 10 days. Sertraline is considered first-line treatment for postpartum depression in women who are breastfeeding.
07-199. +Psy+Mhe. A 73-year-old white male is brought to your office by his family. He had uncontrolled hypertension and was found to have renal artery stenosis, but became normotensive following stent placement. Since then he has lost 6 kg (13 lb) and has no appetite. He is 165 cm (68 in) tall and currently weighs 59 kg (130 lb). He has been feeling anxious, and during a recent home repair he cut a hole in a wall and noticed a white material, which he believes is asbestos. He is concerned that the news media will find out about this, that his home will be condemned, and that the whole world will know. His affect is flat, and his eye contact is poor. However, he is alert and oriented. The remainder of the examination is normal. He is given an adequate trial of paroxetine (Paxil) and venlafaxine (Effexor) with no relief of symptoms, and continues to lose weight. Which one of the following would be the most effective treatment at this time? A) Fluoxetine (Prozac) B) Mirtazapine (Remeron) C) Lorazepam (Ativan) D) Methylphenidate (Ritalin) E) Electroconvulsive therapy (ECT)	Depression, psychotic. **07-199. ANS=E.** This patient has late-life psychotic depression, as indicated by his delusional thinking. Psychotic depression is often resistant to standard antidepressant regimens. Aggressive pharmacotherapy is required, with best results in young adults. Available evidence suggests that most elderly patients who have depression with pronounced psychotic features either cannot tolerate adequate doses of conventional medications or do not respond to them. For severe depression that is persistent and refractory to psychotherapy and pharmacotherapy, electroconvulsive therapy (ECT) is the most effective treatment. ECT has therefore become the standard for treatment of late-life psychotic depression.
08-002. +Psy+Mhe. A 65-year-old male presents for a follow-up visit for severe depression. His symptoms have included crying episodes, difficulty maintaining sleep, and decreased appetite. He has suicidal ideations and states that he has a gun in his home. He also thinks his wife is having an affair, but she is present and is adamant that this is not true. His symptoms have not been relieved by maximum doses of sertraline (Zoloft), venlafaxine (Effexor), or citalopram (Celexa). He currently is taking duloxetine (Cymbalta), which also has failed to relieve his symptoms. Which one of the following would most likely provide the quickest relief of his symptoms? A) Counseling B) Bupropion (Wellbutrin) C) Stopping duloxetine and starting an MAO inhibitor D) Electroconvulsive therapy	Depression**,** psychotic. **08-002. ANS=D.** This patient has psychotic depression with suicidal ideations and has not responded to maximum doses of several antidepressants. He is more likely to respond to electroconvulsive therapy than to counseling or a change in medication.
07-021. +Psy+Mhe. At a routine follow-up visit, a 30-year-old male with depression that has been well-controlled for 12 months on extended-release paroxetine (Paxil) discusses stopping the medication because of delayed ejaculation that has become more problematic. He calls your office 5 days later because of a 3-day history of influenza-like symptoms, insomnia, nausea, and dizziness, which were moderately severe initially but are now improving. Which one of the following would be most appropriate at this time? A) Wait to see if the symptoms completely resolve B) Prescribe an antiviral medication C) Restart the paroxetine D) Restart the paroxetine at twice the previous dosage E) Hospitalize the patient	Depression. **07-021. A**ntidepressant discontinuation syndrome. **ANS=A.** This patient has developed antidepressant discontinuation syndrome. Proposed criteria for SSRI discontinuation syndrome include the presence of anxiety, diarrhea, dizziness, fatigue, gait/balance disturbance, gastrointestinal upset, hyperarousal, insomnia, instability, lightheadedness, paresthesia, tremor, vertigo and visual disturbance. Two or more of these must be present within 7 days of discontinuation of an SSRI after at least 1 month's use. Because this patient's symptoms are resolving quickly, it is unlikely to be influenza and does not warrant hospitalization. The patient could restart the SSRI, but if this were a relapse of his depression the symptoms would not be resolving. Doubling the dosage of the medication is inappropriate because the patient was doing well on the original dosage, and the symptoms do not indicate worsening depression.
07-040. +Psy+Mhe. A 36-year-old female with moderate depression desires treatment, but prefers a plan that does not include pharmacologic therapy. She asks about cognitive therapy. Which one of the following statements is true about cognitive treatment for depression? A) It is not effective in patients who have not responded to pharmacologic therapy B) It is a valid alternative to antidepressants in treating moderate depression C) It is not effective in preventing relapse D) It provides little benefit in treating severe depression E) It is effective in adults but not in adolescents	Depression. **07-040.** Cognitive therapy. **ANS=B.** Numerous studies and meta-analyses convincingly demonstrate that cognitive therapy effectively treats patients with unipolar major depression. The evidence suggests that it is a valid **alternative** to antidepressants for patients with mild to moderate depression and in combination with antidepressants for patients with more severe depression. Cognitive therapy is recommended for patients who do not respond appropriately to medication, and should be considered for adolescents with mild to moderate depression. Cognitive therapy can decrease the risk of relapse.
07-054. +Psy+Mhe. A 43-year-old female seeks treatment for depression, which has begun to seriously interfere with her ability to function. Her only other medical condition is hypertension. Which one of the following antidepressants would be most likely to exacerbate her hypertension? A) Escitalopram (Lexapro) B) Bupropion (Wellbutrin) C) Venlafaxine (Effexor) D) Duloxetine (Cymbalta) E) Mirtazapine (Remeron)	Depression. **07-054.** Hypertension exacerbation. **ANS=C.** Of all of the antidepressants, only venlafaxine is known to exacerbate hypertension, and would therefore be a poor choice for this patient.
07-146. +Psy+Mac+Mhe. A 25-year-old female with a longstanding history of depression is doing well on her current medication. She and her husband are planning a pregnancy. Her psychiatrist has recommended that she continue taking an SSRI. Which one of the following poses the greatest risk during pregnancy? A) Sertraline (Zoloft) B) Escitalopram (Lexapro) C) Citalopram (Celexa) D) Fluoxetine (Prozac) E) Paroxetine (Paxil)	Depression. **07-146. I**n pregnancy. **ANS=E.** A recent update by the American College of Obstetricians and Gynecologists (ACOG) Committee on Obstetric Practice recommends that SSRI use during pregnancy be individualized. **Most SSRIs are pregnancy category C, which means that these drugs have been found to cause teratogenic effects in animals, but there are no adequate studies in humans.** However, recent data has shown that **paroxetine in the first trimester of pregnancy may increase congenital cardiac defects, such as atrial septal defect and ventricular septal defect, and it now has been changed to pregnancy category D (found to be harmful to human fetuses)**. If at all possible, this drug should be avoided in pregnant women and those planning a pregnancy SSRI use late in pregnancy has also been associated with neonatal complications that include jitteriness, mild respiratory distress, transient tachypnea of the newborn, weak cry, poor tone, and admission to the neonatal

	intensive-care unit. One study showed that 30% of neonates exposed to SSRIs during late pregnancy develop a neonatal abstinence syndrome identified by a formal scoring system. A large case-controlled study found a sixfold increase in the risk of persistent pulmonary hypertension for newborns whose mothers used SSRIs after 20 weeks gestation. While there are potential risks associated with SSRI use, they must be balanced with the risks associated with stopping the medicine. **Women who discontinue antidepressants during pregnancy have five times the risk of relapse compared to those who take the medications. Untreated depression may increase the risk of low weight gain, sexually transmitted disease, and alcohol and substance abuse, which all may put the fetus at risk.** It is important for the risks and benefits of treatment with SSRIs to be weighed and thoroughly discussed with the patient prior to treatment so she can make an informed decision.
07-178. +Psy+Cca. The only antidepressant with demonstrated efficacy in childhood and adolescent depression is A) clozapine (Clozaril) B) fluoxetine (Prozac) C) lithium D) imipramine (Tofranil) E) mirtazapine (Remeron)	Depression. **07-178. In adolescents. ANS=B.** Fluoxetine is the only antidepressant with demonstrated efficacy in childhood and adolescent depression. Other SSRIs, tricyclic agents, and newer antidepressants have not been shown to be effective for treating depression in this age group. **Fluoxetine is the only SSRI currently approved for pediatric use.**
08-036. +Psy+Mhe. A 64-year-old white male appears to be depressed 2 weeks after hospital discharge for a myocardial infarction. He experienced short runs of ventricular tachycardia during his hospitalization, and echocardiography revealed an ejection fraction of 40% at the time of discharge, with no symptoms of heart failure. He has a history of depression in the past. His current symptoms include depressed mood, sleep disturbance, feelings of hopelessness, and anhedonia. He denies suicidal ideation. Which one of the following would be most appropriate at this point? A) Low-dose amitriptyline at bedtime B) Sertraline (Zoloft) C) Referral for electroconvulsive therapy D) Referral for intense interpersonal psychotherapy	Depression. **08-036. ANS=B.** Several studies have demonstrated that **SSRIs are safe and effective in treating depression in patients with coronary disease, particularly those with a history of previous episodes of depression.** Medications have performed significantly better than intensive interpersonal psychotherapy in this setting. Electroconvulsive therapy is not considered first-line therapy in the absence of severe symptoms. While it may be effective for sleep disturbance, amitriptyline has potential cardiac side effects and is unlikely to be effective for the treatment of depression in low doses.
08-066. +Psy+Mhe. Patients with which one of the following conditions are at increased risk for complications from electroconvulsive therapy for depression? A) Pregnancy B) Seizure disorder C) Cardiac pacemaker implantation D) Depression unresponsive to oral medications E) Recent cerebral hemorrhage	Depression. **08-066.** Electroconvulsive therapy. **ANS=E.** There are no absolute contraindications to electroconvulsive therapy (ECT), but more complications are seen in patients with a history of recent cerebral hemorrhage, stroke, or increased intracranial pressure. The efficacy of ECT may be reduced in patients who have not responded to oral antidepressants.
08-103. +Psy+Cca. The only antidepressant approved by the Food and Drug Administration for the treatment of depression in children 8–17 years of age is A) venlafaxine (Effexor) B) amitriptyline C) lithium D) paroxetine (Paxil) E) fluoxetine (Prozac)	Depression. **08-103.** In children 8–17 years of age. **ANS=E.** Fluoxetine is the only SSRI approved by the FDA for the treatment of depression in children 8–17 years of age. Tricyclic antidepressants are ineffective in children and have limited effectiveness in adolescents, with safety concerns in both groups. In children and adolescents, there is limited or no evidence evaluating the use of lithium, monoamine oxidase inhibitors, St. John's wort, or venlafaxine.
09-080. +Psy+Mhe. You have decided that in addition to the counseling she has been receiving for depression, a 12-year-old female in your practice might benefit from an antidepressant medication. Which one of the following has shown the most favorable risk-to-benefit ratio in children and adolescents? A) Fluoxetine (Prozac) B) Lithium C) Amitriptyline D) Venlafaxine (Effexor) E) St. John's wort	Depression. **09-080.** SSRIs have been shown to benefit children and adolescents with depression, but there are concerns regarding their association with suicidal behavior. **ANS=A.** Fluoxetine seems to be the most favorable SSRI, and is the only one recommended by the FDA for treatment of depression in children 8–17 years old. There is limited or no evidence to support the use of lithium, venlafaxine, or St. John's wort in children and adolescents. Amitriptyline and other tricyclic antidepressants are ineffective in children and have limited effectiveness in adolescents, and safety is an issue in both of these groups.
09-131. +Psy+Mhe. A severely depressed 77-year-old male is hospitalized after an intentional drug overdose. He was found by chance when his housekeeper returned to retrieve something she had left behind. The patient has been severely depressed since he suffered a myocardial infarction 1 year ago, and the recent death of his wife has increased his despondency. He had left a note apologizing to his family and his physician, who has treated him with multiple medications for depression over the past year. He has been treated with SSRIs, SNRIs, and atypical antipsychotics in high doses and in various combinations without significant improvement. Which one of the following would be most likely to improve this patient's depression at this point? A) Cognitive-behavioral therapy B) Psychoanalysis C) Electroconvulsive therapy D) Goal-directed psychotherapy E) Limbic stimulation	Depression. **09-131.** Electroconvulsive therapy has been shown to be more effective than psychiatric therapy, pharmacologic therapy, and other interventions in depressed older patients. **ANS=C.** It would be particularly appropriate in this case given the patient's age, his failure to respond to medications, and the need for rapid improvement to decrease the risk of further suicide attempts.
09-143. +Psy+Mhe. A 26-year-old female presents with symptoms of anhedonia and anxiousness. Your evaluation leads to a diagnosis of major depressive disorder. The patient consents to medical treatment and counseling, but she is engaged to be married in 2 months and is concerned that antidepressants may lower her libido even further. Which one of the following would be best for reducing the likelihood of sexual dysfunction? A) Bupropion (Wellbutrin) B) Paroxetine (Paxil) C) Fluoxetine (Prozac) D) Sertraline (Zoloft)	Depression. **09-143.** Treatment with reduced sexual dysfunction. **ANS=A.** Paroxetine has been found to cause higher rates of sexual dysfunction than bupropion, fluoxetine, and sertraline. Bupropion has been found to have significantly lower rates of adverse effects on sexual function than fluoxetine or sertraline. Hint: It's not **PRO**per to **SMOK**e while you **PI**. bu**PRO-PI**on: Also used for SMOKing cessation.Does not cause sexual side effects. *Buspiron: Mechanism Stimulates 5-HT1A receptors. Anxiolysis for generalized anxiety disorder. Does not cause sedation or addiction. Does not interact with alcohol.

09-185. +Psy+Mhe. A 27-year-old male with a diagnosis of depression prefers to avoid pharmacologic treatment. You agree to engage in a trial of therapy in your office. During the treatment process, you help the patient realize that some of his perceptions and interpretations of reality may be false and lead to negative thoughts. Next, you help him discover alternative thoughts that reflect reality more closely, and to learn to discard his previous distorted thinking. By learning to substitute healthy thoughts for negative thoughts, he finds his mood, behavior, and physical reaction to different situations are improved. Which one of the following best categorizes this type of therapy? A) Psychoanalysis B) Biofeedback C) Cognitive therapy D) Group psychotherapy E) Hypnosis therapy	Depression. **09-185.** Cognitive therapy. **ANS=C.** This patient is engaged in cognitive therapy, which is a treatment process that helps patients correct false self-beliefs that can lead to negative moods and behaviors. Cognitive therapy has been shown to effectively treat patients with unipolar major depression, and is particularly useful in patients who do not respond to medication or who prefer nonpharmacologic therapy. Psychoanalysis is a process of free association where repressed memories are recovered. Biofeedback involves instrumentation that gives feedback about a patient's physiologic response to various situations in order to bring the autonomic nervous system under voluntary control. Group psychotherapy is a form of treatment in which people who are emotionally ill meet in a group guided by a trained therapist and help one another effect personality change. Hypnosis involves helping a patient enter a state of heightened focal concentration and receptivity that is typified by a feeling of involuntariness or an altered state of consciousness.
10-014. +Psy+Mhe.**?*** You make a diagnosis of depression in a 26-year-old female. Her BMI is 32 kg/m and she has 2 been trying to lose weight. Which one of the following antidepressants would be LEAST likely to cause her to gain weight? A) Mirtazapine (Remeron) B) Amitriptyline C) Bupropion (Wellbutrin) D) Paroxetine (Paxil) E) Citalopram (Celexa)	Depression. **10-014.** Weight loss. Bupropion**. ANS=C. Bupropion is the antidepressant least likely to cause weight gain, and may induce modest weight loss**. All of the other choices are more likely to cause weight gain. Among SSRIs, paroxetine is associated with the most weight gain and fluoxetine with the least. Mirtazapine has been associated with more weight gain than the SSRIs.
10-167. +Psy+Mhe+Cca. A 14-year-old female is brought to your office by her mother because of a 3-month history of irritability, hypersomnia, decline in school performance, and lack of interest in her previous extracurricular activities. The mother is also your patient, and you know that she has a history of depression and has recently separated from her husband. After an appropriate workup, you diagnose depression in the daughter. For initial therapy you recommend A) amitriptyline B) methylphenidate (Ritalin) C) divalproex sodium (Depakote) D) cognitive-behavioral therapy	Depression. **10-167.** In children and adolescents**. ANS=D.** This patient has multiple risk factors for depression: the hormonal changes of puberty, a family history of depression, and psychosocial stressors. Cognitive-behavioral therapy is effective in treating mild to moderate depression in children and adolescents (SOR A). SSRIs are an adjunctive treatment reserved for treatment of severe depression, and have limited evidence for effectiveness in children and adolescents. Amitriptyline should not be used because of its limited effectiveness and adverse effects (SOR A). Methylphenidate is used for treating attention deficit disorder, not depression. Divalproex sodium is used to treat bipolar disorder.
08-184. +Int+Cca. A 6-month-old Hispanic female has had itching and irritability for 4–5 weeks. There is a family history of atopy and asthma. Physical examination reveals an excoriated dry rash bilaterally over the antecubital and popliteal fossae, as well as some involvement of the face. In addition to maintenance therapy with an emollient, which one of the following topical medications would be appropriate first-line treatment for flare-ups in this patient? A) A calcineurin inhibitor such as pimecrolimus (Elidel) B) An anesthetic C) An antihistamine D) An antibiotic E) A corticosteroid	Dermatitis. **08-184.** Atopic dermatitis. **ANS=E.** This child has atopic dermatitis (eczema). It is manifested by a pruritic rash on the face and/or extensor surfaces of the arms and/or legs, especially in children. There often is a family history of atopy or allergies. In addition to the regular use of emollients, the mainstay of maintenance therapy, topical corticosteroids have been shown to be the best first-line treatment for flare-ups of atopic dermatitis. Topical calcineurin inhibitors should be second-line treatment for flare-ups, but are not recommended for use in children under 2 years of age. Antibiotics should be reserved for the treatment of acutely infected lesions. There is no evidence to support the use of topical anesthetics or analgesics in the treatment of this disorder.
09-002. +Int+Cca. An otherwise healthy 10-year-old female presents with a **papulovesicular eruption** on one leg. It extends from the **lateral buttock, down the posterolateral thigh**, to the lateral calf. It is mildly painful. The patient's immunizations are up to date, including varicella and MMR. Her family has a pet cat at home, and another child at her school was sent home with a rash earlier in the week. Dx?	Dermatitis. **09-002.** Varicella-zoster: Herpes zoster dermatitis; **Herpes zoster can occur from either a wild strain or a vaccine strain** of varicella-zoster virus in vaccinated children, but the incidence is low. All cases are mild and uncomplicated.
10-239. +Int+Adm. A cement plant worker presents to your office with the recurrent acute skin eruption on his legs shown in **Figure 7**. It extends proximally from the dorsum of the feet to just below the knees. This is the third eruption in 2 years. This patient most likely has A) tinea with a secondary id reaction B) rhus dermatitis C) methicillin-resistant *Staphylococcus aureus* (MRSA) cellulitis D) contact dermatitis related to his occupation	Dermatitis. **10-239. contact. ANS=D.** Because this dermatitis is recurrent and symmetric, contact dermatitis should be suspected. Rhus dermatitis is a contact dermatitis, but it is more acute and presents with bullae and vesicles that are more linear than those seen in this patient. MRSA usually presents as a unilateral cellulitis, or more commonly as inflammatory nodules or pustules. This dermatitis is not scaling and does not have a distinct border that would suggest tinea.

	
10-133. +Int+Cca.>L The mother of an 8-year-old female is concerned about purple "warts" on her daughter's hands. The mother explains that the lesions started a few months ago on the right hand along the top of most of the knuckles and interphalangeal joints, and she has recently noticed them on the left hand. The child has no other complaints and the mother denies any unusual behaviors. A physical examination is unremarkable except for the slightly violaceous, flat-topped lesions the mother described. What is the most likely cause for this patient's finger lesions? A) Dermatomyositis B) Aggressive warts C) Rubbing/wringing of the hands D) Bulimia nervosa E) Child abuse	Dermatomyositis**. 10-133. ANS=A.** One of the most characteristic findings in dermatomyositis is Gottron's papules, which are flat-topped, sometimes violaceous papules that often occur on most, if not all, of the knuckles and interphalangeal joints.
10-227. +Mus+Adm.>L* Patients with which rheumatologic condition have the highest relative risk of internal malignancy compared to the general population? A) Systemic scleroderma B) Systemic lupus erythematosus C) Sjögren's syndrome D) Rheumatoid arthritis E) Dermatomyositis	Dermatomyositis**. 10-227. ANS=E.** In one study, **32% of patients with dermatomyositis had cancer. The risk of cancer was highest at the time of diagnosis, but remained high into the third year after diagnosis.** The cancer types most commonly found were ovarian, pulmonary, pancreatic, gastric, and colorectal, as well as non-Hodgkin's lymphoma. Among patients with polymyositis, 15% developed cancer. Cancer rates in patients with rheumatoid arthritis, systemic lupus erythematosus, and scleroderma were above those of the general population, but much lower than for patients with dermatomyositis. **In Sjögren's syndrome, the risk of non-Hodgkin's lymphoma is 44 times higher than in the general population, with an individual lifetime risk of 6%–10%.**
08-011. +Mus+Cca. A 2-week-old female is brought to the office for a well child visit. The physical examination is completely normal except for a clunking sensation and feeling of movement when adducting the hip and applying posterior pressure. Which one of the following would be the most appropriate next step? A) Referral for orthopedic consultation B) Reassurance that the problem resolves spontaneously in 90% of cases, and follow-up in 2 weeks C) Triple diapering and follow-up in 2 weeks D) A radiograph of the pelvis	Developmental dysplasia of the hip. **08-011.** Developmental dysplasia of the hip encompasses both subluxation and dislocation of the newborn hip, as well as anatomic abnormalities. **ANS=A**. It is **more common in firstborns, females, breech presentations, oligohydramnios, and patients with a family history of developmental dysplasia**. Experts are divided with regard to whether hip subluxation can be merely observed during the newborn period, but if there is any question of a hip problem on examination by 2 weeks of age, the recommendation is to refer to a specialist for further testing and treatment. **Studies show that these problems disappear by 1 week of age in 60% of cases, and by 2 months of age in 90% of cases**. Triple diapering should not be used because it puts the hip joint in the wrong position and may aggravate the problem. **Plain radiographs may be helpful after 4–6 months of age, but prior to that time the ossification centers are too immature to be seen**. Because the condition can be difficult to diagnose, and can result in significant problems, **the current recommendation is to treat all children with developmental dysplasia of the hip. Closed reduction and immobilization in a Pavlik harness, with ultrasonography of the hip to ensure proper positioning, is the treatment of choice until 6 months of age.** The American Academy of Pediatrics recommends **ultrasound screening at 6 weeks for breech girls, breech boys (optional), and girls with a positive family history of developmental dysplasia of the hip.** Other countries have recommended universal screening, but a review of the literature has not shown that the benefits of early diagnosis through universal screening outweigh the risks and potential problems of overtreating.
09-230. +End+Adm. A 36-year-old female presents with a several-week history of polyuria and intense thirst. She currently takes no medications. On examination her blood pressure and pulse rate are normal, and she is clinically euvolemic. Laboratory tests, including serum electrolyte levels, renal function tests, and plasma glucose, are all normal. A urinalysis is significant only for low specific gravity. Her 24-hour urine output is >5 L with low urine osmolality. The most likely cause of this patient's condition is a deficiency of A) angiotensin II B) aldosterone C) renin D) insulin E) arginine vasopressin	Diabetes insipidus**. 09-230. ANS=E.** This patient has diabetes insipidus, which is caused by a deficiency in the secretion or renal action of arginine vasopressin (AVP). AVP, also known as antidiuretic hormone, is produced in the posterior pituitary gland and the route of secretion is generally regulated by the osmolality of body fluid stores, including intravascular volume. Its chief action is the concentration of urine in the distal tubules of the kidney. Both low secretion of AVP from the pituitary and reduced antidiuretic action on the kidney can be primary or secondary, and the causes are numerous. Patients with diabetes insipidus present with profound urinary volume, frequency of urination, and thirst. The urine is very dilute, with osmolality <300 mOsm/L. Further workup will help determine the specific type of diabetes insipidus and its cause, which is necessary in order to implement appropriate treatment. Low levels of aldosterone, plasma renin activity, or angiotensin would cause abnormal blood pressure, electrolyte

	levels, and/or renal function. Insulin deficiency results in diabetes mellitus.
08-134. +Gas+Cca. An outbreak of pediatric diarrhea has swept your community. You evaluate a 30-month-old male who developed diarrhea yesterday. He is still breastfed. He is alert, his mucous membranes are moist, and his skin turgor is good. He passes a liquid stool in your office. Which one of the following would be the best advice with regard to his diet? A) The mother should withhold breastfeeding B) He should consume a normal age-appropriate diet, and continue breastfeeding C) Fasting will promote intestinal mucosal recovery D) Oral intake should be limited to clear fluids, bananas, rice, applesauce, and toast (BRAT diet)	Diarrhea. **08-134.** pediatric. Continued oral feeding in diarrhea aids in recovery, and an age-appropriate diet should be given. **ANS=B.** Breastfeeding or regular formula should be continued. Foods with complex carbohydrates (e.g., rice, wheat, potatoes, bread, and cereals), lean meats, yogurt, fruits, and vegetables are well tolerated. Foods high in simple sugars (e.g., juices, carbonated sodas) should be avoided because the osmotic load can worsen the diarrhea. Fatty foods should be avoided as well. The BRAT diet has not been shown to be effective. **Uptodate:** Common conditions — The common causes of diarrhea are infections with viruses and bacteria, diarrhea due to a systemic, nongastrointestinal infection, diarrhea associated with antibiotic administration, and feeding related diarrhea. By far, the single most common disorder seen in the emergency department and in general practice is viral gastroenteritis. In one series of children two months to two years of age, a viral etiology was identified in 60 percent of all cases of diarrhea and in 85 percent of moderately severe and severe episodes. *Extraintestinal infections (such as otitis media, urinary tract infections, and pneumonia) can cause acute diarrhea that is usually mild and self-limited. *Antibiotic associated diarrhea (AAD) occurs commonly. In one prospective series, 18 percent of children less than two years of age developed diarrhea associated with antibiotic use [15]. The pathophysiology of AAD is poorly understood, but is likely related to disruption in fecal flora [16]. *Overfeeding (particularly with hyperosmolar fluids) may cause diarrhea as the result of increased osmotic load. Diarrhea may also occur when intake of solid foods is limited (sometimes referred to as "starvation stools"). *Lactase deficiency - In younger children, this is usually a transient problem, caused by mucosal injury from an enteric infection [17]. In older children and adolescents, this may be a primary lactase deficiency (also known as adult-type hypolactasia or lactase nonpersistence), that affects up to 70 percent of normal adults. Therapeutic interventions — Fluid resuscitation with an isotonic solution should be initiated promptly in children with moderate to severe dehydration or circulatory compromise. Patients with toxic megacolon and intussusception may have significant ongoing third space losses that must be replaced. (See "Treatment of hypovolemia (dehydration) in children".) *Most children will not require intravenous hydration. There has been resistance to the use of oral rehydration solutions in the United States despite its proven efficacy [24]. Treatment with oral rehydration solutions should be encouraged for both rehydration and maintenance therapy in patients who have mild to moderate dehydration who will drink. *Antibiotics should not be used for children with acute bloody diarrhea unless a specific pathogen has been isolated. Antibiotic therapy may be a risk factor for the development of hemolytic uremic syndrome in patients with bloody diarrhea due to E. Coli O157:H7.
09-045. +Gas+Adm. A 74-year-old male presents with a 4-day history of diarrhea that he had initially thought was "a 24-hour virus." He states that the onset of his illness included nausea, one episode of vomiting, and profuse diarrhea. He has felt feverish and has been having abdominal cramps. He does not recall eating anything unusual and has not traveled recently. On examination he appears uncomfortable, but in no real distress. His oral temperature is 37.1°C (98.8°F), blood pressure 134/82 mm Hg, and pulse rate 100 beats/min. He has lost 4 kg (9 lb) since his last visit 2 months earlier. His abdomen is soft, with hyperactive bowel sounds and mild diffuse tenderness on palpation. A CBC and basic metabolic profile are normal. Which one of the following is the most likely cause of this patient's illness? A) Norwalk-like virus (Norovirus) B) *Shigella* C) *Campylobacter* D) *Escherichia coli* O157:H7 E) *Staphyloccocus aureus*	Diarrhea. **09-045.** ***Campylobacter jejuni***, Ans=C. **One of the most common causes of bacterial foodborne illnesses**, estimated to affect 1 million Americans annually. **Undercooked or improperly handled chicken is most often implicated as the source**; surveys have demonstrated that between 20% and 100% of all retail chicken sold in the United States is contaminated. The infection is generally isolated and sporadic, occurs more frequently at the extremes of age, is most common during the summer months, and affects males disproportionately. Symptoms typically begin 2–5 days following exposure. Diarrhea is the predominant symptom, with a lesser degree of nausea and vomiting. Up to 10 days is required for full recovery. While ***Escherichia coli* O157:H7 and *Shigella* may cause a similar illness, both generally present with bloody diarrhea**. *E. coli* O157:H7 is most often transmitted in contaminated undercooked beef, and *Shigella* is usually spread in a fecal-oral pattern or via contaminated water. **The peripheral WBC count is typically increased substantially in shigellosis**. *Staphylococcus aureus* produces an enterotoxin in food that causes the onset of nausea, vomiting, and diarrhea within hours of ingestion and clears within 24–48 hours. Norovirus is a very common cause of acute viral gastroenteritis, usually with more vomiting than diarrhea. It spreads person to person, and patients usually recover within 24 hours.
09-137. +Gas+Cca. An 8-year-old male presents to your office 2 days after returning from a trip to Mexico with his family. He developed watery, nonbloody diarrhea on the day of departure. He has mild abdominal cramping, but no fever or vomiting. His mother had similar symptoms, which were milder and resolved with over-the-counter treatments. Which one of the following would be most appropriate to treat this patient's condition? A) Metronidazole (Flagyl) B) Ciprofloxacin (Cipro) C) Azithromycin (Zithromax) D) Mebendazole E) Metoclopramide (Reglan)	Diarrhea. **09-137.** traveler's. **ANS=C.** Traveler's diarrhea commonly occurs in travelers to Mexico and developing countries. It is usually caused by bacterial organisms such as *Escherichia coli*, *Campylobacter*, *Shigella*, and *Salmonella*. Viral and parasitic organisms are less common causes, unless the diarrhea persists for 2 weeks. Appropriate medications include antidiarrheal agents such as loperamide, bismuth subsalicylate, and antibiotics. **In traveler's diarrhea, fluoroquinolones are effective in adults, but should not be used in an 8-year-old. Azithromycin is generally effective and safe in children.** Metronidazole, mebendazole, and metoclopramide would not be likely to successfully treat bacterial traveler's diarrhea.
09-180. +Gas+Adm. A 24-year-old female who works at a day-care facility presents to your office to discuss ways to avoid getting "all the infections the kids get." She plans to enroll her child in the facility. She is specifically concerned	Diarrhea. **09-180.** Probiotics are microorganisms with likely health benefits, based on recent randomized, controlled trials. **ANS=A.** Good evidence suggests that **probiotics reduce the incidence, duration, and severity of antibiotic-**

about diarrheal illnesses, and a friend has suggested the use of probiotics. You tell her that probiotics A) can lessen the severity and duration of infectious diarrhea B) are recommended only for patients who are immunocompromised C) have no known side effects D) often interact with common prescription medications E) are not appropriate for use in children	**associated and infectious diarrhea; common side effects include flatulence and abdominal pain. Contraindications include short-gut syndromes and immunocompromised states. There are no known drug interactions, and these agents appear safe for all ages** (SOR A).
10-046. +Gas+Com.>L**?*** Which one of the following is true concerning Norwalk virus? A) Outbreaks occur mostly in settings with large numbers of children, such as schools and day-care centers B) Viral shedding continues long after the acute illness C) The virus does not survive long on most environmental surfaces D) An episode of Norwalk gastroenteritis leads to long-lasting immunity E) It is a less common cause of diarrhea in adults than *Shigella*	Diarrhea. **10-046.** Norwalk virus. Outbreaks of Norwalk gastroenteritis occur in a wide variety of settings, involve all ages, and are more likely to involve high-risk groups such as immunocompromised patients or the elderly. **ANS=B.** Not only does viral shedding of the Norwalk virus often precede the onset of illness, but it can continue long after the illness has clinically ended. The virus persists on environmental surfaces and can tolerate a broad range of temperatures. There are multiple strains of the virus, so a single infection does not confer immunity, and repeated infections occur throughout life. **It is the most common cause of diarrhea in adults.**
08-235. +Gas+Adm. A 60-year-old male presents with a 3-day history of abdominal pain and urinary urgency. He also complains of chills, fatigue, and decreased appetite. His temperature is 38.4°C (101.2°F) orally, his pulse rate is 96 beats/min, and his blood pressure is 126/84 mm Hg. On physical examination he is tender in the left lower quadrant, and a rectal examination reveals a normal sized, nontender prostate gland. A urinalysis reveals 5–10 WBCs/hpf and 5–10 RBCs/hpf. A CBC reveals a normal hemoglobin and hematocrit, with a WBC count of 15,000/mm^3 and 85% neutrophils. A CT scan of the abdomen is shown. Which one of the following is the most likely diagnosis? A) Acute prostatitis B) Colon cancer C) Appendicitis D) Diverticulitis E) Pyelonephritis 	Diverticulitis/ Diverticulosis. **08-235.** The clinical picture of diverticulitis can be confused with urinary tract infections because bladder symptoms can accompany the gastrointestinal symptoms. **ANS=D**. The sigmoid colon lies close enough to the bladder that the bladder can be irritated by sigmoid diverticulitis. Conversely, urinary infections do not cause painful defecation. The location of the tenderness in the left lower quadrant and above the rectum is typical for sigmoid diverticulitis. No single test is routinely diagnostic for diverticulitis, but a CT scan that shows edema in the sigmoid mesentery has the best positive predictive value. Appendicitis is usually diagnosed clinically, but like diverticulitis is increasingly confirmed by CT. The tenderness is generally in the right lower quadrant. CT findings are noted around the cecum, rather than adjacent to the sigmoid. Colon cancer is usually asymptomatic when discovered, but when symptoms are present they usually include a change in bowel habits, hematochezia, anemia, or symptoms of obstruction. Pericolic abscess is a rare presentation of colon cancer.
09-016. +Gas+Cel. A 69-year-old male presents with a 2-week history of fever, fatigue, weight loss, and mild diarrhea. He is found to have a mildly tender mass in the left lower quadrant of the abdomen. The most likely diagnosis is A) Crohn's disease B) ulcerative colitis C) celiac disease D) diverticulitis E) lymphoma	Diverticulitis/ Diverticulosis. **09-016.** Diverticulitis commonly affects the left lower quadrant in the elderly and may present as an abscess. **ANS: D.** Crohn's disease primarily affects the distal small intestine (regional enteritis), most typically in a young person, and usually in the second or third decade of life. Ulcerative colitis usually presents with a longer history and does not typically present with a mass. A 2-week history of a palpable mass is not a typical presentation for lymphoma. Celiac disease does not cause a palpable left lower quadrant mass.
09-041. +Gas+Euc. A 64-year-old white male presents to the emergency department with a 48-hour history of left lower quadrant pain. After a thorough history and a physical examination you conclude that the patient has diverticulitis. The patient is allergic to metronidazole (Flagyl). You recommend a clear-liquid diet, a follow-up visit with his primary care physician in 48 hours, and treatment with A) amoxicillin B) amoxicillin/clavulanate (Augmentin) C) ciprofloxacin (Cipro) D) doxycycline E) azithromycin (Zithromax)	Diverticulitis/ Diverticulosis. **09-041.** An accepted regimen for outpatient treatment of diverticulitis is amoxicillin/clavulanate, 875 mg every 12 hours. Ciprofloxacin, doxycycline, and azithromycin are not optimal treatments because they do not include anaerobic coverage. Epocrates: Primary **Options: amoxicillin/clavulanate: 500 mg orally every 8 hours for 7 days. OR ciprofloxacin: 500 mg orally every 12 hours for 7-10 days and metronidazole: 500 mg orally every 8 hours for 7-10 days.**
10-045. +Gas+Euc**.*** A 56-year-old female with well-controlled diabetes mellitus and hypertension presents with an 18-hour history of progressive left lower quadrant abdominal pain, low-grade fever, and nausea. She has not been able to tolerate oral intake over the last 6 hours. An abdominal examination reveals significant tenderness in the left lower quadrant with slight guarding but no rebound tenderness. Bowel sounds are hypoactive. Rectal and pelvic examinations are unremarkable. Which one of the following is recommended as the initial diagnostic procedure in this situation? A) CT of the abdomen and pelvis B) Abdominal and pelvic ultrasonography C) A barium enema D) Colonoscopy E) Laparoscopy	Diverticulitis/ Diverticulosis. **10-045. Acute. ANS=A.** Based on the history and physical examination, this patient most likely has acute diverticulitis. CT has a very high sensitivity and specificity for this diagnosis, provides information on the extent and stage of the disease, and may suggest other diagnoses. Ultrasonography may be helpful in suggesting other diagnoses, but it is not as specific or as sensitive for diverticulitis as CT. Limited-contrast studies of the distal colon and rectum may occasionally be useful in distinguishing between diverticulitis and carcinoma, but would not be the initial procedure of choice. Water-soluble contrast material is used in this situation instead of barium. Colonoscopy to detect other diseases, such as cancer or inflammatory bowel disease, is deferred until the acute process has resolved, usually for 6 weeks. The risk of perforation or exacerbation of the disease is greater if colonoscopy is performed acutely. Diagnostic laparoscopy is rarely needed in this situation. Laparoscopic or open surgery to drain an abscess or resect diseased tissue is reserved for patients who do not respond to medical therapy. Elective sigmoid resection may be considered

after recovery in cases of recurrent episodes.

10-090. +Gas+Adm.>L?* A 65-year-old asymptomatic female is found to have extensive sigmoid diverticulosis on screening colonoscopy. She asks whether there are any dietary changes she should make. In addition to increasing fiber intake, which one of the following would you recommend?
A) Limiting intake of dairy products
B) Limiting intake of spicy foods
C) Limiting intake of wheat flour
D) Limiting intake of nuts
E) No limitations on other intake

Diverticulitis/ Diverticulosis. **10-090. ANS=E.** Patients with diverticulosis should increase dietary fiber intake or take fiber supplements to reduce progression of the diverticular disease. Avoidance of nuts, corn, popcorn, and small seeds has not been shown to prevent complications of diverticular disease.

07-020. +End+Adm. A 54-year-old female diabetic who takes fenofibrate (Tricor) has the following fasting lipid levels: total cholesterol 200 mg/dL, LDL cholesterol 64 mg/dL, HDL cholesterol 40 mg/dL, triglycerides 525 mg/dL. Her weight has increased by 3 kg (7 lb). She occasionally checks her blood glucose and says it is "okay." She admits to occasional diarrhea. **In order to improve this patient's lipid status, the most appropriate next step is to** A) add ezetimibe (Zetia) B) check the patient for celiac disease C) order TSH and hemoglobin A1c levels D) discontinue fenofibrate and prescribe rosuvastatin (Crestor)

DM I/ DM II. **07-020. ANS=C. Poorly controlled diabetes mellitus and hypothyroidism are often associated with a metabolic syndrome that can include a mixed dyslipidemia.** Ezetimibe and rosuvastatin will lower the LDL-cholesterol level but have little or no effect on triglycerides. Celiac disease is not a cause of hypertriglyceridemia, but it may be associated with malabsorption, leading to hypocholesterolemia.

07-041. +End+Adm. A contraindication to the use of metformin (Glucophage) in a patient with type 2 diabetes mellitus is
A) obesity
B) insulin resistance
C) renal insufficiency
D) concurrent use of glyburide (DiaBeta, Micronase)

Treatment Guidelines for Medicine and Primary Care 2008 Edition (TGMPC)**: Type 2 Diabetes Mellitus. I. Degree of glycemic control**
A. Measurement of hemoglobin A1C (A1C) provides a better estimate of chronic glycemic control than measurements of fasting blood glucose. The Diabetes Control and Complications Trial (DCCT) demonstrated that achieving near normal blood glucose concentrations markedly reduces the risk of microvascular and neurologic complications in type 1 diabetes.
B. The goal of therapy should be an A1C value of 7.0 percent or less. The goal should be set somewhat higher for older patients. In order to achieve the A1C goal, the glucose goals below are usually necessary: **1.** Fasting glucose 70 to 130 mg/dL. **2.** Postprandial glucose (90 to 120 minutes after a meal) <180 mg/dL
C. Cardiovascular risk factor reduction (smoking cessation, aspirin, blood pressure, reduction in serum lipids, diet, exercise, and, in high-risk patients, an angiotensin converting enzyme inhibitor) should be accomplished for all patients with type 2 diabetes.
II. Nonpharmacologic treatment
A. Diet modification can improve obesity, hypertension, and insulin release and responsiveness. **B.** Regular exercise leads to improved glycemic control due to increased responsiveness to insulin; it can also delay the progression of impaired glucose tolerance to overt diabetes.
III. Medications for initial therapy
A. Sulfonylureas and meglitinides increase insulin release.
B. Biguanides (metformin) and thiazolidinedione increase insulin responsiveness.
C. Alpha-glucosidase inhibitors reduce intestinal absorption of carbohydrate and lipase inhibitors reduce the absorption of fat.
D. Biguanides. Metformin (Glucophage) often leads to modest weight reduction and is a reasonable first choice for oral treatment of type 2 diabetes.
1. Metformin (Glucophage) is available as 500 and 850 mg tablets, which should be taken with meals; extended release formulations may be convenient once the dose is adjusted. Metformin should not be given to elderly (>80 years) patients unless renal sufficiency is proven with a direct measure of GFR, or to patients who have renal, hepatic or cardiac disease or drink excess alcohol. Patients who are about to receive intravenous iodinated contrast material (with potential for contrast-induced renal failure) or undergo a surgical procedure (with potential compromise of circulation) should have metformin held.
2. Initial dosage is 500 mg once daily with the evening meal and, if tolerated, a second 500 mg dose is added with breakfast. The dose can be increased slowly (one tablet every one to two weeks). The usual maximum effective dose is 850 mg twice per day.
Contraindications to metformin therapy:
Renal dysfunction: Serum creatinine level >1.5 mg/dL in men, >1.4 mg/dL in women. Metformin should be temporarily discontinued in patients undergoing radiologic studies involving intravascular administration of iodinated contrast materials. Treatment may be restarted 48 hours after the procedure when normal renal function is documented. Treatment should be carefully initiated in patients >80 years of age after measurement of creatinine clearance demonstrates that renal function is not reduced. Congestive heart failure that requires pharmacologic therapy. Hepatic dysfunction. Dehydration. Acute or chronic metabolic acidosis (diabetic ketoacidosis). Known hypersensitivity to Metformin.
E. Sulfonylureas are moderately effective, lowering blood glucose concentrations by 20 percent and A1C by 1 to 2 percent. Their effectiveness decreases over time. **1.** The choice of sulfonylurea is primarily dependent upon cost, since the efficacy of the available drugs is similar.
F. Meglitinides. Repaglinide (Prandin) and nateglinide (Starlix) are short-acting glucose-lowering drugs that act similarly to the sulfonylureas and have similar or slightly less efficacy in decreasing glycemia. Meglitinides may be used in patients who have allergy to sulfonylureas. However, they are considerably more expensive than sulfonylureas, and have no therapeutic advantage.
1. Nateglinide (Starlix) is hepatically metabolized, with renal excretion of active metabolites. With decreased renal function, the accumulation of active metabolites and hypoglycemia has occurred. Repaglinide is principally metabolized by the liver, with less than 10 percent renally excreted.
G. Thiazolidinediones, rosiglitazone (Avandia) and pioglitazone (Actos), lower blood glucose concentrations by increasing insulin sensitivity. Hepatotoxicity with rosiglitazone and pioglitazone is very rare. **1.** Pioglitazone and rosiglitazone are approved for monotherapy or in

DM I/ DM II. **07-041. Metformin decreases glucose production in the liver and increases glucose uptake. ANS=C.** It has no effect on pancreatic insulin secretion. It is useful to help overcome insulin resistance, and can be used concurrently with a sulfonylurea. Studies have proven its safety and usefulness in the obese diabetic. It **is contraindicated in renal insufficiency, as increased concentrations of the drug can cause lactic acidosis. Other contraindications include hepatic disease, a previous history of lactic acidosis, heart failure treated with drugs, and chronic lung disease.**

MEDICATION	EXAMPLES	MECHANISM	SIDE EFFECTS
Sulfonylureas	**First generation:** Chlorpropamide **Second generation:** Glipizide, glyburide	↑ insulin secretion.	Hypoglycemia.
Meglitinides	Repaglinide	↑ insulin secretion.	Hypoglycemia.
Biguanides	Metformin	Inhibit hepatic gluconeogenesis; ↑ glucose utilization; ↓ insulin resistance	Lactic acidosis, diarrhea, GI discomfort, metallic taste, weight loss.
a-glucosidase inhibitors	Acarbose	↓ glucose absorption.	↑ flatulence, GI discomfort, elevated LFTs.
Thiazolinedione ("glitazones")	Rosiglitazone, pioglitazone	↓ insulin resistance; ↑ glucose utilization.	Hepatocellular injury, anemia, pedal edema, CHF.
Glucagon-like peptide-1 (GLP-1) agonists.	Exenatide	↑ postprandial glucose utilization; stimulate insulin secretion, suppress glucagon secretion, and promote B-cell production.	Nausea, vomiting, weight loss, pain at injection site, hypoglycemia. Delayed gastric emptying
DPP-4 inhibitors	Sitagliptin (Januvia)	Prevent GLP-1 breakdown and slow the breakdown of some sugars.	
Amylin analogs	Pramlintide (Symlin)	Acts with insulin to delay gastric emptying and also inhibit glucagon release	Delayed gastric emptying

IV. Choosing Initial Therapy
A. Metformin therapy should be started in most patients at the time of diabetes diagnosis, in the absence of contraindications, along with lifestyle intervention. The dose of Metformin should be titrated to its maximally effective dose (usually 850 mg twice per day) over one to two months, as tolerated.
B. Metformin should not be given to elderly (>80 years) patients unless renal sufficiency is proven with a direct measure of GFR, or to patients who have renal, hepatic or cardiac disease or drink excess alcohol. Another oral agent (a sulfonylurea or thiazolidinedione) should be used for initial therapy in these patients.
C. Patients who are underweight, are losing weight, or are ketotic should be started on insulin. Insulin should be initial therapy for patients presenting with A1C >10 percent, fasting plasma glucose >250 mg/dL, random glucose consistently >300 mg/dL, or ketonuria.
D. If inadequate control is achieved (A1C remains >7 percent), another medication should be added within two to three months of initiation of metformin. The choice of the second medication might be insulin, a sulfonylurea, or a thiazolidinedione. Insulin is recommended for patients whose A1C remains >8.5 percent.
E.Further adjustments of therapy should usually be made every three months, based on the A1C result, aiming for levels as close to the nondiabetic range as possible. Values >7 percent suggest the need for further adjustments in the diabetic regimen.
F.The patient should perform self blood glucose monitoring and keep a record of the fasting blood glucose, obtained after meals and at other times during the day, and when hypoglycemia is suspected.
V.Combination oral therapy for persistent hyperglycemia
A. Metformin plus sulfonylureas. Metformin has an additive hypoglycemic effect when given in combination with a sulfonylurea.
1. A combination tablet **(Glucovance)** is now available in the following glyburide/metformin doses: 1.25 mg/250 mg; 2.5 mg/500 mg; 5 mg/500 mg.
B. Metformin plus a thiazolidinedione. Patients who fail initial therapy with metformin may benefit from the addition of a thiazolidinedione such as rosiglitazone or pioglitazone.

combination with metformin, sulfonylurea or insulin. Combination tablets of metformin and rosiglitazone (Avandamet) are available. Thiazolidinediones are similar to metformin as monotherapy. They are associated with more weight gain than metformin, and are considerably more expensive than any of the other oral hypoglycemic drugs. **2.** Thiazolidinediones are reserved for second-line treatment in combination with other anti-diabetic medications where synergistic effects can lower A1C substantially. Fluid retention and precipitation or worsening of heart failure are significant concerns. **H.Alpha-glucosidase inhibitors.** Because they act by a different mechanism, the alpha-glucosidase inhibitors, acarbose and miglitol, have additive hypoglycemic effects in patients receiving diet, sulfonylurea, metformin, or insulin therapy. This class of drugs is less potent than the sulfonylureas or metformin, lowering A1C by only 0.5 to 1.0 percentage points. **1.** Side effects are flatulence and diarrhea. These agents are not first-line therapy because of low efficacy and poor tolerance. **2.** Acarbose is available as 50 and 100 mg tablets which should be taken with the first bite of each meal. Initiate therapy with 50 mg three times daily. Flatulence, diarrhea, and abdominal discomfort resolve if the dose is decreased. Few patients tolerate more than 300 mg daily.	**C. Insulin** is a reasonable choice for initial therapy in patients who present with symptomatic or poorly controlled diabetes, and is the preferred second-line medication for patients with A1C >8.5 percent or with symptoms of hyperglycemia despite metformin titration. The dose of insulin may be adjusted every three days, until glycemic targets are achieved. **1.** Patients with persistent hyperglycemia despite oral hypoglycemic therapy may stop the oral drug and begin insulin, or may add insulin to oral medication. **2.**While NPH has been used commonly at bedtime to supplement oral hypoglycemia drug therapy, insulin glargine may be equally effective for reducing A1C values and may cause less nocturnal hypoglycemia. Although it may be reasonable to administer glargine at bedtime, morning administration may be better. **I. Insulin** should be used early in type 2 diabetes. When treated early with insulin, patients with type 2 diabetes can have remissions of at least several years, during which A1C is normal. A patient who is 20 percent above ideal body weight and has a fasting blood glucose of 180 mg/dL could be started on a total dose of 21 units per day.
07-108. +End+Mac. A 26-year-old gravida 1 para 0 at 28 weeks gestation has a 1-hour plasma glucose level of 145 mg/dL on a 50 g/hr glucose challenge test. A 3-hour glucose tolerance test confirms gestational diabetes. You initially recommend home glucose monitoring and treatment with diet and exercise. You would recommend insulin therapy if her 2-hour postprandial blood glucose levels are not consistently below a target level of A) 80 mg/dL B) 100 mg/dL C) 120 mg/dL D) 140 mg/dL E) 160 mg/dL	DM I/ DM II. **07-108.** DM, gestational. **ANS=C.** Patients diagnosed with gestational diabetes should receive nutrition counseling, monitor their blood glucose levels, and exercise to help maintain normoglycemia. The **commonly accepted treatment goal is to maintain a fasting capillary blood glucose level <95–105 mg/dL. The goal for the postprandial capillary blood glucose level should be <140 mg/dL at 1 hour and <120 mg/dL at 2 hours.**
07-140. +End+Mac. Which one of the following is a relative contraindication to prescribing rosiglitazone (Avandia) and pioglitazone (Actos)? A) Pregnancy B) Nonalcoholic fatty liver disease C) Use of insulin D) Lipodystrophy associated with highly active antiretroviral therapy E) Anemia	DM I/ DM II. **07-140. ANS=A. The thiazolidinediones rosiglitazone and pioglitazone are categorized as pregnancy category C, due to experimental evidence of growth retardation in mid- to late gestation in animal models.** These drugs are approved for the treatment of type 2 diabetes mellitus, and may be beneficial in other conditions associated with insulin resistance. **Liver enzyme elevations are improved in patients with nonalcoholic fatty liver disease**. Although not very effective, **the drugs are not contraindicated in patients with lipodystrophy associated with highly active antiretroviral therapy**. **Caution must be used when combining the use of these drugs with insulin therapy, as the increase in plasma volume that can be associated with this dual therapy may exacerbate heart failure, but the combination is not contraindicated** in the U.S. **The anemia associated with these drugs is mild** and rarely causes clinical consequences.
07-167. +End+Adm. Which one of the following is correct regarding nonalcoholic fatty liver disease? A) It is considered a benign condition B) It is not associated with cirrhosis C) It is associated with type 2 diabetes mellitus D) Isolated alkaline phosphatase elevation is the most common associated laboratory abnormality E) The diagnosis is usually confirmed by CT	DM I/ DM II. **07-167. Nonalcoholic fatty liver disease is associated with type 2 diabetes mellitus. ANS=C**. It is **not always a benign** condition; in fact, it is **now thought to be the most common cause of cryptogenic cirrhosis, particularly in overweight or obese individuals.** It is **associated with aminotransferase elevation, but can occur with normal or only slightly elevated levels**. **Imaging studies have limited utility** in diagnosing nonalcoholic fatty liver disease**, and cannot be routinely recommended**.
07-175. +End+Adm. A 45-year-old male comes to your office for follow-up of his diabetes mellitus, which was diagnosed 3 months ago. He wanted to try lifestyle modification, including diet, exercise, and weight loss, before trying medications. He has lost 3 kg (7 lb), but still is 14 kg (31 lb) overweight. His examination is unremarkable, as is his chemistry profile. His hemoglobin A1c level is 8.3%. Which one of the following would be most appropriate at this point? A) Exenatide (Byetta) B) Glyburide (Micronase, DiaBeta) C) Insulin D) Metformin (Glucophage) E) Rosiglitazone (Avandia)	DM I/ DM II. **07-175. ANS=D.** The American Diabetes Association recommends **lifestyle intervention along with metformin as initial therapy for type 2 diabetes. If the follow-up hemoglobin A1c is more than 7.0%, then insulin (most effective), a sulfonylurea (least expensive), or a glitazone (no risk of hypoglycemia) can be added. The hemoglobin A1c should be checked every 3 months until it is less than 7.0%, and every 6 months thereafter.**
07-180. +End+Cca. For an African-American child with a body mass index (BMI) greater than the 85th percentile for age and gender, and whose mother has type 2 diabetes mellitus, screening for type 2 diabetes should begin at what age? A) 7 years B) 10 years C) 13 years D) 16 years E) In adulthood	DM I/ DM II. **07-180. ANS=B. Children and adolescents at increased risk should be screened for type 2 diabetes at age 10, or at puberty if it occurs before age 10. Children are considered at increased risk if their BMI is >85th percentile for age and sex, their weight for height is >85th percentile, or their weight is >120% of ideal for height, AND they have two or more of the following: • a family history of type 2 diabetes in first- or second-degree relatives • ethnicity of American Indian, African-American, Hispanic, Asian/Pacific Islander • signs/symptoms of insulin resistance (acanthosis nigricans, hypertension, dyslipidemia, polycystic ovary syndrome). Screening should be performed every 2 years.**
07-193. +End+Com. Which one of the following statements regarding blood glucose monitoring in patients with type 1 diabetes is most correct? A) Blood glucose testing from a fingertip site is preferred B) Monitoring blood glucose 5 times per day is too often C) A random blood glucose level of 100 mg/dL is too high D) Continuous blood glucose monitoring can result in higher hemoglobin A1c levels **Treatment Guidelines for Medicine and Primary Care** 2008 Edition (TGMPC)**:** **Routine Diabetes Care** **History:** Review physical activity, diet, self-monitored blood glucose readings, medications. Assess for symptoms of coronary heart disease. Evaluate smoking status, latest eye examination results, foot care. **Physical examination:** Weight. Blood pressure. Foot examination. Pulse. Sores or callus. Monofilament test for sensation. Insulin injection sites. Refer for dilated retinal examination annually. **Laboratory studies:** HbA1c every three to six months. Annual fasting lipid panel. Annual	DM I/ DM II. **07-193.** DM I. **ANS=A.** According to the Diabetes Control and Complications Trial**, patients should assess fingertip blood glucose levels at least 3 times per day, including at bedtime, as well as before and after exercising and before driving**. Tight glycemic control leaves patients more at risk for hypoglycemia, so frequent monitoring helps to reduce this risk. Although testing from other sites is usually reliable, it can be inaccurate if performed within 60 minutes of meals or after exercise. **If a patient's random blood glucose level is less than 100 mg/dL, a small snack should be eaten. Preprandial results should be 90–130 mg/dL, and postprandial levels should be <180 mg/dL.** Continuous blood glucose monitoring has been shown to generally lead to tighter control and lower hemoglobin A1c levels. **Insulin therapy in type 1 diabetes mellitus:** **A.** The Diabetes Control and Complications Trial (DCCT) demonstrated that improved glycemic control with intensive insulin therapy in patients with type 1 diabetes mellitus led to graded reductions in retinopathy, nephropathy, and neuropathy. Intensive therapy is now

urine albumin/creatinine ratio. Annual serum creatinine.

Multiple daily insulin injection regimens

Regimen	Breakfast	Lunch	Dinner	Bedtime
1	R + N		R	N
2	R	R	R	N
3	VRA	VRA	VRA	G
4	VRA + G	VRA	VRA	
5	VRA + G	VRA	VRA + G	

R: regular insulin; N: NPH insulin; VRA: any very-rapid-acting analog (lispro, aspart, or glulisine); G: glargine.

H. Designing an (Multiple daily insulin) MDI insulin regimen: Most newly diagnosed patients with type 1 diabetes can be started on a total daily dose of 0.2 to 0.4 units of insulin per kg per day, although most will ultimately require 0.6 to 0.7 units per kg per day. Adolescents, especially during puberty, often need more, but the dose can be adjusted upward every few days based upon blood glucose measurements.

I. In designing an MDI regimen, **one-half of the total dose should be given as a basal insulin, either as once per day long-acting insulin (glargine or determir) or as twice per day intermediateacting insulin (NPH). The long-acting insulin can be given either at bedtime or in the morning; the NPH is usually given as two-thirds of the dose in the morning and one-third at bedtime. The remainder of the total daily dose (TDD) is given as short or rapid-acting insulin, divided before meals.** The pre-meal dosing is determined by the usual meal size and content. The slidingscale that is constructed for premeal use usually takes into account the carbohydrate content and the blood glucose levels before the meal. Regimens that use NPH in the morning may not require a pre-lunch dose of short or rapid-acting insulin.

considered to be standard therapy for management of type 1 diabetes.

B. The term "intensive insulin therapy" describes treatment with three or more injections per day or with continuous subcutaneous insulin infusion with an insulin pump.

C. Choice of insulin regimen. The basic requirements are a stable baseline dose of insulin (basal insulin) (whether an intermediate or long-acting insulin or given via continuous subcutaneous insulin infusion) plus adjustable doses of premeal short-acting insulin (regular) or rapid-acting insulin analogs (lispro, aspart, or glulisine).

D. Insulin glargine. The time-action profile for insulin glargine has virtually no peak, which makes it a good basal insulin preparation for intensive insulin therapy.

1. The therapeutic advantage of insulin glargine over NPH is modest, with no real advantage with regard to A1C achieved. Lower fasting blood glucose and fewer hypoglycemic episodes occur when insulin glargine was substituted for once or twice daily NPH insulin, but A1C values have generally not been lower in studies comparing glargine and NPH-based regimens. **2.** Although many patients can achieve stable basal serum insulin concentrations with a single daily injection of insulin glargine given in the morning or evening this is not always the case. About 20 percent of patients with type 1 diabetes need twice-daily glargine.

E. Insulin detemir is the second available long-acting insulin analog. However, its duration of action appears to be substantially shorter than that of insulin glargine, though still longer than NPH. Like NPH, twice-daily injections appear to be necessary in patients with type 1 diabetes. Glycemic control appears to be similar with insulin detemir and NPH; however, insulin detemir may be associated with slightly less nocturnal hypoglycemia and weight gain. These modest advantages of insulin detemir may be offset by its higher cost.

F. Rapid-acting insulins (insulin lispro, aspart, and glulisine) have an onset of action within 5 to 15 minutes, peak action at 30 to 90 minutes, and a duration of action of two to four hours.

G. In patients with type 1 diabetes, rapid-acting insulin has the following advantages when compared to regular insulin: **1.** It decreases the postprandial rise in blood glucose concentration better than regular insulin. **2.** It may modestly reduce the frequency of hypoglycemia in patients with type 1 diabetes. **3.** It is more convenient because it can be injected immediately before meals, whereas regular insulin should be given 30 to 45 minutes before meals. In addition, the action of insulin lispro is not blunted by mixing with NPH insulin just before injection, as is the action of regular insulin.

07-214. +End+Adm Which one of the following statements is true regarding the use of exenatide (Byetta) in the treatment of diabetes?
A) It may be used for either type 1 or type 2 diabetes
B) It may be used as monotherapy for type 2 diabetes, in addition to diet and exercise
C) Hypoglycemia is a common side effect
D) It may help with weight reduction

DM I/ DM II. **07-214.** **Exenatide** is **used in type 2 diabetes** as a **supplement to oral drugs**. It **rarely causes hypoglycemia, except when used with sulfonylureas**. **ANS=D.** It frequently **causes weight loss**. **Exenatide** is an **injectable drug that reduces the level of sugar (glucose) in the blood.** It is used for treating type 2 diabetes. Exenatide belongs in a class of drugs called incretin mimetics because these drugs mimic the effects of incretins. Incretins, such as human-glucagon-like peptide-1 (GLP-1), are hormones that are produced and released into the blood by the intestine in response to food. GLP-1 **increases the secretion of insulin from the pancreas, slows absorption of glucose from the gut, and reduces the action of glucagon**. (Glucagon is a hormone that increases glucose production by the liver.) All three of these actions reduce levels of glucose in the blood. **In addition,** GLP-1 **reduces appetite.** Exenatide is a synthetic (man-made) hormone that resembles and acts like GLP-1. In studies, exenatide-treated patients achieved lower blood glucose levels and experienced weight loss.

08-029. +End+Adm. Which one of the following **medications should be discontinued in a patient with diabetic gastroparesis**?
A) Exenatide (Byetta)
B) Benazepril (Lotensin)
C) Metformin (Glucophage)
D) Hydrochlorothiazide
E) Prochlorperazine maleate

DM I/ DM II. **08-029.** Diabetic gastroparesis. **ANS=A. Delayed gastric emptying may be caused or exacerbated by medications for diabetes, including amylin analogues (e.g., pramlintide) and glucagon-like peptide 1 (e.g., exenatide).** Delayed gastric emptying has a direct effect on glucose metabolism, in addition to being a means of reducing the severity of postprandial hyperglycemia. In a clinical trial of exenatide, nausea occurred in 57% of patients and vomiting occurred in 19%, which led to the cessation of treatment in about one-third of patients. The other medications listed do not cause delayed gastric emptying.

08-108. +End+Adm. A 55-year-old white male sees you for a routine annual visit. His fasting blood glucose level is 187 mg/dL. Repeat testing 1 week later reveals a fasting glucose level of 155 mg/dL and an HbA1c of 9.4%. His BMI is 30 kg/m2 . He does not seem to have any symptoms of diabetes mellitus. In addition to lifestyle changes, which one of the following would you prescribe initially?
A) Metformin (Glucophage)
B) Glyburide (DiaBeta, Micronase)
C) Rosiglitazone (Avandia)
D) Bedtime long-acting insulin (Lantus)
E) Bedtime long-acting insulin and rapid-acting insulin (Novolog) with each meal

DM I/ DM II. **08-108.** **Metformin is widely accepted as the first-line drug for type 2 diabetes mellitus.** **ANS=A.** It is relatively effective, safe, and inexpensive, and has been used widely for many years. Unlike other oral hypoglycemics and insulin, it does not cause weight gain. It should be started at the same time as lifestyle modifications, rather than waiting to see if a diet and exercise regimen alone will work. If metformin is not effective, a sulfonylurea, a thiazolidinedione, or insulin can be added, with the choice based on the severity of the hyperglycemia.

08-118. +End+Cca. A 15-year-old male presents for a routine evaluation. He has no complaints. He has a BMI of 30 kg/m2 , which places him in the 97th percentile for his age. The remainder of his examination is normal; however, a random blood glucose level is 162 mg/dL. Which one of the following would be the most appropriate next step for this patient?
A) Obtain a fasting blood glucose level
B) Start metformin (Glucophage), 500 mg daily, and follow up in 4 weeks
C) Order a hemoglobin A1c level
D) Advise the patient to start a weight-loss program and follow up in 4 weeks

DM I/ DM II. **08-118. ANS=A.** This patient should have further testing for diabetes mellitus. Current recommendations for diagnosing diabetes mellitus are based on either a fasting glucose level or a 2-hour 75-g oral glucose tolerance test. A casual blood glucose level >200 mg/dL is also diagnostic of diabetes mellitus in patients with symptoms of hyperglycemia. If unequivocal hyperglycemia is not present, the diagnosis must be confirmed by testing on another day. Metformin can be used to treat diabetes mellitus in adolescents, but it is not recommended for prevention in this age group. A diagnosis of diabetes mellitus should be established prior to starting metformin. Hospitalization is not required for this level of blood glucose unless ketoacidosis is present. Current recommendations for treating adolescents with type 2 diabetes mellitus include weight loss through dietary modification and exercise.

08-137. +End+Cel. A frail 83-year-old male with a 10-year history of diabetes

DM I/ DM II. **08-137.** Geriatric patients. **ANS=E.** For **geriatric patients in long-**

mellitus is admitted to a nursing home. His blood glucose level, which he rarely checks, is typically over 200 mg/dL. His serum creatinine level is 1.9 mg/dL. He also has had several episodes of heart failure. His current medications include glipizide (Glucotrol), lisinopril (Prinivil, Zestril), and furosemide (Lasix). Which one of the following would be most appropriate to add to this patient's regimen to treat his diabetes mellitus? A) The American Diabetes Association 1800-calorie/day diet B) Metformin (Glucophage) C) Pioglitazone (Actos) D) Exenatide (Byetta) E) Insulin glargine (Lantus)	**term care facilities, the predictable glucose control of glargine is the best approach to consider initially.** The American Diabetes Association does not recommend a strict diet for frail diabetic patients in nursing homes. Exenatide is not recommended for the frail elderly because of concerns about weight loss and nausea. Heart failure precludes the use of pioglitazone, and renal failure precludes the use of metformin.
08-166. +End+Adm. Which one of the following most increases insulin sensitivity in an overweight patient with diabetes mellitus? A) Metformin (Glucophage) B) Acarbose (Precose) C) Glyburide (DiaBeta, Micronase) D) NPH insulin	DM I/ DM II. **08-166. Metformin increases insulin sensitivity much more than sulfonylureas or insulin. ANS=A**. This means lower insulin levels achieve the same level of glycemic control, and may be one reason that weight changes are less likely to be seen in diabetic patients on metformin. Acarbose is an a-glucosidase inhibitor that delays glucose absorption.
08-170. +End+Adm. The blood pressure goal for a patient who has uncomplicated diabetes mellitus is A) 140/80 mm Hg B) 130/80 mm Hg C) 120/80 mm Hg D) 110/80 mm Hg E) 110/70 mm Hg	DM I/ DM II. **08-170. Aggressive control of blood pressure to <135/85 mm Hg in hypertensive patients and to <130/80 mm Hg in diabetic patients is recommended. ANS=B.** Lowering blood pressure may reduce stroke rates by 40%–52% and cardiovascular morbidity by 18%–20%.
08-193. +End+Adm. A 40-year-old female comes to your office for a routine examination. She has been in good health and has no complaints other than obesity. Her mother is diabetic and the patient has had a child that weighed 9 lb at birth. Her examination is negative except for her obesity. A fasting glucose level is 128 mg/dL, and when repeated 2 days later it is 135 mg/dL. Which one of the following would be most appropriate at this point? A) Diagnose type 2 diabetes mellitus and begin diet and exercise therapy B) Begin an oral hypoglycemic agent C) Order a glucose tolerance test D) Tell the patient that she has impaired glucose homeostasis but is not diabetic	DM I/ DM II. **08-193. Criteria. ANS=A.** The **criteria for diagnosing diabetes** mellitus **include any one of the following: symptoms of diabetes (polyuria, polydipsia, weight loss) plus a casual glucose level ≥200 mg/dL; a fasting plasma glucose level ≥126 mg/dL; or a 2-hour postprandial glucose level ≥200 mg/dL after a 75-gram glucose load. In the absence of unequivocal hyperglycemia the test must be repeated on a different day.** The **criteria for impaired glucose homeostasis include either a fasting glucose level of 100–125 mg/dL (impaired fasting glucose) or a 2-hour glucose level of 140–199 mg/dL on an oral glucose tolerance test. Normal values are now considered <100 mg/dL for fasting glucose and <140 mg/dL for the 2-hour glucose level on an oral glucose tolerance test.**
08-226. +End+Cca. An 18-year-old male seen in your office is found to be overweight and to have acanthosis nigricans. Both of his parents have a history of diabetes mellitus. His fasting plasma glucose level is 111 mg/dL (N <100). Which one of the following is the correct diagnosis? A) Prediabetes B) Type 1 diabetes mellitus C) Type 2 diabetes mellitus D) Maturity-onset diabetes of the young A variety of lab tests and clinical signs help to provide the critical information needed to correctly **determine which type of diabetes the person has**: **Ketones:** are a byproduct produced when the body uses large amounts of fat as fuel. This occurs when carbohydrate is no longer available as fuel due to a lack of insulin. When a urine or blood test shows **large amounts of ketones, that person definitely has Type 1 or insulin dependent diabetes. (One rare exception is young, black males)** who can have ketones at diagnosis but regain insulin production. If insulin is injected before the ketone test is administered, the opportunity to find large amounts of ketones may have passed. **Antibodies:** Type 1 diabetes is an autoimmune disease, so 80 to 90% of the time when Type 1 exists, the person is producing antibodies characteristic of Type 1, such as the **islet cell antibodies and GAD 64 antibodies.** The blood can be tested to see if any of these antibodies are present. If antibodies specific to Type 1 are detected, the **person already has or is likely to develop Type 1 diabetes.** These tests are currently used in the DPT-1 trial to test relatives of those with Type 1 diabetes and detect who will develop this disease. **High triglyceride and low HDL:** Cholesterol problems characterized by **high triglycerides and low HDL are typical of insulin resistance. These markers for Syndrome X are commonly found in Type 2** diabetes. A detailed cholesterol test or lipid profile test will determine this. **Uric Acid:** The high uric acid level often found in people with gout is a component of Syndrome X. **If a person has a high uric acid level and high blood sugars, he usually has insulin-resistant, Type 2 diabetes.** **C-peptide:** If other tests fail to indicate the type of diabetes, a C-peptide test can reveal how much insulin the person is producing. C-peptide is half of the precursor molecule to insulin that is split off when insulin is produced by the body. If **C-peptide is normal or high, Type 2 diabetes is likely. If the level is significantly low, Type 1 diabetes is likely.** For more info, visit: http://www.diabetesnet.com/diabetes_types/whatype.php#ixzz1F12LgM6D	DM I/ DM II. **08-226.** This patient has **prediabetes, which is defined as having a fasting plasma glucose level of 101–125 mg/dL**. **ANS=A.** These patients are at high risk for developing diabetes mellitus later in life. Prediabetes is **associated with metabolic syndrome,** and weight loss, exercise, and certain pharmacologic agents have been shown to prevent or delay the subsequent development of diabetes mellitus. Diabetes mellitus is diagnosed in three ways: symptoms of diabetes (polyuria, polydipsia, unexplained weight loss) plus a random plasma glucose level ≥200 mg/dL; a fasting plasma glucose level ≥126 mg/dL; or a glucose level ≥200 mg/dL on a 2-hour 75-g oral glucose tolerance test. It is important to note that in the absence of unequivocal hyperglycemia the diagnosis must be confirmed by repeat testing on a subsequent day. **Once the diagnosis of diabetes is confirmed, further testing is needed to differentiate between type 1, type 2, and maturity-onset diabetes of youth.**
09-014. +End+Cca. Which one of the following injection sites for insulin	DM I/ DM II. **09-014. DM I. ANS: B.** The use of a **nonexercised injection site**

administration is best for preventing hypoglycemia in a 14-year-old male with diabetes mellitus who wishes to participate in track and field running events? A) Arm B) Abdomen C) Hip D) Calf E) Thigh	**for insulin administration, such as the abdomen, may reduce the risk of exercise-induced hypoglycemia**. If the leg is used as an injection site, exercise may accelerate insulin absorption, resulting in increased levels of plasma insulin. However, leg exercise has no effect on insulin disappearance from the arm and may actually reduce the rate of insulin disappearance from abdominal injection sites. Compared with leg injection, arm or abdominal injection reduces the hypoglycemic effect of exercise by approximately 60% and 90%, respectively.
09-017. +End+ Mac. A 35-year-old white gravida 2 para 1 sees you for her initial prenatal visit. Since delivering her first child 10 years ago, she has developed type 2 diabetes mellitus. She has kept her disease 1c under excellent control by taking metformin (Glucophage). A recent hemoglobin A level was 6.5%. You should now treat her diabetes with A) metformin B) acarbose (Precose) C) pioglitazone (Actos) D) human insulin	DM I/ DM II. **09-017.** In pregnancy. All oral agents cross the placenta (in contrast to insulin), leading to the potential for severe neonatal hypoglycemia. **ANS=D**. For these reasons, plus the requirement for exquisitely tight glucose control to reduce fetal macrosomia and organ dysgenesis, the American Diabetes Association **advocates the use of human insulin for pregnant women.**
09-094. +End+Adm. In patients with type 2 diabetes mellitus, **intensive glycemic control has not been shown to be beneficial for** which one of the following diabetic complications? A) Peripheral neuropathy B) Foot infections C) Cardiovascular disease D) Proliferative retinopathy E) Nephropathy	DM I/ DM II. **09-094. Intensive glycemic control has not been shown to be beneficial for cardiovascular disease reduction in patients with type 2 diabetes mellitus, but it is beneficial in type 1 diabetes. Intensive management of hyperglycemia**, with a goal of achieving nondiabetic glucose levels, **helps reduce microvascular complications such as retinopathy, nephropathy, and neuropathy**. **ANS=C. Foot infections are less common in patients without neuropathy and in patients with good glycemic control.** Intensive management of hyperglycemia also has a beneficial effect on cardiovascular disease in patients with type 1 diabetes mellitus but, unfortunately, not in patients with type 2 diabetes mellitus. **In fact, there is data to suggest that intensive glycemic control (hemoglobin A1c <6.5) may be detrimental in certain populations, such as the elderly and those with cardiovascular disease.**
09-096. +End+Adm. Which one of the following is more likely to occur with glipizide (Glucotrol) than with metformin (Glucophage)? A) Lactic acidosis B) Hypoglycemia C) Weight loss D) Gastrointestinal distress	DM I/ DM II. **09-096.** Glipizide vs. metformin. **ANS=B. Metformin** is a biguanide used as an oral antidiabetic agent. **One of its main advantages over some other oral agents is that it does not cause hypoglycemia**. **Lactic acidosis, while rare, can occur in patients with renal impairment.** In contrast to most other agents for the control of elevated glucose, which often cause weight gain, metformin reduces insulin levels and more frequently has a weight-maintaining or even a weight loss effect. Gastrointestinal distress is a common side effect of metformin, particularly early in therapy.
09-112. +End+Cca. An overweight 11-year-old male with acanthosis nigricans is found to have a fasting plasma glucose level of 175 mg/dL on two occasions. Over the next 6 months, despite reasonable adherence to a diet and exercise regimen, he has preprandial and bedtime finger-stick blood 1c glucose levels that average 180 mg/dL. His hemoglobin A is 9.0%. Which one of the following oral agents would be most appropriate at this time? A) Metformin (Glucophage) B) Glyburide (DiaBeta) C) Sitagliptin (Januvia) D) Pioglitazone (Actos) E) Acarbose (Precose)	DM I/ DM II. **09-112.** In children. **ANS=A. Metformin and insulin are the only agents approved for treatment of type 2 diabetes mellitus in children.**
09-149. +End+Adm. A 60-year-old African-American male is found to have type 2 diabetes mellitus. Which one of the following should be ordered before initiating treatment with metformin (Glucophage)? A) Serum electrolytes B) A serum creatinine level C) A CBC D) A lipid panel E) A thyroid panel	DM I/ DM II. **09-149. Metformin. ANS=B. Metformin is contraindicated in patients with renal dysfunction, because it is associated with an increased incidence of lactic acidosis.**
09-181. +End+ Mac. The recommended time to screen for gestational diabetes in asymptomatic women with no risk factors for this condition is A) in the first trimester B) at 16–20 weeks gestation C) at 24–28 weeks gestation D) at 35–37 weeks gestation	DM I/ DM II. **09-181.** DM, gestational. **ANS=C.** The recommended time to **screen for gestational diabetes is 24–28 weeks gestation. The patient may be given a 50-g oral glucose load followed by a glucose determination 1 hour later.**
09-206. +End+Adm. A 35-year-old white male who has had diabetes mellitus for 20 years begins having episodes of hypoglycemia. He was previously stable and well controlled and has not recently changed his diet or insulin regimen. Which one of the following is the most likely cause of the hypoglycemia? A) Spontaneous improvement of B-cell function B) Renal disease C) Reduced physical activity D) Insulin antibodies	DM I/ DM II. **09-206. DM I. ANS=B. The most common cause of hypoglycemia in a previously stable, well-controlled diabetic patient who has not changed his or her diet or insulin dosage is diabetic renal disease.** A reduction in physical activity or the appearance of insulin antibodies (unlikely after 20 years of therapy) would increase insulin requirements and produce hyperglycemia. Spontaneous improvement of B-cell function after 20 years would be very rare.
09-227. +End+Adm. You see a 30-year-old white male for the first time for a routine evaluation. He says that he has been bothered by multiple skin lesions on the neck and axillae. On examination you note numerous skin tags. The presence of these lesions indicates an increased risk for A) diabetes mellitus B) squamous cell skin cancer C) melanoma D) glioblastoma multiforme E) AIDS	DM I/ DM II. **09-227. ANS=A. Skin tags, or acrochordons, are associated with diabetes mellitus and obesity**. The onset often occurs in early adulthood, and the most common locations are the neck and axillae. These skin lesions are not associated with any significant cancer risk, and have not been associated with HIV infection.
10-008. +End+Adm.* A critically ill adult male is admitted to the intensive-care unit because of sepsis. He has no history of diabetes mellitus, but his glucose level on admission is 215 mg/dL and insulin therapy is ordered. Which one of the following is the most appropriate target glucose range for this patient? A) 80–120 mg/dL B) 100–140 mg/dL C) 120–160 mg/dL D) 140–180 mg/dL E) 160–200 mg/dL	DM I/ DM II. **10-008. ANS=D.** The 2009 consensus guidelines on **inpatient glycemic control** issued by the American Association of Clinical Endocrinologists and the American Diabetes Association recommend **insulin infusion with a target glucose level of 140–180 mg/dL in critically ill patients.** This recommendation is based on clinical trials in critically ill patients. In the groups studied, there was no reduction in mortality from intensive treatment targeting near-euglycemic glucose levels compared to conventional management with a target glucose level of <180 mg/dL. There also were reports of harm resulting from intensive glycemic control, including higher rates of severe hypoglycemia and even increased mortality.
10-025. +Int+Adm.>L A 63-year-old male with type 2 diabetes mellitus is seen in	DM I/ DM II. **10-025. ANS=B. The most common pathogens in previously**

the emergency department for an acute, superficial, previously untreated infected great toe. Along with *Staphylococcus aureus*, which one of the following is the most common pathogen in this situation? A) *Pseudomonas* B) *Streptococcus* C) *Clostridium* D) *Escherichia coli* E) Adenovirus	**untreated acute superficial foot infections in diabetic patients are aerobic gram-positive *Staphylococcus aureus* and B-hemolytic streptococci (groups A, B, and others).** Previously treated and deep infections are often polymicrobial.
10-057. +Car+Adm. According to the guidelines of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, for hypertensive patients who also have diabetes mellitus, the blood pressure goal is below a threshold of A) 140/95 mm Hg B) 135/90 mm Hg C) 130/80 mm Hg D) 120/75 mm Hg	DM I/ DM II. **10-057.** Hypertension and diabetes mellitus are very common, both separately and in combination. **ANS=C.** End-organ damage to the heart, brain, and kidneys is more common in patients with both diabetes mellitus and hypertension, occurring at lower blood pressure levels than in patients with only hypertension. JNC 7, an evidence-based consensus report, recommends that **patients with diabetes and hypertension be treated to reduce blood pressure to below 130/80 mm Hg, as opposed to 140/90 mm Hg for other adults.** It should be noted, however, that the recently published **ACCORD blood pressure trial found no significant cardiovascular benefit from targeting systolic blood pressure at ≤120 mm Hg rather than ≤140 mm Hg in patients with type 2 diabetes. This finding may affect the JNC 8 guidelines**, which are currently being developed.
10-072. +End+Adm.* The best available evidence supports which one of the following statements regarding the cardiovascular effects of hypoglycemic agents? A) Sulfonylureas increase cardiovascular events B) Metformin (Glucophage) reduces cardiovascular mortality rates C) Incretin mimetics reduce the risk of cardiovascular events D) A-Glucosidase inhibitors have no effect on cardiovascular events	DM I/ DM II. **10-072. Metformin is the only hypoglycemic agent shown to reduce mortality rates in patients with type 2 diabetes mellitus. ANS=B.** A recent systematic review concluded that cardiovascular events are neither increased nor decreased with the use of sulfonylureas. The effect of incretin mimetics and incretin enhancers on cardiovascular events has not been determined. **The STOP-NIDDM study suggests that a-glucosidase inhibitors reduce the risk of cardiovascular events in patients with impaired glucose tolerance.**
10-085. +End+Adm. Which one of the following is diagnostic for type 2 diabetes mellitus? A) A fasting plasma glucose level ≥126 mg/dL on two separate occasions B) An oral glucose tolerance test (75-g load) with a 2-hour glucose level ≥160 mg/dL C) A random blood glucose level ≥200 mg/dL on two occasions in an asymptomatic person D) A hemoglobin A1c ≥6.0% on two separate occasions	DM I/ DM II. **10-085. ANS=A.** The American Diabetes Association (ADA) first published guidelines for the diagnosis of diabetes mellitus in 1997 and updated its diagnostic criteria in 2010. With the increasing incidence of obesity, it is estimated that over 5 million Americans have undiagnosed type 2 diabetes mellitus. Given the long-term risks of microvascular (renal, ocular) and macrovascular (cardiac) complications, clear guidelines for screening are critical. **The ADA recommends screening for all asymptomatic adults with a BMI >25.0 kg/m2 who have one or more additional risk factors for diabetes mellitus, and screening for all adults with no risk factors every 3 years beginning at age 45. Current criteria for the diagnosis of diabetes mellitus include a hemoglobin A1c ≥6.5%, a fasting plasma glucose level ≥126 mg/dL, a 2-hour plasma glucose level ≥200 mg/dL, or, in a symptomatic patient, a random blood glucose level ≥200 mg/dL.** In the absence of unequivocal hyperglycemia, results require confirmation by repeat testing.
10-102. +End+Adm. A 55-year-old female with diabetes mellitus, hypertension, and hyperlipidemia presents to your office for routine follow-up. Her serum creatinine level is 1.5 mg/dL (estimated creatinine clearance 50 mL/min). Which one of the following diabetes medications would be contraindicated in this patient? A) Metformin (Glucophage) B) Exenatide (Byetta) C) Acarbose (Precose) D) Insulin glargine (Lantus) E) Pioglitazone (Actos)	DM I/ DM II. **10-102.** **Metformin** is contraindicated in patients with chronic kidney disease. **ANS=A.** It **should be stopped in females with a creatinine level ≥1.4 mg/dL and in males with a creatinine level ≥1.5 mg/dL.** Pioglitazone should not be used in patients with hepatic disease. Acarbose should be avoided in patients with cirrhosis or a creatinine level >2.0 mg/dL. Exenatide is not recommended in patients with a creatinine clearance <30 mL/min. Insulin glargine can be used in patients with renal disease at any stage, but the dosage may need to be decreased.
10-128. +End+Adm.* A hemoglobin A of 7.0% would correspond to which one of the following mean (average) plasma glucose levels? A) 126 mg/dL B) 154 mg/dL C) 183 mg/dL D) 212 mg/dL E) 240 mg/dL	DM I/ DM II. **10-128. A1c hemoglobin A (HbA1c) of 6.0% correlates with a mean plasma glucose level of 126 mg/dL or 7.0 mol/dL. ANS=B.** A calculator to convert HbA1c levels into estimated average glucose levels is available at http://professional.diabetes.org/eAG. Hint: **A rough guide for estimating average plasma glucose levels assumes that an HbA1c of 6.0% equals an average glucose level of 120 mg/dL. Each percentage point increase in HbA1c is equivalent to a 30-mg/dL rise in average glucose. An HbA1c of 7.0% is therefore roughly equivalent to an average glucose level of 150 mg/dL, and an HbA1c of 8.0% translates to an average glucose level of 180 mg/dL.**
10-164. +End+Mac.>L* A 26-year-old gravida 3 para 2 was diagnosed with gestational diabetes mellitus at 24 weeks gestation. She was prescribed appropriate nutritional therapy and an exercise program. After 4 weeks, her fasting plasma glucose levels remain in the range of 105–110 mg/dL. Which one of the following would be the most appropriate treatment for this patient at this time? A) Continuation of the current regimen B) Long-acting insulin glargine (Lantus) once daily C) Pioglitazone (Actos) once daily D) A combination of intermediate-acting insulin (e.g., NPH) and a short-acting insulin (e.g., lispro) twice daily E) Sliding-scale insulin 4 times daily using ultra-short-acting insulin	DM I/ DM II. **10-164.** DM, gestational**. ANS=D.** In addition to an appropriate diet and exercise regimen, **pharmacologic therapy should be initiated in pregnant women with gestational diabetes mellitus whose fasting plasma glucose levels remain above 100 mg/dL despite diet and exercise.** There is strong evidence that such treatment to maintain fasting plasma glucose levels below 95 mg/dL and 1-hour postprandial levels below 140 mg/dL results in improved fetal well-being and neonatal outcomes. **While oral therapy with metformin or glyburide is considered safe and possibly effective, insulin therapy is the best option for the pharmacologic treatment of gestational diabetes**. Thiazolidinediones such as pioglitazone have not been shown to be effective or safe in pregnancy. **The use of long-acting basal insulin analogues, such as glargine and detemir, has not been sufficiently evaluated in pregnancy.** Sliding-scale coverage with ultra-short-acting insulin or insulin analogues, such as lispro and aspart, is generally not required in most women with gestational diabetes. While it may be effective, it

	involves four daily glucose checks and injections. **Most patients are successfully treated with a twice-daily combination of an intermediate-acting insulin and a short-acting insulin while continuing a diet and exercise program.**
10-177. +End+Adm.* A 36-year-old female sees you for a 6-week postpartum visit. Her pregnancy was complicated by gestational diabetes mellitus. Her BMI at this visit is 33.0 kg/m and she has a family history 2 of diabetes mellitus. This patient's greatest risk factor for developing type 2 diabetes mellitus is her A) age B) obesity C) history of a completed pregnancy D) history of gestational diabetes E) family history of diabetes	DM I/ DM II. **10-177. ANS=D. A history of gestational diabetes mellitus (GDM) is the greatest risk factor for future development of diabetes mellitus.** It is thought that GDM unmasks an underlying propensity to diabetes. While a healthy pregnancy is a diabetogenic state, it is not thought to lead to future diabetes. This patient's age is not a risk factor. Obesity and family history are risk factors for the development of diabetes, but having GDM leads to a fourfold greater risk of developing diabetes, independent of other risk factors (SOR C). It is thought that 5%–10% of women who have GDM will be diagnosed with type 2 diabetes within 6 months of delivery. About 50% of women with a history of GDM will develop type 2 diabetes within 10 years of the affected pregnancy.
10-191. +End+Adm.>L* Which one of the following insulin regimens most closely mimics the normal pattern of pancreatic insulin release in a nondiabetic person? A) 70/30 NPH/regular insulin (Humulin 70/30) twice daily B) NPH insulin twice daily plus an insulin sliding-scale protocol using regular insulin C) Insulin glargine (Lantus) daily plus an insulin sliding-scale protocol using regular insulin D) Insulin detemir (Levamir) daily plus rapid-acting insulin with meals E) Rapid-acting insulin before each meal	DM I/ DM II. **10-191.** Insulin regimens. **ANS=D.** The body produces insulin at a basal rate and additional insulin with food intake. **The combination of a basal insulin, such as glargine or detemir, plus a rapid-acting insulin at mealtimes is the regimen that most closely resembles the body's normal response.** Basal insulin provides a relatively constant level of insulin for 24 hours, with an onset of action in 1 hour and no peak. NPH gives approximately 12 hours of coverage with a peak around 6–8 hours. Regular insulin has an onset of action of about 30 minutes and lasts about 5–8 hours, with a peak at about 2–4 hours. New rapid-acting analogue insulins have an onset of action within 5–15 minutes, peak within 30–75 minutes, and last only about 2–3 hours after administration. Thus, a 70/30 insulin mix (typically 70% NPH and 30% regular) provides coverage for 12 hours, but the peaks of insulin release do not closely mimic natural patterns. NPH given twice daily along with an insulin sliding-scale protocol using regular insulin is only slightly closer than a 70/30 twice-daily regimen. Rapid insulin alone does not provide any basal insulin, and the patient would therefore not have insulin available during the night.
10-197. +End+Adm.* Which one of the following classes of diabetes medications acts primarily by stimulating pancreatic insulin secretion? A) Biguanides, such as metformin (Glucophage) B) Thiazolidinediones, such as pioglitazone (Actos) C) DPP-4 inhibitors, such as sitagliptin (Januvia) D) Sulfonylureas, such as glipizide (Glucotrol) E) Amylin analogs, such as pramlintide (Symlin)	DM I/ DM II. **10-197. Biguanides and thiazolidinediones are insulin sensitizers that decrease hepatic glucose production and increase insulin sensitivity**. **ANS=D. Sulfonylureas and meglitinides stimulate pancreatic insulin secretion**, while **DPP-4 inhibitors prevent GLP-1 breakdown and slow the breakdown of some sugars. GLP-1 mimetics stimulate insulin secretion, suppress glucagon secretion, and promote B-cell production. Amylin analogs act with insulin to delay gastric emptying and they also inhibit glucagon release.**
10-219. +Nep+Adm.* Which one of the following is the most common secondary cause of nephrotic syndrome in adults? A) Diabetes mellitus B) Systemic lupus erythematosus C) Hepatitis C D) NSAIDs E) Multiple myeloma	DM I/ DM II. **10-219.** Nephrotic syndrome. **ANS=A. Although most cases of nephrotic syndrome are caused by primary kidney disease, the most common secondary cause of nephrotic syndrome in adults is diabetes mellitus. Other secondary causes include systemic lupus erythematosus, hepatitis B, hepatitis C, NSAIDs, amyloidosis, multiple myeloma, HIV, and preeclampsia. Primary causes include membranous nephropathy and focal segmental glomerulosclerosis, each accounting for approximately one third of cases.**
08-089. +Pbc+Mhe. Which one of the following variables is the most important risk factor for being a victim of domestic abuse? A) Educational background B) Psychological problems C) Race D) Gender E) Socioeconomic status	Domestic abuse. **08-089.** Domestic violence can affect children, intimate partners, and older adults. **ANS=D.** It is a serious medical problem that should be considered in the care of patients and families. There is great variation in the profiles of patients affected by domestic violence. Neither demographic factors nor psychological problems have been found to be consistent predictors of victimization or violence. Domestic violence cuts across all racial, socioeconomic, religious, and ethnic lines. The only consistent risk factor for being a victim of domestic violence is female gender.
07-015.+Pbs+Com. False-positive urine screens for drug abuse can occur as a result of A) passive inhalation of crack cocaine B) passive inhalation of marijuana smoke C) eating poppy seed muffins D) consuming products containing hemp E) use of black cohosh	Drug abuse. **07-015.** Drug screens, false-positive. **ANS=C.** Eating as little as one poppy seed muffin can produce amounts of morphine and codeine detectable by immunoassay, as well as by gas chromatography and mass spectrometry. Passively inhaled crack cocaine or marijuana (unless an extreme amount is inhaled), and ingested products containing hemp or other common herbal preparations do not produce positive urine drug screens. In addition to poppy seeds, **substances reported to cause false-positive urine drug screens include selegiline, Vicks inhalers, NSAIDs, oxaprozin, fluoroquinolones, rifampin, venlafaxine, and dextromethorphan.**
08-013.+Pbc+Com+Adm. A 50-year-old male with a history of methamphetamine abuse requests medication to treat this problem. According to evidence-based studies, which one of the following would be most likely to help this patient overcome methamphetamine dependence? A) Fluoxetine (Prozac) B) Amlodipine (Norvasc) C) Imipramine (Tofranil) D) Bupropion (Wellbutrin) E) Cognitive therapy	Drug abuse. **08-013.** Methamphetamine dependence is very difficult to treat. **ANS=E.** No medications have been approved by the FDA for the treatment of this problem, nor have any studies shown consistent benefit to date. **The standard therapy for methamphetamine dependence is outpatient behavioral therapies, especially with case management included.** Therapy must be individualized. Support groups and 12-step drug-treatment programs may be helpful.
08-144. +End+Adm. A 67-year-old female presents with progressive weakness, dry skin, lethargy, slow speech, and eyelid edema. Of the following medications currently taken by this patient, which one is most likely to be causing her symptoms? A) Donepezil (Aricept)	Drug SE. **08-144.** Hypothyroidism**. ANS=B.** This patient has classic signs of hypothyroidism. Of the drugs listed, only lithium is associated with the development of hypothyroidism. In patients taking lithium, **it is recommended that in addition to regular serum lithium levels, thyroid function tests including total free T4 , and TSH be obtained yearly.**

B) Lithium C) Lisinopril (Prinivil, Zestril) D) Alendronate (Fosamax) E) Glyburide (DiaBeta, Micronase)	Uptodate: Donepezil (Aricept) SE: Cardiac conduction abnormalities: **Use with caution in patients with sick-sinus syndrome, bradycardia, or conduction abnormalities.** Alzheimer's treatment guidelines consider **bradycardia to be a relative contraindication for use of centrally-active cholinesterase inhibitors.** • Peptic ulcer disease: Use with caution in patients at risk of ulcer disease (eg, previous history or NSAID use); cholinesterase inhibitors may increase gastric acid secretion. Monitor for symptoms of bleeding. • Respiratory disease: Use with caution in patients with COPD and/or asthma. Alendronate (Fosamax) SE: Incidence of adverse effects (mostly GI) increases significantly in patients treated for Paget's disease at 40 mg/day. >10%: Endocrine & metabolic: Hypocalcemia (transient, mild, 18%); hypophosphatemia (transient, mild, 10%).
10-185. +Neu+Cel.>L**?*** Treatment with donepezil (Aricept) is associated with an increased risk for A) pulmonary embolism B) liver failure C) bradycardia requiring pacemaker implantation D) cataract development requiring surgery E) confusion requiring institutionalization	Drug SE. **10-185.** Cholinesterase inhibitor therapy. **ANS=C.** A large population study has established a significant **increased risk of bradycardia, syncope, and pacemaker therapy with cholinesterase inhibitor therapy.** Elevation of liver enzymes with the potential for hepatic dysfunction has been seen with tacrine, but it has not been noted with the other approved cholinesterase inhibitors. Cataract formation and thrombosis with pulmonary embolism do not increase with this therapy. Although improvement in mental function is often marginal with cholinesterase inhibitor therapy, the therapy has not been shown to increase the need for institutionalization.
08-122. +Mus+Adm. A 43-year-old male complains of difficulty washing his face and combing his hair with his right hand. On examination a nodule, band, and slight contracture are noted in the palm proximal to the fourth finger. This patient's symptoms are associated with which one of the following? A) Hyperparathyroidism B) Diabetes mellitus C) Hyperthyroidism D) Hypothyroidism E) Adrenal insufficiency	Dupuytren's contracture. **08-122.** The patient has Dupuytren's disease, which is most common in men over 40 years of age. **ANS=B**. It is a progressive condition that causes the fibrous fascia of the palmar surface to shorten and thicken. It initially can be managed with observation, but corticosteroid injection and surgery may be needed. The condition will regress in 10% of patients. There is a 3%–33% prevalence of Dupuytren's contracture in patients with diabetes mellitus; however, these patients tend to have a mild form of the disease with slow progression.
09-166. +Mus+Adm. A 55-year-old white male notices a nodular thickening over the flexor tendons in his medial palm. He has no difficulty using his hand, and he is able to lay his palm flat on a tabletop. You suspect Dupuytren's disease. Which one of the following is true regarding this condition? A) There is a strong association with diabetes mellitus B) Surgical intervention is recommended at this point to prevent progression to contracture C) Once a contracture develops, it is irreversible and no treatment is indicated D) A single cortisone injection often leads to disease regression in mild to moderate cases E) A search for an occult malignancy is indicated	Dupuytren's contracture. **09-166.** Dupuytren's disease is characterized by shortening and thickening of the palmar fascia. **ANS=A.** It is initially asymptomatic, but may progress and cause difficulty with function of the hand, and may eventually lead to contracture. Early asymptomatic disease does not require treatment. A series of cortisone injections over a period of months may lead to disease regression, and is useful in patients with mild to moderate symptoms. Surgery is indicated if a metacarpal joint contracture reaches 30°, or with a proximal interphalangeal joint contracture of any degree. If surgery is delayed, irreversible joint contracture may occur. There is a strong association between diabetes mellitus and Dupuytren's disease, with up to a third of diabetic patients having evidence of the disease. It is also associated with alcohol use and smoking. Patients requiring surgery have an increased risk of dying from cancer, probably related to smoking, alcohol use, or diabetes mellitus, but a search for cancer at the time of diagnosis is not indicated.
10-180. +Mus+Adm**.*** A 52-year-old male presents with a small nodule in his palm just proximal to the fourth metacarpophalangeal joint. It has grown larger since it first appeared, and he now has mild flexion of the finger, which he is unable to straighten. He reports that his father had similar problems with his fingers. On examination you note pitting of the skin over the nodule. The most likely diagnosis is A) degenerative joint disease B) trigger finger C) Dupuytren's contracture D) a ganglion E) flexor tenosynovitis	Dupuytren's contracture. **10-180.** Dupuytren's contracture is characterized by changes in the palmar fascia, with progressive thickening and nodule formation that can progress to a contracture of the associated finger. **ANS=C.** The fourth finger is most commonly affected. Pitting or dimpling can occur over the nodule because of the connection with the skin. Degenerative joint disease is not associated with a palmar nodule. Trigger finger is related to the tendon, not the palmar fascia, and causes the finger to lock and release. Ganglions also affect the tendons or joints, are not located in the fascia, and are not associated with contractures. Flexor tenosynovitis, an inflammation, is associated with pain, which is not usually seen with Dupuytren's contracture.
07-117. +Hem+Adm. An otherwise healthy 62-year-old male has been hospitalized with community-acquired pneumonia for 2 days. He has remained bedridden. When you see him while making rounds, he mentions that he has noticed increased swelling and pain in his left lower extremity. Lower extremity ultrasonography reveals a deep venous thrombosis (DVT) in his calf. He has no previous history of blood clots. Which one of the following is the best management of this patient's DVT? A) Compression stockings and repeat ultrasonography in 2 days B) Heparin therapy followed by oral anticoagulation for 3 months C) Indefinite oral anticoagulation D) Intravenous thrombolytic therapy E) Insertion of an inferior vena cava filter	DVT. **07-117.** Without anticoagulation, patients with an uncomplicated calf deep vein thrombosis (DVT) have a significant risk of further clot extension, acute pulmonary embolus, or recurrence of the thrombus. **ANS=B.** They are also at risk for late complications such as the post-thrombotic syndrome or chronic thromboembolic hypertension. For this reason, monitoring a DVT by repeat ultrasonography is not a good option unless there are **contraindications to anticoagulation, such as recent surgery, hemorrhagic stroke, active bleeding, or heparin-induced thrombocytopenia.** The **recommended treatment for DVT is heparin (intravenous unfractionated or subcutaneous low molecular weight) followed by oral anticoagulation with warfarin once adequate anticoagulation is achieved**. For a **first episode of DVT due to an idiopathic cause or transient risk factor, such as short-term immobilization, the recommended length of treatment is 3–6 months**. **The benefit-to-risk ratio declines after 6 months unless the patient has a recurrent DVT or a known chronic risk factor, such as a thrombophilic condition or cancer.** **Thrombolytic therapy with intravenous tissue plasminogen activator (tPA), urokinase, or streptokinase typically is reserved for patients with life-threatening pulmonary embolism**. Inferior vena cava filters are used in patients who have a contraindication to anticoagulant therapy, recurrent venous

	thromboembolism despite adequate anticoagulation, or such limited pulmonary vascular reserve that they may not survive additional thromboemboli.
09-006. +Car+Adm. You are treating a 53-year-old female for a deep-vein thrombosis in her left leg. The use of compression stockings for this problem has been shown to A) increase the risk of pulmonary embolism B) increase the level of pain C) increase complications if used prior to completion of a course of anticoagulation therapy D) decrease the risk of post-thrombotic syndrome	DVT. **09-006. Post-thrombotic syndrome (PTS) is a complication of acute deep-vein thrombosis (DVT), and is characterized by chronic pain, swelling, and skin changes in the affected limb. ANS: D.** Within 5 years of experiencing a DVT, one in three patients will develop PTS. A Cochrane review identified three randomized, controlled trials examining the use of compression therapy in patients diagnosed with a new DVT. **The use of elastic compression stockings was associated with a highly statistically significant reduction in the incidence of PTS**, with an odds ratio of 0.31 (confidence interval of 0.20–0.48). A separate trial cited in the Cochrane review documented no increased incidence of pulmonary embolism, and a reduction in pain and swelling in the treatment group. Compression stockings should be applied when anticoagulation therapy is started, not when it has been completed. The studies did not examine the rates of recurrent DVT.
09-111. +Car+Adm. A 30-year-old female who had a deep venous thrombosis in her left leg during pregnancy has an uneventful delivery. During the pregnancy she was treated with low molecular weight heparin. Just after delivery her left leg is pain free and is not swollen. She plans to resume normal activities soon. Which one of the following would be most appropriate with regard to anticoagulation? A) Discontinuing treatment, with no further evaluation B) Discontinuing treatment if venous Doppler ultrasonography is negative for thrombus C) Continuing low molecular weight heparin for 6 more weeks D) Switching to low-dose unfractionated heparin for 6 weeks E) Switching to aspirin for 6 weeks	DVT. **09-111. Anticoagulation**. **ANS=C.** The risk of pulmonary embolism continues in the postpartum period, and may actually increase during that time. **For patients who have had a deep-vein thrombosis during pregnancy, treatment should be continued for 6 weeks after delivery, with either warfarin or low molecular weight heparin.**
08-026. +Ref+Cfp. A 16-year-old female presents with a complaint of pelvic cramps with her menses over the past 2 years. She describes her periods as heavy, and says they occur once a month and last for 7 days, with no spotting in between. She has never been sexually active and does not expect this to change in the foreseeable future. An abdominal examination is normal. Which one of the following would be the most appropriate next step? A) A pelvic examination B) Ultrasonography C) A TSH level D) Naproxen prior to and during menses	Dysmenorrhea, primary. **ANS=D.** This patient is experiencing primary dysmenorrhea, a common finding in adolescents, with estimates of prevalence ranging from 20% to 90%. Because symptoms started at a rather young age and she has pain only during menses, endometriosis or other significant pelvic pathology is unlikely. An infection is doubtful, considering that she is not sexually active and that symptoms have been present for 2 years. In the absence of red flags, a pelvic examination, laboratory evaluation, and pelvic ultrasonography are not necessary at this time. However, they can be ordered if she does not respond to simple treatment. **NSAIDs such as naproxen have a slight effect on platelet function, but because they inhibit prostaglandin synthesis they actually decrease the volume of menstrual flow and lessen the discomfort of pelvic cramping.** Acetaminophen would have no effect on prostaglandins.
08-105. +Sen+Cca. A 3-year-old male is brought to your office because of ear pain. On examination you find a round, plastic bead in the lower third of the ear canal close to the tympanic membrane. You restrain the child and unsuccessfully attempt to remove the object despite several attempts, first using water irrigation and then fast-acting glue on an applicator. Which one of the following is the best option for removal? A) A plastic loop curette through an otoscope B) Referral for removal under anesthesia C) Grasping with forceps D) Applying acetone to dissolve the object	Ear canal obstruction. **ANS=B.** After several unsuccessful attempts to remove an object deep in the ear canal of an uncooperative child, it is best to refer the patient to an otolaryngologist for removal under anesthesia. Additional attempts are very unlikely to succeed, especially with the techniques listed. A loop curette cannot be safely placed behind a foreign body that is close to the tympanic membrane. A round, hard object cannot be grasped with forceps. Acetone can be used to dissolve Styrofoam foreign bodies, but it would not dissolve a plastic bead.
07-023. +Gas+Com+Adm. In patients with eating disorders, chronic laxative use is associated with which one of the following? A) Salivary gland enlargement B) Hyperkalemia C) Dental enamel erosion D) Esophagitis	Eating disorders, chronic laxative use. **ANS=B.** Complications of laxative use include electrolyte acid-base disorders (acute acidosis, chronic hypokalemic alkalosis), dehydration, constipation, cathartic colon, and edema. Complications of vomiting include electrolyte acid-base disorders (hypokalemic, hypochloremic metabolic alkalosis), dehydration, dental enamel erosion, salivary gland enlargement, esophageal rupture, bleeding, esophagitis, irritable bowel symptoms (chronic), edema, and hypokalemic nephropathy.
08-219. +Pbc+Cca. A 9-month-old male is brought to your office by his mother because of concerns about his eating. She states that he throws tantrums while sitting in his high chair, dumps food on the floor, and refuses to eat. She has resorted to feeding him cookies, crackers, and juice, which are "all he will eat." A complete physical examination, including a growth chart of weight, length, and head circumference, is normal. Which one of the following would be the most appropriate recommendation? A) Use disciplinary measures to force the child to eat a healthy breakfast, lunch, and dinner B) Leave the child in the high chair until he has eaten all of the healthy meal presented C) Play feeding games to encourage consumption of healthy meals or snacks D) Skip the next meal if the child refuses to eat E) Provide healthy foods for all meals and snacks, and end the meal if the child refuses to eat	**Eating in infants and toddlers. ANS=E.** It is estimated that 3%–10% of infants and toddlers refuse to eat according to their caregivers. Unlike other feeding problems such as colic, this problem tends to persist without intervention. It is recommended that caregivers establish food rules, such as healthy scheduled meals and snacks, and apply them consistently. Parents should control what, when, and where children are being fed, whereas children should control how much they eat at any given time in accordance with physiologic signals of hunger and fullness. No food or drinks other than water should be offered between meals or snacks. Food should not be offered as a reward or present. Parents can be reassured that a normal child will learn to eat enough to prevent starvation. If malnutrition does occur, a search for a physical or mental abnormality should be sought.
07-031. +Ref+Cfp+Mac. A 19-year-old primigravida at approximately 40 weeks gestation comes to the hospital with painful contractions. She has received no prenatal care. Examination reveals that her cervix is 4 cm dilated and 85% effaced at –1 station. Her blood pressure is 164/111 mm Hg and a urine dipstick shows 3+ protein. She reports that she has had severe headaches for 3 days and has noticed a lot of swelling in her legs and feet. Moments after blood is drawn and intravenous access is obtained, she has a generalized tonic-clonic seizure and fetal heart tones	Eclampsia and Preeclampsia. **07-031.** Eclampsia**. ANS=C.** This patient has eclampsia. When an eclamptic seizure occurs, the first priority is to control the convulsions and prevent their recurrence with a 4- to 6-g intravenous or intramuscular loading dose of magnesium sulfate given over 15–20 minutes, followed by a drip at 2 g/hr. Although the only cure for eclampsia is delivery, the patient should be stabilized first. Fetal bradycardia is an expected occurrence during an eclamptic seizure and does not necessitate an emergency cesarean

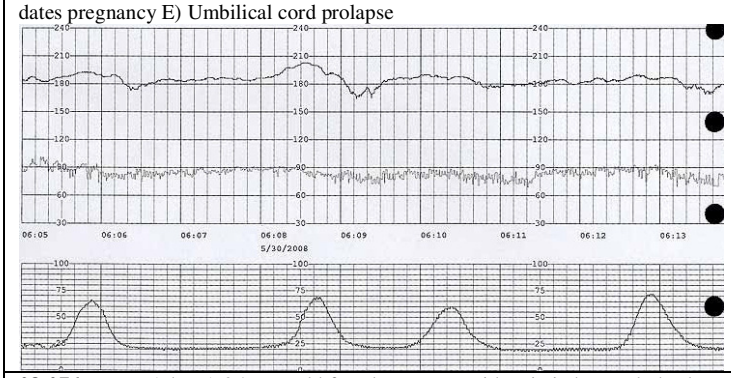
drop to 60 beats/min. Which one of the following is the most appropriate immediate course of action? A) Emergency cesarean section B) Lorazepam (Ativan), 2 mg intravenous push, repeated in 2 minutes if necessary C) Magnesium sulfate, 4 mg loading dose intravenously, followed by a drip at 2 g/hr D) Attachment of a fetal scalp electrode E) Terbutaline (Brethine), 0.25 mg subcutaneously	section unless it fails to resolve within a few minutes. Lorazepam is frequently used to control seizures in nonpregnant patients, but magnesium sulfate is the agent of choice for an eclamptic seizure. A fetal scalp electrode can be helpful to confirm fetal heart tones, but should not take precedence over trying to control the seizure. Terbutaline is a tocolytic agent that does not have a role in the acute management of an eclamptic seizure.
08-039. +Ref+Cfp. A 20-year-old female is seen for follow-up 6 weeks after delivery. Her pregnancy was complicated by preeclampsia. Her examination is unremarkable. This patient will be at increased risk for which one of the following in midlife? A) Breast cancer B) Diabetes mellitus C) Hypothyroidism D) Kidney disease E) Hypertension	Eclampsia and Preeclampsia. **08-039.** Preeclampsia affects as many as 5% of first pregnancies and is manifested as hypertension, proteinuria, edema, and rapid weight gain after 20 weeks gestation. **ANS=E**.. Very young mothers and those over age 35 have a higher risk. Patients who have had preeclampsia have a fourfold increased risk of hypertension and a twofold increased risk of ischemic heart disease, stroke, and venous thromboembolism. There does not appear to be an association between preeclampsia and cancer, breast cancer in particular.
09-013. +Non+Mac. A 23-year-old gravida 1 para 0 at 36 weeks gestation presents to the office complaining of ankle swelling and headache for the past 2 days. She denies any abdominal pain or visual disturbances. On examination you note a fundal height of 35 cm, a fetal heart rate of 140 beats/min, 2+ lower extremity edema, and a blood pressure of 144/92 mm Hg. A urine dipstick shows 1+ proteinuria. A cervical examination reveals 2 cm dilation, 90% effacement, –1 station, and vertex presentation. Which one of the following is the most appropriate next step in the management of this patient? A) Laboratory evaluation, fetal testing, and 24-hour urine for total protein B) Ultrasonography to check for fetal intrauterine growth restriction C) Initiation of antihypertensive treatment D) Immediate induction of labor E) Immediate cesarean delivery	Eclampsia and Preeclampsia. **09-013.** Preeclampsia. Most likely **preeclampsia**, defined as an elevated blood pressure and proteinuria after 20 weeks gestation. Further evaluation, including a **24-hour urine for** quantitative measurement of **protein, blood pressure monitoring,** and laboratory evaluation that includes **hemoglobin, hematocrit, a platelet count, and serum levels of transaminase, creatinine, albumin, LDH, and uric acid.** A **peripheral smear and coagulation profiles** also **may be obtained**. **Antepartum fetal testing, such as a nonstress test** to assess fetal well-being, **would also be appropriate.** Ultrasonography should be done to assess for fetal intrauterine growth restriction, but only after an initial laboratory and fetal evaluation. Delivery is the definitive treatment for preeclampsia. The timing of delivery is determined by the gestational age of the fetus and the severity of preeclampsia in the mother. Vaginal delivery is preferred over cesarean delivery, if possible, in patients with preeclampsia. It is not necessary to start this patient on antihypertensive therapy at this point. An obstetric consultation should be considered for patients with preeclampsia.
07-024. +Ref+Mac+Cfp. A 26-year-old female presents with lower abdominal pain and vaginal bleeding. Her last menstrual period was 7 weeks ago. A urine pregnancy test is positive, and a quantitative B-hCG level is 2500 mIU/mL. Intravaginal ultrasonography shows no evidence of an intrauterine gestational sac. Baseline laboratory tests, including a CBC, liver function tests, and renal function tests, are all normal. She is treated with a single dose of intramuscular methotrexate (Trexall) at 50 mg/m2 of body surface. Four days later the patient presents for reevaluation, and her quantitative B-hCG level is found to be 2800 mIU/mL. Which one of the following is the most appropriate next step? A) A repeat dose of methotrexate, 50 mg/m2 of body surface B) Methotrexate, 1 mg/kg every other day, plus leucovorin, 0.1 mg/kg on alternate days C) Repeat transvaginal ultrasonography to evaluate for a viable intrauterine pregnancy D) Laparoscopy with salpingostomy E) Expectant management	Ectopic pregnancy. **07-024.** Management of ectopic pregnancy with methotrexate is appropriate in patients who have a B-hCG level <15,000 mIU/mL; who are without liver or renal disease, immune or platelet compromise, or significant pulmonary disease; and who are reliable and able to follow up daily if necessary. Patients may be treated either with single-dose or multiple-dose methotrexate regimens, which may be repeated if the B-hCG level does not decline. If the B-hCG level increases, surgical intervention is needed. Laparoscopy with salpingostomy is the preferred method. Expectant management is appropriate only if a patient has a B-hCG level <1000 mIU/mL that is declining. **ANS=D.**
10-168. +Car+Adm. A 55-year-old hospitalized white male with a history of rheumatic aortic and mitral valve disease has a 3-day history of fever, back pain, and myalgias. No definite focus of infection is found on your initial examination. His WBC count is 24,000/mm (N 4300–10,800) with 40% 3 polymorphonuclear leukocytes and 40% band forms. The following day, two blood cultures have grown gram-positive cocci in clusters. Until the specific organism sensitivity is known, the most appropriate antibiotic treatment would be A) ciprofloxacin (Cipro) B) nafcillin C) streptomycin and penicillin D) ceftriaxone (Rocephin) E) vancomycin and gentamicin	Endocarditis. **10-168.** By a gram-positive coccus. **ANS=E.** This patient has **endocarditis caused by a gram-positive coccus. Until sensitivities of the organism are known, treatment should include intravenous antibiotic coverage for *Enterococcus*, *Streptococcus*, and methicillin-sensitive and methicillin-resistant *Staphylococcus*. A patient who does not have a prosthetic valve should be started on vancomycin and gentamicin**, with monitoring of serum levels. *Enterococcus* and methicillin-resistant *Staphylococcus* are often resistant to cephalosporins. **If the organism proves to be *Staphylococcus* sensitive to nafcillin, the patient can be switched to a regimen of nafcillin and gentamicin.**
08-221. +Pbc+Cel. Which one of the following is true about end-of-life care? A) Physicians underestimate life expectancies B) Most physicians are comfortable with their level of education in palliative care and pain control C) Most patients who qualify for hospice care receive services early in the course of their illness D) Most terminal patients want their lives prolonged as much as possible E) Most terminal patients express a desire for a sense of control	End-of-life care. **08-221. ANS=E.** End-of-life issues are a challenge to primary care physicians because of concerns about a lack of education in pain control and palliative care. Trying to determine the prognosis of patients is difficult, and even with established criteria, the estimated prognosis is right only 50% of the time. There is a tendency for most physicians to overestimate life expectancy in a terminal patient. Most patients who are appropriate candidates for hospice care do not receive referrals until late in their illness, if at all. Patients at the end of life have **five main areas of concern: control of pain and other symptoms; avoiding a prolongation of the dying process; having a sense of control; relieving burdens on family and loved ones; and strengthening relationships with family and friends.**
09-226. +Pbs+Mhe. You have just received test results confirming that a 78-year-old patient has metastatic lung cancer. She informs you she does not want to know the results of the tests and is "leaving it in God's hands." You know that additional issues need to be explored, such as her desire for chemotherapy and hospice care. Which one of the following is the most appropriate strategy for determining her wishes? A) Acknowledge her concerns, but proceed with a discussion of her diagnosis and prognosis B) Ask family members to gently break the news to your patient and tell them you will return later to discuss the details and answer questions C) Have a hospice representative visit and discuss the	End-of-life care. **09-226. ANS=D.** In a patient-centered approach to communication regarding end-of-life care, a patient's wishes to not know about a diagnosis or prognosis should be respected. However, it is reasonable to ask the patient to name a proxy with whom you may discuss the issues. The other options listed do not respect the patient's desire to not know her diagnosis or prognosis.

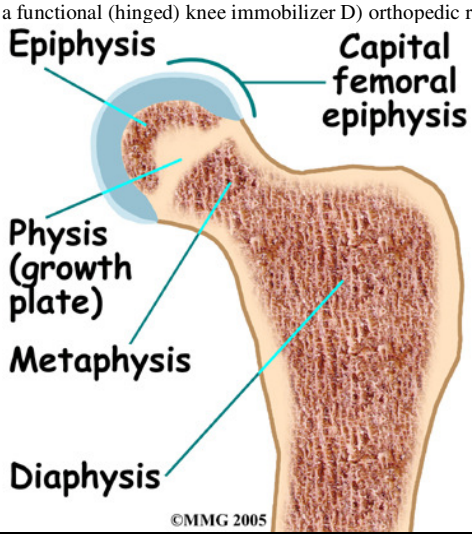
diagnosis and options for care D) Ask the patient to designate someone with whom you can discuss the results and prognosis	
07-218. +Ref+Cfp. Of the following, which one has the greatest effect on the relative risk of developing endometrial carcinoma? A) Nulliparity B) Infertility C) Obesity D) High socioeconomic status E) Polycystic ovary disease	Endometrial carcinoma. **07-218. ANS=E.** The factor associated with the **greatest relative risk for endometrial carcinoma is polycystic ovary disease, which has a relative risk of 75**. The use of long-term high doses of postmenopausal estrogen carries an estimated risk of 10–20. Living in North America or Europe also has an estimated risk of 10–20. A lower relative risk is associated with nulliparity, obesity, infertility, late menopause, older age, and white race. The relative risk associated with these factors falls into the range of 2–5. Early menarche, higher education or income levels, menstrual irregularities, and a history of diabetes, hypertension, gall bladder disease, or thyroid disease have a relative risk of around 1.5–2.0. The relative risk associated with cigarette smoking is 0.5, and for long-term use of high-dose oral contraceptives it is 0.3–0.5.
07-035. +Rem+Adm. A 50-year-old married male comes to your clinic complaining of right testicular pain that developed quickly over the last 24 hours. He reports no fever, dysuria, or urethral discharge. He is nauseous but has no emesis or diarrhea. His abdominal examination is benign but he has an enlarged, exquisitely tender right hemi-scrotum. A urinalysis is normal and his WBC count is 13,000/mm3 (N 4300–10,800). Testicular ultrasonography shows increased blood flow in the affected testicle and epididymis. Which one of the following would be the best treatment for this patient's condition? A) Ceftriaxone (Rocephin), 250 mg intramuscularly once, plus doxycycline, 100 mg orally twice daily for 10 days, and treatment of all sexual partners B) Clindamycin (Cleocin), 300 mg orally 4 times daily for 7 days C) Famciclovir (Famvir), 250 mg orally 3 times daily for 7 days D) Ofloxacin (Floxin), 300 mg orally twice daily for 10–14 days E) Urgent urologic surgery consultation	Epididymitis. **07-035.** Epididymo-orchitis**. ANS=D.** This patient has epididymo-orchitis. This condition is most often caused by coliform bacteria in men over the age of 35 (and in homosexual males). These organisms are effectively treated with ofloxacin. Those less than age 35 with this condition have a higher chance of having a sexually transmitted disease (STD) and would benefit from intramuscular ceftriaxone and oral doxycycline. However, these medications would not adequately cover coliform bacteria. Clindamycin and famciclovir would also be ineffective. Testicular torsion is another possible cause of testicular pain with a quick onset, and would require urgent urologic surgery consultation. However, in cases of torsion the examination usually reveals an elevated testicle and testicular ultrasonography would show decreased or absent blood flow on the affected side.
10-216. +Rem+Adm. A 20-year-old male presents with a complaint of pain in his right testis. The onset of pain has been gradual and has been associated with dysuria and urinary frequency. The patient has no medical problems and is sexually active. On examination he has some swelling and mild tenderness of the testis. The area posterior to the testis is swollen and very tender. He has a normal cremasteric reflex, and the pain improves with elevation of the testicle. Which one of the following would be the most appropriate management of this patient? A) Surgical evaluation B) Doppler ultrasonography C) Ceftriaxone (Rocephin) and doxycycline D) Levofloxacin (Levaquin) E) Ciprofloxacin (Cipro)	Epididymitis. **10-216. ANS=C.** This patient has epididymitis. In males 14–35 years of age, the most common causes are *Neisseria gonorrhoeae* and *Chlamydia trachomatis*. The recommended treatment in this age group is ceftriaxone, 250 mg intramuscularly, and doxycycline, 100 mg twice daily for 10 days (SOR C). A single 1-g dose of azithromycin may be substituted for doxycycline. In those under age 14 or over age 35, the infection is usually caused by one of the common urinary tract pathogens, and levofloxacin, 500 mg once daily for 10 days, would be the appropriate treatment (SOR C). If there is concern about testicular torsion, urgent surgical evaluation and ultrasonography are appropriate. Testicular torsion is most common between 12 and 18 years of age but can occur at any age. It usually presents with an acute onset of severe pain and typically does not have associated urinary symptoms. On examination there may be a high-riding transversely oriented testis with an abnormal cremasteric reflex and pain with testicular evaluation. Color Doppler ultrasonography will show a normal-appearing testis with decreased blood flow.
07-208. +Gas+Adm. Which class of antibiotics is most likely to induce esophagitis in the elderly? A) Cephalosporins B) Penicillins C) Quinolones D) Sulfonamides E) Tetracyclines	Esophagus. **07-208.** Decreased esophageal peristaltic clearance, which is common among older persons, may be associated with pill retention. **ANS=E.** Esophageal injury may occur as a result of prolonged contact of the caustic contents of the medication with the esophageal mucosa. **Tetracyclines, particularly doxycycline, are the most common antibiotics associated with esophagitis, but aspirin and all NSAIDs can also damage the esophagus. Other offenders include potassium chloride, quinidine, iron, and alendronate.**
07-230. +Gas+Cca. A 3-year-old white male is brought to your office because of coughing, drooling, chest pain on swallowing, and refusing food for the last 2 days. Other than irritability and clutching his hand to his chest, you find no abnormalities on physical examination. A radiograph of the chest shows what appears to be a coin in the area of the lower esophagus. Which one of the following treatments is most appropriate at this time? A) Watchful waiting B) Administering glucagon to advance the foreign body into the stomach C) Endoscopic removal of the foreign body D) Use of an inflated Foley catheter with radiocontrast dye under fluoroscopy to remove the foreign body E) Use of bougienage to force the foreign body into the stomach	Esophagus. **07-230. Obstruction. ANS=C.** This child ingested a coin without the parent's knowledge (about 40% of foreign body ingestions in children are not witnessed) and has symptoms suggesting esophageal obstruction. **Coins are the most common objects ingested by children in the United States. Most blunt objects in the esophagus may be observed up to 24 hours. If a single coin has been lodged in the esophagus for less than 24 hours in a child with no respiratory distress and no prior foreign body ingestion, Foley catheter or bougienage techniques may be tried.** For the Foley technique, a Foley catheter is passed beyond the coin and the balloon is inflated with radiocontrast dye, and then is pulled out under fluoroscopy. The potential for airway compromise has prevented this technique from becoming universally accepted. Bougienage seems to be safe, is less costly, and does not require anesthesia. Bougienage is used to push the coin into the stomach, where it should pass spontaneously. In some patients, however, pushing the coin into the stomach may result in an obstruction that requires endoscopic or surgical removal. **Objects lodged in the esophagus for more than 24 hours should be removed endoscopically. If the object has been lodged in the esophagus for more than 2 weeks there is a significant risk of erosion into surrounding structures, and surgical consultation should be obtained.**
09-100. +Gas+Adm. A 55-year-old female has severe symptoms of gastroesophageal reflux disease. Upper endoscopy with a biopsy shows severe esophagitis and Barrett's esophagus. Which one of the following is true regarding this patient? A) The severity of her symptoms is due to the presence of Barrett's esophagus B) Follow-up screening endoscopy will reduce her risk of death from esophageal cancer C) Her risk of developing esophageal adenocarcinoma is >90% D) Her risk of developing esophageal adenocarcinoma is <1%	Esophagus. **09-100.** Barrett's and esophagitis. **ANS=D. The actual risk of adenocarcinoma from Barrett's esophagus is less than 1%.** Endoscopy does nothing to reduce the risk of death. Patients with Barrett's esophagus can have minimal symptoms.

07-128. +Psy+Mhe. A 45-year-old male presents to your office in extreme agitation after a verbal altercation with his boss, during which he was fired. He feels overwhelmed and very angry, and states that he is going to "get" his boss and then "who knows what." Which one of the following is true regarding this situation? A) Physicians have a responsibility to warn and protect intended victims of a patient B) It is dangerous to ask the patient about suicidal tendencies C) If the patient is at high risk for suicide and needs inpatient care, but refuses, he may be allowed to go home if accompanied by a family member D) You and your staff are not at risk for harm E) The patient's family may be reassured that they are not at risk for harm, as only his boss has been directly threatened	Ethics. **07-128.** Suicidal or homicidal patient; Physician duties. **ANS=A.** It has been legally established that physicians have a duty to warn and protect intended victims of a patient. Evaluation of suicide and homicide risks in a crisis situation, including direct questioning of the patient about suicidal and homicidal tendencies, is important and does not lead to further harm. If a suicidal or homicidal patient who needs hospitalization refuses, law enforcement authorities should be contacted. Policies should be in place to ensure the safety of clinic staff in crisis situations. The patient's family may be at risk for harm, and plans to ensure their safety, if needed, are appropriate.
08-009. +Pbc+Com. A 68-year-old Mexican American female is brought to your office by her son with a complaint of headaches. The patient speaks English adequately, but diverts her eyes to look at her son when answering your questions. Which one of the following is the most likely reason for this patient not making eye contact? A) Her son is overly controlling B) She is a victim of abuse C) She is being untruthful D) She is showing respect to you E) She is depressed	Ethics. **08-009.** Nonverbal communication is important for identifying issues that a patient may be hiding or is unwilling to divulge. **ANS=D.** Some nonverbal clues, however, are culturally biased. Many older or less-educated Mexican-Americans consider direct eye contact to be disrespectful. Because a physician is held in high regard, these patients will often either look down or look at another, more "equal" person in the room while being interviewed. Many Americans, on the other hand, may consider a lack of eye contact to be negative, implying that a patient is unsure of the information they are providing, has poor self-esteem, or is hiding something.
08-080. +Pbs+Com. Your patient is moving to another state and requests transfer of his medical records. Which one of the following is true regarding this patient's request? A) The medical record should be released only with written permission from a patient or legal representative B) Although it is kept by the physician, the actual medical record is the property of the patient C) A physician may withhold medical record information that could cause undue stress to a patient D) In spite of a patient request, the physician may withhold information from a third party E) A physician has the right to withhold the medical record until medical bills are paid in full	Ethics. **08-080.** Patient information release. **ANS=A.** Permission for the release of patient information should always be in writing. Although the actual medical record is the property of the physician, the information in the chart is the property of the patient. Ethically and legally, patients have a right to the information in their medical records, and it cannot be withheld from the patient or a third party (at the request of the patient), even if medical bills are unpaid or the physician is concerned about the patient.
08-120. +Pbc+Mhe. A 67-year-old male who recently had a screening colonoscopy presents for follow-up. During the procedure, a mass was discovered in the sigmoid colon and a biopsy revealed a poorly differentiated adenocarcinoma. When you tell the patient you have the test results and can provide information about the prognosis, he says, "To be honest, I can tell that the news is not good, and I would rather not talk about it right now." Which one of the following would be the most appropriate next step? A) Relay the prognosis, but focus as much as possible on any positives B) Discuss the prognosis with the patient's wife, who is in the waiting room C) Ask the patient if he would like to talk again at another time D) Refer the patient to a support group	Ethics. **08-120.** Giving bad news. **ANS=C.** When giving bad news to a patient, it is important to assess how much information the patient wants to know and tailor the discussion accordingly (SOR C). If the patient states that he does not want to know about the prognosis, the most appropriate response is to ask if he would like to talk again at another time. The physician may be regarded as rude, cruel, or uncaring if he persists in providing information that the patient is not ready to hear. In addition, the patient is more at risk for feelings of hopelessness, depression, or anxiety if he is not psychologically ready to hear a bad prognosis. Once the patient verbalizes a readiness to discuss the prognosis, specific information can be provided, focusing on both the positive and negative aspects of the situation. It is not appropriate to discuss the case with the patient's wife, unless he specifically requests she be a proxy to receive the information. Referrals to either a support group or an oncologist should be deferred until the information has been discussed with the patient.
09-027. +Pbs+Com. A 34-year-old white male is brought to the emergency department following an automobile accident in which he was the only occupant of the vehicle. He lost control of the vehicle and hit a utility pole. He was knocked unconscious initially, but he is now awake and combative. You note a strong smell of alcohol. He has a frontal hematoma approximately 3 cm in diameter and an actively bleeding 4-cm laceration of the occiput. He will not permit you to examine him further and he prepares to leave the emergency department. You should A) detain him in the emergency department B) make him sign out against medical advice C) tell him that he cannot return if he leaves D) tell him that if he leaves he can return later	Ethics. **09-027.** Two of the most important ethical principles in medicine are respect for autonomy and beneficence. Respect for autonomy means regarding patients as rightfully self-governing in matters of choice and action. To make an autonomous decision, the patient must be mentally sound, have knowledge and understanding of the facts, and be free of coercion. Beneficence means that physicians are motivated solely by what is good for the patient. There are often ethical conflicts between these two principles. This particular patient is clearly in need of further emergency treatment, but he refuses. He **has had a significant head injury, is combative and possibly intoxicated, and therefore cannot be considered mentally sound. The physician should detain him for his own good and provide the appropriate care.** Threatening the patient, having him sign out against medical advice, or encouraging him to return later is not appropriate because his mentation is impaired.
09-114. +Pbs+Com. A patient dying of cancer is suffering from pain in spite of his narcotic regimen. You increase his dosage of morphine, knowing it will probably hasten his death. Which ethical principle are you following? A) Distributive justice B) Double effect C) Death with dignity D) Futility E) Autonomy	Ethics. **09-114.** Ethical principle**,** double effect. **ANS=B.** The concept of "double effect" dates back to the Middle Ages. It is used to justify medical treatment designed to relieve suffering when death is an unintended but foreseeable consequence. It is based on two basic presuppositions: first, that the doctor's motivation is to alleviate suffering, and second, that the treatment is appropriate to the illness. Distributive justice relates to the allocations of resources. Death with dignity is a recently introduced concept and is not a factor in the scenario described here. Futility refers to using a treatment for which there is no rational justification. Autonomy refers to the patient's ability to direct his or her own care, which is not an issue in this case.
09-171. +Pbs+Mhe. Studies indicate that patients most frequently want physicians to ask about their spiritual beliefs in which one of the following situations? A) When being treated for a potentially fatal illness B) During the annual preventive visit C) During the initial office visit with the physician D) Only if specifically requested by the patient, a family member, their minister, or a chaplain E) When	Ethics. **09-171.** Spiritual discussion. **ANS=A.** Patients often welcome spiritual discussion, depending on the situation. The percentage that welcome this discussion increases with the severity of illness, and is greatest among those who are very seriously ill with a potentially fatal disease. Spiritual inquiry during medical care should focus on understanding, compassion, and hope, and should be

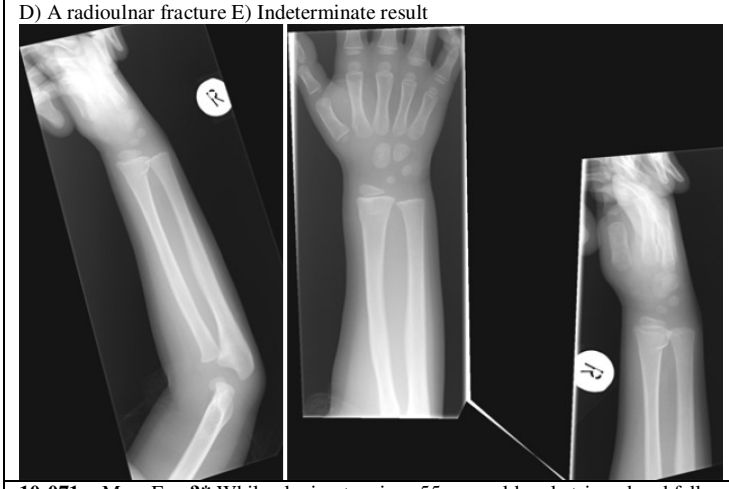
prayer is suggested by the patient or physician	directed toward individuals who suffer from serious illness.
08-176. +Pbs+Com. Information derived from which one of the following provides the best evidence when selecting a specific treatment plan for a patient? A) Meta-analysis B) Prospective cohort studies C) Expert opinion D) Consensus guidelines	Evidence based medicine. **08-176.** In general, the strongest evidence for treatment, screening, or prevention strategies is found in systematic reviews, meta-analyses, randomized controlled trials (RCTs) with consistent findings, or a single high-quality RCT. **ANS=A.** Second-tier levels of evidence would be poorer quality RCTs with inconsistent findings, cohort studies, or case-control studies. The lowest quality of evidence would come from such sources as expert opinion, consensus guidelines, or usual practice recommendations.
08-033. +Res+Adm. A 22-year-old competitive cross-country skier presents with a complaint of not being able to perform as well as she expects. She has been training hard, but says she seems to get short of breath more quickly than she should. She also coughs frequently while exercising. A review of systems is otherwise negative. Her family history is negative for cardiac or pulmonary diseases. Her physical examination is completely normal, and pulmonary function tests obtained before and after bronchodilator use are normal. After you discuss your findings with the patient, she acknowledges that her expectations may be too high, but can think of no other cause for her problem. Which one of the following would be the next reasonable step? A) An echocardiogram to look for cardiomyopathy or valvular dysfunction B) Counseling regarding competition stress and athlete burnout syndrome C) A sports medicine consultation to evaluate her training regimen D) A trial of inhaled albuterol (Proventil) for exercise-induced bronchospasm	Exercise**. 08-033.** Exercise-induced bronchoconstriction (EIB) is a very common and underdiagnosed condition in athletes. **ANS=D**. It is defined as a 10% lowering of FEV1 when challenged with exercise. The exercise required to cause bronchoconstriction is 5–8 minutes at 80% of maximal oxygen consumption. EIB is much more common in high-ventilation sports, such as track and cross-country skiing. It is also more common in winter sports, because of the inspiration of cold, dry air. In some studies the incidence among cross-country skiers is as high as 50%, and 40% of those who have positive tests for bronchospasm are unaware of the problem. A physical examination, as well as pulmonary function tests at rest and before and after bronchodilators, will be normal unless there is underlying asthma. Among athletes with EIB, 10% will not have asthma. Bronchoprovocative testing can be ordered, but if it is not available a trial with an albuterol inhaler is reasonable. Cardiomyopathy or valvular dysfunction not found during the physical examination is possible, but much less likely. Psychological stresses are also a possible etiology, but should not receive undue attention, especially when simple questioning is not productive and more likely diagnoses have not been ruled out. Poor training methods are also possible, but in a competitive athlete this is not the most likely cause.
09-035. +Car+Adm. At a routine visit, a 40-year-old female asks about beginning an exercise regimen. She has a family history of heart disease and hypertension. She currently has no medical problems, but she is sedentary. Which one of the following would be the most **appropriate recommendation** for this patient? A) Fast walking for 30 minutes on 5 or more days per week B) Jogging for 30 minutes every other day C) Weight training once weekly D) An exercise stress test prior to beginning exercise E) A baseline EKG and rhythm strip	Exercise**. 09-035.** Recommendations. This patient would benefit from exercise to prevent or delay the onset of heart disease and hypertension, and to manage her weight. Exercise stress testing is not specifically indicated for this patient. Current **recommendations are for healthy adults to engage in 30 minutes of accumulated moderate-intensity physical activity on 5 or more days per week.**
09-012. +Sen+Euc. A 55-year-old male is brought to the emergency department with a complaint of pain in the right eye and reduced vision of about 10 minutes' duration. His eye was injured while he was hitting a metal stake with a sledge hammer. He was not wearing safety goggles. On examination you note a subconjunctival hemorrhage completely surrounding the cornea. The iris is irregular. Which one of the following is contraindicated prior to emergency transfer to an ophthalmologist? A) Administering an analgesic B) Attempting tonometry C) A visual acuity test D) Use of an eye shield E) Administering an antiemetic	Eye conditions. **09-012.** Globe rupture. Ans=B. Relief of pain with an analgesic is appropriate before transfer. **Because of a risk of extruding intraocular fluid, tonometry should not be attempted if globe rupture is suspected.** A rapid assessment of gross visual acuity (e.g., counting fingers, seeing light versus dark) may be performed. An eye shield should be placed over the affected eye to avoid putting pressure on the eye during transport to the ophthalmologist. Because the Valsalva effect from vomiting may lead to extrusion of intraocular contents, an antiemetic would be appropriate before transfer as well.
09-119. +Sen+Euc. A 27-year-old male was roughhousing with his children when he was accidentally struck in the left eye. He immediately felt pain in the eye, and over the next hour noted increased tearing, pain with blinking, increasing headache, and a foreign-body sensation. You see the patient the next day, and examination with flourescein dye and a cobalt-blue filtered light reveals a corneal abrasion. Appropriate management includes which one of the following? A) An eye patch for 24–48 hours B) Mydriasis with a short-acting agent, such as tropicamide ophthalmic (Mydriacyl) C) A topical anesthetic instilled every 4 hours if no foreign body or infection is found D) Topical corticosteroid drops E) Referral to an ophthalmologist if the edge of the abrasion is white or gray	Eye conditions. **09-119.** Abrasion, infection. **ANS=E.** A white or gray appearance at the edge of a corneal abrasion may indicate infection, and referral to an ophthalmologist is indicated. Mydriatic agents and eye patching are ineffective for corneal abrasions and are not recommended (SOR A). Progression to recurrent corneal erosion may occur years after a corneal abrasion. Symptoms mimic the initial corneal abrasion, and tearing on awakening is common. Topical anesthetics should be administered only in the office; if a patient uses the medication at home, it can delay healing and mask complications.
10-132. +Sen+Cel. A 72-year-old white male presents with a complaint of headache, blurred vision, and severe right eye pain. His symptoms began acutely about 1 hour ago. Examination of the eye reveals a mid-dilated, sluggish pupil; a hazy cornea; and a red conjunctiva. Which one of the following is the most likely diagnosis? A) Retinal detachment B) Central retinal artery occlusion C) Mechanical injury to the globe D) Acute angle-closure glaucoma	Eye conditions. **10-132.** Glaucoma**.** Acute angle-closure. **ANS=D.** This patient presents with acute angle-closure glaucoma, manifested by an acute onset of severe pain, blurred vision, halos around lights, increased intraocular pressure, red conjunctiva, a mid-dilated and sluggish pupil, and a normal or hazy cornea. Findings with retinal detachment include either normal vision or peripheral or central vision loss; absence of pain; increasing floaters; and a normal conjunctiva, cornea, and pupil. Central retinal artery occlusion findings include amaurosis fugax, a red conjunctiva, a pale fundus, a cherry-red spot at the fovea, and "boxcarring" of the retinal vessels. In patients with mechanical injury to the globe, findings include moderate to severe pain, normal or decreased vision, subconjunctival hemorrhage completely surrounding the cornea, and a pupil that is irregular or deviated toward the injury (SOR B).
10-145. +Sen+Csp. A 67-year-old female comes to your office because she noticed flashing lights in her left eye 2 hours ago, and since then has had decreased vision in the lateral aspect of that eye. On examination she has a blind spot in the lateral visual field of her left eye. Her fundus is difficult to examine because of an early cataract. Which one of the following is the most likely diagnosis? A) Posterior vitreous detachment B) Vitreous hemorrhage C) Macular degeneration D) Ocular migraine E) Retinal detachment	Eye consditions. **10-145.** Retinal detachment. **10-145. ANS=E.** In a patient complaining of flashes of light and a visual field defect, retinal detachment is the most likely diagnosis. Many cases of vitreous detachment are asymptomatic, and it does not cause sudden visual field defects in the absence of a retinal detachment. A vitreous hemorrhage would cause more blurring of vision in the entire field of vision. Ocular migraine causes binocular symptoms.

09-156. +Non+Adm. A 36-year-old female consults you because of concerns about "fatigue." After carefully reviewing her history and performing a physical examination, which one of the following would be LEAST valuable in assessing this patient? A) A baseline serum cortisol level B) An erythrocyte sedimentation rate C) A complete metabolic panel D) A TSH level E) A pregnancy test	Fatigue, workup. **09-156. ANS=A.** In patients with fatigue, family physicians should complete an appropriate history and physical examination. Laboratory studies should be considered, although the results affect management in only 5% of patients. **A baseline cortisol level would be valuable only in patients with significant findings of Addison's disease.** In addition to an erythrocyte sedimentation rate, a complete metabolic panel, and a TSH level, many physicians request a CBC and a urinalysis. A pregnancy test should be ordered for women of childbearing age. No other tests have been shown to be useful unless a specific medical condition is suspected.
08-064. +Pbc+Cca. A 3-week-old infant is brought to your office with a fever. He has a rectal temperature of 38.3°C (101.0°F), but does not appear toxic. The remainder of the examination is within normal limits. Which one of the following would be the most appropriate management for this patient? A) Admit to the hospital; obtain urine, blood, and CSF cultures; and start intravenous antibiotics B) Admit to the hospital and treat for herpes simplex virus infection C) Follow up in the office in 24 hours and admit to the hospital if not improved D) Order a CBC and urinalysis with urine culture, and send the patient home if the results are normal	Febrile illness. **08-064.** Any child younger than 29 days old with a fever and any child who appears toxic, regardless of age, should undergo a complete sepsis workup and be admitted to the hospital for observation until culture results are known or the source of the fever is found and treated (SOR A). **ANS=A.** Observation only, with close follow-up, is recommended for nontoxic infants 3–36 months of age with a temperature <39.0°C (102.2°F) (SOR B). Children 29–90 days old who appear to be nontoxic and have negative screening laboratory studies, including a CBC and urinalysis, can be sent home with precautions and with follow-up in 24 hours (SOR B). Testing for neonatal herpes simplex virus infection should be considered in patients with risk factors, including maternal infection at the time of delivery, use of fetal scalp electrodes, vaginal delivery, cerebrospinal fluid pleocytosis, or herpetic lesions. Testing also should be considered when a child does not respond to antibiotics (SOR C).
08-097. +Pbc+Cca. The parents of a 40-day-old infant bring her to your clinic because she has had a persistent fever for the past 2 days with rectal temperatures between 38.1°C (100.5°F) and 38.9°C (102.0°F). She has been fussy and wants to be held, but has been nursing well. She is crying when you enter the room, and on examination she has good skin turgor and capillary refill. The examination does not reveal any obvious source of infection. By the time you complete the examination the infant is resting quietly in her father's arms. You obtain a CBC and urinalysis. The WBC count is 12,500/mm3 (N 5000–19,500) with an absolute neutrophil count of 9500/mm3 (N 1000–9000). The urinalysis is within normal limits. Which one of the following would be most appropriate at this time? A) Home care and parental observation only, as long as the temperature remains under 39.0°C (102.2°F) B) Home care and reevaluation in 24 hours C) Oral antibiotics and reevaluation in 24 hours D) A complete sepsis workup, including blood cultures, stool studies, a chest radiograph, and cerebrospinal fluid studies	Febrile illness. **08-097. ANS=B.** Most children will be evaluated for a febrile illness before 36 months of age, with the majority having a self-limited viral illness. **Nontoxic-appearing febrile infants 29–90 days of age who have a negative screening laboratory workup, including a CBC with differential and a normal urinalysis, can be sent home and followed up in 24 hours** (SOR B). A **second option is to obtain blood cultures and stool studies, or a chest film if indicated by the history or examination, and spinal fluid studies if empiric antibiotics are to be given.** This infant's clinical status did not indicate that any of these additional studies should be performed, and empiric antibiotic treatment is not planned. **Observation with no follow-up is an appropriate strategy in nontoxic children, but only if the child is 3–36 months of age and the temperature is under 39°C** (SOR B). Nontoxic children 3–36 months of age should be reevaluated in 24–48 hours if the temperature is over 39°C. Although a positive response to antipyretics has been considered an indication of a lower risk of serious bacterial infection, there is no correlation between fever reduction and the likelihood of such an infection. **Any infant younger than 29 days, and any infant or child with a toxic appearance regardless of age, should undergo a complete sepsis workup and be admitted for observation until culture results are obtained or the source of the fever is found and treated** (SOR A).
10-088. +Non+Adm.>L* A 17-year-old female sees you for a preparticipation evaluation. She has run 5 miles a day for the last 6 months, and has lost 6 lb over the past 2 months. Her last menstrual period was 3 months ago. Other than the fact that she appears to be slightly underweight, her examination is normal. To fit the criteria for the female athlete triad, she must have which one of the following? A) A formal diagnosis of an eating disorder B) Amenorrhea for 1 year C) A Z-score on bone-density testing of –2.5 or less D) Withdrawal bleeding after progesterone administration E) A history of a stress fracture resulting from minimal trauma	Female athlete triad. **10-088. ANS=E.** The initial definition of the female athlete triad was amenorrhea, osteoporosis, and disordered eating. The American College of Sports Medicine modified this in 2007, emphasizing that the triad components occur on a continuum rather than as individual pathologic conditions. The definitions have therefore expanded. Disordered eating is no longer defined as the formal diagnosis of an eating disorder. Energy availability, defined as dietary energy intake minus exercise energy expenditures, is now considered a risk factor for the triad, as dietary restrictions and substantial energy expenditures disrupt pituitary and ovarian function. Primary amenorrhea is defined as lack of menstruation by age 15 in females with secondary sex characteristics. Secondary amenorrhea is the absence of three or more menstrual cycles in a young woman previously experiencing menses. For those with secondary amenorrhea, a pregnancy test should be performed. If this is not conclusive, a progesterone challenge test may be performed. If there is withdrawal bleeding, the cause would be anovulation. Those who do not experience withdrawal bleeding have hypothalamic amenorrhea, and fit one criterion for the triad. Athletes who have amenorrhea for 6 months, disordered eating, and/or a history of a stress fracture resulting from minimal trauma should have a bone density test. *Low bone mineral density for age* is the term used to describe at-risk female athletes with a Z-score of –1 to –2. Osteoporosis is defined as having clinical risk factors for experiencing a fracture, along with a Z-score < –2.
08-224. +Ref+Mac. Late decelerations on fetal monitoring are thought to indicate which one of the following? A) Fetal head compression B) Umbilical cord compression C) Fetal sleep D) Uterine hypotonus E) Uteroplacental insufficiency	Fetal monitoring. **08-224.** Late decelerations are thought to be associated with uteroplacental insufficiency and fetal hypoxia due to decreased blood flow in the placenta. **ANS=E**. This pattern is a warning sign and is associated with increasing fetal compromise, worsening fetal acidosis, fetal central nervous system depression, and/or direct myocardial hypoxia. Early decelerations are thought to result from vagus nerve response to fetal head compression, and are not associated with increased fetal mortality or morbidity. Variable decelerations are thought to be due to acute, intermittent compression of the umbilical cord between fetal parts and the contracting uterus.
09-236. +Ref+Mac. A 25-year-old female is in active labor at term and is dilated to 7 cm. An electronic fetal monitoring tracing is shown in **Figure**. Which one of the following is a possible etiology for this fetal heart rate pattern? A) Normal progress of labor B) Maternal fever C) Effects of epidural anesthesia D) Post-	Fetal monitoring. **09-236.** Electronic fetal monitoring. **ANS=B.** This tracing shows fetal tachycardia, defined as a baseline fetal heart rate >160 beats/min for at least 15 minutes. This is considered a nonreassuring pattern. Causes of fetal tachycardia include maternal fever, fetal hypoxia, hyperthyroidism, maternal or

dates pregnancy E) Umbilical cord prolapse  	fetal anemia, medication effects of parasympatholytic or sympathomimetic drugs, chorioamnionitis, fetal tachyarrhythmia, and prematurity. Fetal tachycardia is not a sign of normal progression of labor. Epidural anesthesia, post-dates pregnancy, and umbilical cord prolapse would all be causes of fetal bradycardia.
08-076. +Neu+Adm. A 35-year-old female presents with pain in her neck, back, and shoulder, as well as a complaint of poor sleep and fatigue. For the last 6 months she has experienced burning in her low back that radiates to her buttocks, and she feels that her joints are swollen even though there is no objective evidence of this. She also experiences morning stiffness that improves as the day progresses. A physical examination is unremarkable with the exception of palpation of 14 different tender points above and below the diaphragm, including the upper border of the trapezius muscle, the second rib space 3 cm lateral to the sternal border bilaterally, both lateral epicondyles, the upper outer quadrants of both gluteal muscles, and the radial fat pad of both knees. Laboratory tests, including a CBC, a chemistry profile, thyroid function tests, and an erythrocyte sedimentation rate, all are within normal limits. Which one of the following would be the most helpful treatment for this patient? A) Massage therapy B) NSAIDs C) Trigger-point injections D) Corticosteroids E) Cognitive-behavior therapy	Fibromyalgia. **08-076. ANS=E.** The etiology of fibromyalgia remains unknown, but it is a common condition that is underdiagnosed. It is much more common in women than in men; additional risk factors include being divorced, having a low income level, and not completing high school. The pathogenesis may be related to central sensitization and dysregulation of the hypothalamic (pituitary) adrenal axis. Commonly associated symptoms include headache (often migraine in type), anxiety, depression, and dizziness. The diagnosis is specific, and requires the finding of at least 11 tender points in 18 possible specific anatomic locations, with the pain occurring both above and below the waist on both sides of the body for at least 3 months. There is strong evidence for the effectiveness of both pharmacologic therapies such as cyclobenzaprine and nonpharmacologic therapies such as aerobic exercise, cognitive-behavioral therapy, and multidisciplinary approaches that include patient education and exercise. The evidence of effectiveness is weak for chiropractic therapy, electrotherapy, massage therapy, and ultrasound. There is no known benefit from corticosteroids, opioids, thyroid hormone, NSAIDs, melatonin, flexibility exercises, or trigger-point injections.
09-081. +Mus+Adm. Fibromyalgia is characterized by tender trigger points A) along the medial border of each scapula B) bilaterally at the anatomic snuffbox C) at the insertion of the Achilles tendon into the posterior heel D) at the second and third web spaces on the plantar surface of the foot	Fibromyalgia. **09-081. ANS=A.** The typical fibromyalgia trigger points lie along the medial scapula borders, as well as the posterior neck, upper outer quadrants of the gluteal muscles, and medial fat pads of the knees. Tenderness of the anatomic snuffbox, Achilles tendons, or web spaces of the toes would most likely be related to another diagnosis.
10-107. +Mus+Adm. Which one of the following is most appropriate for the treatment of fibromyalgia syndrome? A) Metaxalone (Skelaxin) B) Hydrocodone C) Naproxen D) Tizanidine (Zanaflex) E) Amitriptyline	Fibromyalgia. **10-107.** Fibromyalgia syndrome. **ANS=E.** A meta-analysis of antidepressant medications for the treatment of fibromyalgia syndrome concluded that short-term use of amitriptyline and duloxetine can be considered for the treatment of pain and sleep disturbance in patients with fibromyalgia. In addition, a 2008 evidence-based review for the management of fibromyalgia syndrome performed for the European League Against Rheumatism recommends heated pool treatment with or without exercise, tramadol for the management of pain, and certain antidepressants, including amitriptyline. Evidence for long-term effectiveness of antidepressants in fibromyalgia syndrome is lacking, however.
08-082. +Pbc+Cca. The parents of three children ask your advice about the need for fluoride supplementation in order to prevent tooth decay. Which one of the following is true regarding current U.S. Preventive Services Task Force guidelines for fluoride supplementation? A) It is not recommended due to potential fluoride toxicity B) Dental fluoride varnish is too toxic for routine use C) Oral fluoride supplementation is recommended if the primary drinking water source is low in fluoride D) Fluoridated toothpaste provides adequate protection if used as soon as the child has teeth E) The need for fluoride supplementation is determined by serum fluoride levels	Fluoride supplementation. **08-082.** Dental caries. The current (2004) recommendation of the U.S. Preventive Services Task Force is that children over the age of 6 months receive oral fluoride supplementation if the primary drinking water source is deficient in fluoride. **ANS=C.** They cite "fair evidence" (B recommendation) that such supplementation reduces the incidence of dental caries and conclude that the overall benefit outweighs the potential harm from dental fluorosis. Dental fluorosis is chiefly a cosmetic staining of the teeth, is uncommon with currently recommended doses, and has no other functional or physiologic consequences. Fluoridated toothpaste can cause fluorosis in children younger than 2 years of age, and is therefore not recommended in this age group. By itself it does not reliably prevent tooth decay. Fluoride varnish, applied by a dental or medical professional, is another treatment option to prevent caries. It provides longer lasting protection than fluoride rinses, but since it is less concentrated, it may carry a lower risk of fluorosis than other forms of supplementation. Oral fluoride supplementation for children over the age of 6 months is based not only on age but on the concentration of fluoride in the primary source of drinking water, whether it be tap water or bottled water. Most municipal water supplies in the U.S. are adequately fluoridated, but concentrations vary. Fluoride concentrations in bottled water vary widely. If the concentration is greater than 0.6 ppm no supplementation is needed, and if given, may result in fluorosis. Lower concentrations of fluoride may indicate the need for partial or full-dose supplementation.
09-210. +Gas+Com. A 50-year-old male comes to your office for a "doctor's excuse" for days of work he missed last week. He attended a picnic where he and other guests developed nausea and vomiting 2 hours after eating. Within 48 hours, the symptoms had resolved. The most likely etiology of the illness is which one of the following? A) *Staphylococcus* B) *Clostridium botulinum* C) *Clostridium perfringens* D) *Clostridium difficile* E) Actinomycos	Food poisoning. **ANS=A.** This is a typical presentation of staphylococcal food poisoning. The symptoms usually begin 1–6 hours after ingestion and resolve within 24–48 hours. Foodborne botulism is most commonly found in homecanned foods, and symptoms begin 18–36 hours after ingestion. *Clostridium perfringens* is transmitted in feces and water, and symptoms begin 6–24 hours after ingestion. *Clostridium difficile* is associated with antibiotic use. Actinomycosis causes local abscesses, not gastroenteritis.
10-111. +Mus+ Cel.**?*** A 91-year-old white male presents with a 6-month history	Foot problems. **10-111.** In elderly. **ANS=B.** The treatment of foot problems in the

of a painless ulcer on the dorsum of the proximal interphalangeal joint of the second toe. Examination reveals a hallux valgus and a rigid hammer toe of the second digit. His foot has mild to moderate atrophic skin changes, and the dorsal and posterior tibial pulses are absent. Appropriate treatment includes which one of the following? A) Surgical correction of the hammer toe B) Custom-made shoes to protect the hammer toe C) Bunionectomy D) A metatarsal pad	elderly is difficult because of systemic and local infirmities, the most limiting being the poor vascular status of the foot. Conservative, supportive, and palliative therapy replace definitive reconstructive surgical therapy. Surgical correction of a hammer toe and bunionectomy could be disastrous in an elderly patient with a small ulcer and peripheral vascular disease. The best approach with this patient is to prescribe custom-made shoes and a protective shield with a central aperture of foam rubber placed over the hammer toe. Metatarsal pads are not useful in the treatment of hallux valgus and a rigid hammer toe.
07-099. +Mus+Cca. A 10-year-old male is brought to your office with pain and swelling of the knee after falling out of a tree. A physical examination is notable for point tenderness and swelling at the proximal tibia. A radiograph shows a displaced fracture of the proximal tibia through the physis and epiphysis. The most appropriate management is A) a long leg cast B) a rigid knee immobilizer C) a functional (hinged) knee immobilizer D) orthopedic referral  	Fracture, Lower Extremeties. **07-099.** Salter-Harris. **Pain, knee.** Physeal injuries are unique to children, and account for approximately one-fourth of all pediatric fractures. **ANS=D.** This child has a Salter-Harris fracture that requires referral to an orthopedist. **Salter-Harris type I injury is a fracture through the hypertrophic cartilage that causes widening of the physeal space.** These fractures are difficult to diagnose radiographically, but their **clinical hallmark is point tenderness at the epiphyseal plate. Type II fractures are the most common, and extend through both the physis and metaphysis.** Although these fractures may result in some shortening, they rarely cause functional deformities. **Type III injuries extend through the physis and epiphysis, disrupting the reproductive layer of the physis.** These injuries may cause chronic sequelae because they disrupt the articular surface of the bone, but they do not produce deformities and generally have a good prognosis. **Type IV injuries cross through the epiphysis, physis, and metaphysis. These fractures are also intra-articular, increasing the risk for chronic disability**. They can disrupt the proliferative zone, leading to early fusion and growth deformity. Type V fractures are the least common but most difficult to diagnose, and have the worst prognosis. The classic mechanism of injury is an axial force that compresses the epiphyseal plate without an overt fracture of the epiphysis or metaphysis.
07-168. +Mus+Euc. A 17-year-old white male presents with facial swelling and difficulty chewing food. He tells you the symptoms resulted from a fight. On examination you note trismus and left periorbital swelling. Which one of the following fractures is most likely? A) Zygomatic arch B) Inferior orbital floor C) Medial orbital floor D) Basal skull E) Nasal septum Trismus: persistent contraction of the masseter muscles due to failure of central inhibition.	Fracture, Lower Extremeties. **07-168.** Zygomatic arch. Fractures involving the zygomatic arch frequently cause trismus. **ANS=A**. Many of these fractures are tripod-type fractures. Dental malocclusion and temporomandibular joint pain are common. Inferior orbital fractures may be associated with numbness of the cheek if the infraorbital nerve is involved. They are also sometimes associated with limited upward gaze if the infraorbital muscle is involved. The medial orbital wall may be involved in blowout fractures. Limitation of abduction of the involved eye may result. Basal skull fractures may result in bilateral periorbital bruising or "raccoon eyes." The most serious complication of nasal fractures is a nasal septal hematoma. This can cause necrosis of the septal cartilage if not promptly treated.
09-061. +Mus+Csp. A 40-year-old runner complains of gradually worsening pain on the lateral aspect of his foot. He runs on asphalt, and has increased his mileage from 2 miles/day to 5 miles/day over the last 2 weeks. Palpation causes pain over the lateral 5th metatarsal. The pain is also reproduced when he jumps on the affected leg. When you ask about his shoes he tells you he bought them several years ago. Which one of the following is the most likely diagnosis? A) Ligamentous sprain of the arch B) Stress fracture C) Plantar fasciitis D) Osteoarthritis of the metatarsal joint	Fracture, Lower Extremeties. **09-061. S**tress. **ANS=B.** Running injuries are primarily caused by overuse due to training errors. Runners should be instructed to increase their mileage gradually. **A stress fracture causes localized tenderness and swelling in superficial bones, and the pain can be reproduced by having the patient jump on the affected leg. Plantar fasciitis** causes **burning pain in the heel and there is tenderness of the plantar fascia** where it inserts onto the medial tubercle of the calcaneus.
07-090. +Mus+Euc. A 5-year-old male is brought to your office with forearm pain after a fall, and you diagnose a non-angulated buckle fracture of the distal radius and ulna. Which one of the following treatments has the best functional outcome at 3–4 weeks? A) An ACE wrap B) A removable splint C) A long arm cast D) A thumb spica cast E) Surgical reduction and internal fixation	Fracture, Upper Extremeties. **07-090.** Buckle of the wrist. **ANS=B. Although casting for 3–4 weeks with a short arm cast has been the traditional treatment for buckle fractures of the wrist, functional outcome in the short term is better with a simple removable splint, and management is easier**. Long-term outcomes are good with either treatment. Rigid splinting adds to short-term functional stiffness, and a wet cast or foreign bodies placed between the cast and skin necessitate additional visits. Surgical approaches are contraindicated and would not improve healing or position.
07-238. +Mus+Euc. A 32-year-old male comes to your office for the second time for wrist pain following a fall on the ice 10 days ago. At his first visit, examination of the wrist showed no deformity or swelling, but extension was decreased and he had diffuse tenderness over the dorsum of the wrist, particularly just distal and dorsal to the radial styloid. A radiograph is shown. Which one of the following do the radiographs reveal? A) A dislocated lunate B) A fracture of the scaphoid C) A hamate fracture D) A scapholunate dislocation	Fracture, Upper Extremeties. **07-238.** Scaphoid. **ANS=B.** A dorsiflexion injury will typically cause a scaphoid fracture in a young adult, resulting in tenderness to palpation over the anatomic snuffbox. Often the plain posterior-anterior wrist radiograph is normal. However, a special view with the wrist prone in ulnar deviation elongates the scaphoid, often demonstrating subtle navicular fractures. Hook of the hamate fractures cause tenderness at the proximal hypothenar area 1 cm distal to the flexion crease of the wrist. When this fracture is suspected, carpal tunnel and supinated oblique view radiographs should be obtained. A scapholunate dislocation can be identified with a "clenched-fist" view and the supinated view in ulnar deviation.

	
08-237. +Mus+Cca. A 7-year-old male is brought to your office after hurting his hand when he fell on a wet kitchen floor. He is unable to describe the mechanism of injury. On examination the maximal point of tenderness is at the third metacarpal-phalangeal joint, which also has some generalized swelling but no ecchymosis. Range of motion is limited in this joint due to pain. A radiograph of the hand is shown. Which one of the following is the most likely diagnosis? A) Boxer's fracture B) Greenstick fracture C) Salter type II fracture D) Spiral fracture E) No abnormality 	Fracture, Upper Extremeties. **08-237. H**and. **ANS=C.** Recognizing common fracture types is an important part of determining how to proceed when caring for an injured patient. Fractures in children can be different from those in adults for several reasons, including the elasticity of immature bone, the possibility of child abuse, and the presence of growth plates. The radiograph shown with this question is an example of a fracture through the growth plate. Approximately 6%–7% of such fractures will cause a restriction of growth. The Salter classification system was developed to classify fractures into the growth plate and can be used to estimate the risk of growth restriction. The higher the classification, the greater the risk of complications.
09-186. +Mus+Csp. A 24-year-old male sustains a boxer's fracture of the fifth metacarpal. A radiograph shows no rotational deformity and 25° of volar angulation. After an attempt at closed reduction the angulation remains unchanged. Which one of the following would be most appropriate at this time? A) Open reduction B) Placement of a pin to prevent further displacement C) A short arm-thumb spica cast D) An ulnar gutter splint	Fracture**,** Upper Extremeties. **09-186. H**and; Boxer's fracture.. **ANS=D.** Up to 40° of volar angulation is acceptable for fifth metacarpal fractures. For second and third metacarpal fractures, less angulation is acceptable. Appropriate treatment is a gutter splint.

	
09-217. +Mus+Csp. Surgical management for an acute midshaft clavicle fracture would be appropriate in which one of the following? A) An 11-year-old male with a comminuted fracture B) A 15-year-old female with a ½-cm displaced fracture C) A 30-year-old male with a ½-cm displaced fracture D) A 40-year-old male with a nondisplaced fracture E) A 50-year-old female with a comminuted fracture	Fracture, Upper Extremeties. **09-217. C**lavicle. Midshaft clavicle fractures are usually treated nonoperatively, but have a higher risk of nonunion. **ANS=E**. Risk factors for nonunion include female gender, fracture comminution or displacement, clavicle shortening, advanced age, and greater extent of initial trauma. These fractures in children heal extremely well, even if displaced or comminuted, because of periosteal regenerative potential.
09-240. +Mus+Cca. A 5-year-old male fell while playing and complained that his wrist hurt. The next day he is brought to your office because he refuses to use his arm. Which one of the following best describes the condition seen in the radiographs shown in **Figure**? A) A normal appearance B) A radial fracture C) An ulnar fracture D) A radioulnar fracture E) Indeterminate result 	Fracture, Upper Extremeties. **09-240.** Radial. **ANS=B.** Even though they are the most common fracture in this age group, radial fractures can be missed by clinicians. **The bend in the cortex of the distal radius indicates the fracture. Sometimes referred to as a buckle or torus fracture**, it will heal with almost any choice of treatment. Most clinicians opt for casting to reduce the chance of reinjury during the first few weeks of healing, but the parents' preferences in this regard are important. Some pediatric long-bone fractures involve growth plates, and the results can be indeterminate, requiring either more advanced imaging or comparison views of the opposite limb.
10-071. +Mus+Euc.**?*** While playing tennis, a 55-year-old male tripped and fell, landing on his outstretched hand with his elbow in slight flexion at impact. Pronation and supination of the forearm are painful on examination, as are attempts to flex the elbow. There is tenderness of the radial head without significant swelling. A radiograph of the elbow shows no fracture, but a positive fat pad sign is noted. Appropriate management would include A) a long arm cast for 2 weeks, followed by use of a brace B) mobilization of the elbow beginning 3 weeks after the injury C) a posterior splint for 6 weeks D) a posterior splint and a repeat radiograph in 1–2 weeks	Fracture, Upper Extremeties. **10-071.** Radial head. **ANS=D.** Nondisplaced radial head fractures can be treated by the primary care physician and do not require referral. Conservative therapy includes placing the elbow in a posterior splint for 5–7 days, followed by early mobilization and a sling for comfort. Sometimes the joint effusion may be aspirated for pain relief and to increase mobility. One study compared immediate mobilization with mobilization beginning in 5 days and found no differences at 1 and 3 months, but early mobilization was associated with better function and less pain 1 week after the injury. Radiographs should be repeated in 1–2 weeks to make sure that alignment is appropriate.
10-222. +Mus+Adm. While playing basketball, a 29-year-old male falls on his outstretched hand with his wrist fully extended. He sees you the following day because of diffuse wrist pain and decreased range of motion. The point of maximal tenderness is on the dorsal aspect of the wrist between the extensor pollicis brevis and extensor pollicis longus tendons. There is no visible deformity. Radiographs show no fracture. Which one of the following is the most appropriate initial treatment of this patient? A) A wrist extension splint B) An ulnar gutter splint C) A thumb spica splint D) A short arm cast E) Physical therapy	Fracture, Upper Extremeties. **10-222.** Scaphoid. **ANS=C.** The scenario described is suspicious for an occult fracture of the scaphoid bone of the wrist. The mechanism of injury, falling on an outstretched hand with the wrist extended, combined with tenderness in the anatomic snuff box (between the extensor pollicis longus and extensor pollicis brevis tendons) raises the possibility of a scaphoid fracture even if initial radiographs are negative. In order to reduce the potential for serious complications, including vascular necrosis and non-union, it is imperative that both the wrist and the thumb be immobilized. In the case described, a thumb spica splint is the best option initially. It should be worn continuously until a follow-up evaluation, including radiographs, in 1–2 weeks.
10-234. +Mus+Euc.>L**?*** A 35-year-old right-handed softball player injures his left wrist when sliding into second base. When he sees you the next day his description of the injury indicates that he hyperextended his wrist while sliding, and the pain was later accompanied by swelling. Your examination is remarkable only for mild swelling and tenderness of the dorsal wrist, distal to the ulnar styloid. A radiograph of the wrist is shown in **Figure 2**. Which one of the following best describes this injury? A) Triquetral fracture B) Scaphoid (navicular) fracture	Fracture, Upper Extremeties. **10-234** Wrist; triquetral. **ANS=A.** Triquetral Fractures typically occur with hyperextension of the wrist. Dorsal avulsion fractures are more common than fractures of the body of the bone. Tenderness is characteristically noted on the dorsal wrist on the ulnar side distal to the ulnar styloid. The typical radiologic finding is a small bony avulsion visible on a lateral view of the wrist. Most studies indicate that this carpal bone has the second or third highest fracture rate after the navicular. Avulsion fractures respond well to 4 weeks of splinting and protection. Clinical and radiologic signs do not match those expected in navicular or scaphoid fractures. Navicular fractures may initially

C) Lunate fracture D) Lunate dislocation E) Wrist sprain 	have normal radiologic findings. Immobilization and follow-up radiographs are required. Tenderness in the snuffbox area is expected, but dorsal tenderness and swelling are not characteristic. The radiographs do not show a lunate fracture or dislocation. A wrist sprain is a diagnosis of exclusion and should not be considered too early.
10-031. +Mus+Cel.>L* A 72-year-old male has had persistent interscapular pain with movement since rebuilding his deck 1 week ago. He rates the pain as 6 on a 10-point scale. A chest radiograph shows a thoracic vertebral compression fracture. Which one of the following would be most appropriate at this point? A) Complete bed rest for 2 weeks B) Markedly decreased activity until the pain lessens, and follow-up in 1 week C) Referral for vertebroplasty as soon as possible D) NSAIDs and referral for physical therapy	Fracture, vertebra. **10-031. T**horacic vertebral compression. **ANS=B.** This patient has suffered a thoracic vertebral compression fracture. Most can be managed conservatively with decreased activity until the pain is tolerable, possibly followed by some bracing. Vertebroplasty is an option when the pain is not improved in 2 weeks. Complete bed rest is unnecessary and could lead to complications. Physical therapy is not indicated, and NSAIDs should be used with caution.
09-219. +Res+Cca. A 5-month-old infant has had several episodes of wheezing, not clearly related to colds. The pregnancy and delivery were normal; the infant received phototherapy for 1 day for hyperbilirubinemia. He had an episode of otitis media 1 month ago. There is no chronic runny nose or strong family history of asthma. He spits up small amounts of formula several times a day, but otherwise appears well. His growth curve is normal. An examination is unremarkable except for mild wheezing. Which one of the following is the most likely diagnosis? A) Benign reactive airway disease of infancy B) Gastroesophageal reflux C) Unresolved respiratory syncytial virus infection D) Early asthma E) Cystic fibrosis	Gastroesophageal reflux disease. **09-219.** Gastroesophageal reflux disease Gastroesophageal reflux is a common cause of wheezing in infants. **ANS=B.** At 5 months of age, most infants no longer spit up several times a day, and this is a major clue that this child's wheezing may be from the reflux. In addition, there is no family history of asthma and the wheezing is not related to infections. Cystic fibrosis is more likely to present with recurrent infections and failure to thrive than with intermittent wheezing.
10-095. +Gas+Adm.>L* A 43-year-old female presents to your office for evaluation of a chronic cough that has been present for the past 6 months. She is not a smoker, and is not aware of any exposure to environmental irritants. She does not have any systemic complaints such as fever or weight loss, and does not have any symptoms of heartburn or regurgitation. She is not on any regular medications. Auscultation of the lungs and a chest radiograph show no evidence of acute disease. A trial of an inhaled bronchodilator and antihistamine therapy does not improve the patient's symptoms. Which one of the following would be the most appropriate next step? A) A methacholine inhalation challenge test B) Pulmonary function testing C) CT of the chest D) A trial of a proton pump inhibitor E) 24-hour pH monitoring	Gastroesophageal reflux disease. **10-095.** (GERD) is one of the most common causes of chronic cough. **ANS=D.** Patients with chronic cough have a high likelihood of having GERD, even in the absence of gastrointestinal symptoms (level of evidence 3). In fact, up to 75% of patients with a cough caused by GERD may have no gastrointestinal symptoms. The cough is thought to be triggered by microaspiration of acidic gastric contents into the larynx and upper bronchial tree. The American College of Chest Physicians states that patients with a chronic cough should be given a trial of antisecretory therapy (SOR B). Aggressive acid reduction using a proton pump inhibitor twice daily before meals for 3–4 months is the best way to demonstrate a causal relationship between GERD and extra-esophageal symptoms (SOR B). Methacholine inhalation testing is not necessary in this patient, since symptomatic asthma has been ruled out by the lack of response to bronchodilator therapy. Chest CT and pulmonary function tests are not indicated given the lack of findings from the history, physical examination, and chest film to suggest underlying pulmonary disease. An initial therapeutic trial of proton pump inhibitors is favored over 24-hour pH monitoring because it is less uncomfortable to the patient and has a better clinical correlation.
09-223. +Gas+Adm. A 60-year-old white female with type 1 diabetes mellitus presents with early satiety, nausea, bloating, and postprandial fullness. Laboratory tests are normal, as are upper endoscopy and biliary ultrasonography. Which one of the following would help confirm the most likely diagnosis? A) Pelvic Ultrasonography B) An exercise stress test C) Psychiatric consultation D) Gastric emptying scintigraphy E) Colonoscopy	Gastroparesis**. ANS=D.** This patient has typical findings of **gastroparesis, an autonomic neuropathy more commonly seen in type 1 diabetics and in women.** The **initial evaluation should include a patient history and examination, a CBC to rule out infection, a metabolic panel, endoscopy, and a biliary tract evaluation, but the diagnosis is best confirmed by scintigraphy.** Pelvic ultrasonography and colonoscopy are not indicated because the patient's symptoms are upper intestinal. Cardiac evaluation and psychiatric consultation are not warranted with these symptoms.
07-104. +Psy+Adm. A 26-year-old female consults you because she becomes quite anxious in many social situations, often panicking when she must lead discussions at work. She states that she is increasingly uncomfortable in social situations and is spending more time alone at home. She has asthma and notes that her symptoms increased when she used albuterol. Which one of the following would be the most appropriate therapy? A) Sertraline (Zoloft) B) Bupropion (Wellbutrin) C) Alprazolam (Xanax) D) Hydroxyzine (Vistaril) E) Propranolol	Generalized anxiety disorder**. 07-104. ANS=A.** SSRIs, SNRIs, and other pharmacologic therapies are useful in generalized social anxiety disorders, and often require higher doses to be effective. This patient meets the criteria for a performance-type social anxiety disorder with significant impairment, and an SSRI such as sertraline is indicated. **Buproprion is an antidepressant that is not useful in managing anxiety disorders**. A benzodiazepine or a B-blocker could be used for mild, intermittent performance anxiety, but would not be appropriate

(Inderal)	in this situation. B-blockers might also worsen her asthma. Hydroxyzine is an antihistamine with sedating properties that is not useful for treating anxiety disorders of this type.
08-180. +Psy+Adm. A generally healthy 35-year-old female has mild generalized anxiety, but is not depressed. She does not want to take a prescription medication, and asks if an herbal or dietary supplement might be helpful. Which one of the following botanical medications has the best clinical evidence of potential benefit for anxiety disorders when used for a short time (up to 24 weeks)? A) St. John's wort B) Valerian C) Passionflower D) Kava E) Chamomile	Generalized anxiety disorder**. 08-180.** Generalized anxiety; Kava. The use of herbal and nutritional supplements has become commonplace in the United States. **ANS=D.** Unfortunately, there is insufficient research for most herbal remedies, in terms of both efficacy and safety. However, there is a significant body of evidence from randomized, controlled trials and various meta-analyses showing benefit from the use of kava in the short-term treatment of anxiety disorders (up to 24 weeks), including generalized anxiety disorder (SOR A). The other remedies listed have only single studies or anecdotal evidence attesting to benefit for patients with anxiety. At best, information about them is limited, and there are often conflicting results. Safety concerns about kava have been addressed by recent randomized, controlled trials demonstrating that kava has a safety profile similar to those of FDA-approved treatments for anxiety disorders. Care should be taken with any concurrent use of kava and medications metabolized by the liver, and patients should be discouraged from using alcohol while taking kava. Physicians should be aware of all remedies their patients are taking, even if they are not prescribed. In addition, it is important to be aware of remedies that have evidence supporting their use.
10-122. +Psy+Mhe. Which one of the following is true regarding the treatment of generalized anxiety disorder? A) Cognitive-behavioral therapy has been shown to be at least as effective as pharmacologic therapy B) Buspirone (BuSpar) is as effective as SSRI therapy for patients with comorbid depression C) Benzodiazepines are no more effective than placebo D) Duloxetine (Cymbalta) is no more effective than placebo E) Escitalopram (Lexapro) is no more effective than placebo	Generalized anxiety disorder**. 10-122. ANS=A.** Cognitive-behavioral therapy has been shown to be at least as effective as medication for treatment of generalized anxiety disorder (GAD), but with less attrition and more durable effects. Many SSRIs and SNRIs have proven effective for GAD in clinical trials, but only paroxetine, escitalopram, duloxetine, and venlafaxine are approved by the FDA for this indication. Benzodiazepines have been widely used because of their rapid onset of action and proven effectiveness in managing GAD symptoms. SSRI or SNRI therapy is more beneficial than benzodiazepine or buspirone therapy for patients with GAD and comorbid depression.
09-057. +Non+Adm. You are asked to see a mentally challenged 45-year-old male from a nearby group home who has groin pain. On examination you notice that he has large ears, a prominent jaw, and large symmetric testicles. These findings are consistent with A) a variant form of Down syndrome B) Asperger's syndrome C) Klinefelter's syndrome D) homocystinuria E) fragile X syndrome	Genetic disorders, mentally challenged. **ANS=E. Fragile X syndrome accounts for more cases of mental retardation in males than any other genetic disorder except Down syndrome**; about one in 4000–6000 males is affected. Down syndrome, Klinefelter's syndrome, and homocystinuria do not present with the described findings. **Asperger's syndrome is a variant of autism in people of normal to high intelligence.** Patients with Klinefelter's syndrome usually have small testicles.
08-135. +Ref+Mac. Which one of the following fetal ultrasound measurements gives the most accurate estimate of gestational age in the first trimester (up to 14 weeks)? A) Femur length B) Biparietal diameter C) Abdominal circumference D) Crown-rump length E) Scapulo-sacral length	Gestational age. **08-135.** Gestational age in the first trimester. Because the growth pattern of the fetus varies throughout pregnancy, the accuracy of measurements and their usefulness in determining gestational age and growth vary with each trimester. **ANS=D. Crown-rump length is the distance from the top of the head to the bottom of the fetal spine. It is most accurate as a measure of gestational age at 7–14 weeks.** After that, other measurements are more reliable. **In the second trimester, biparietal diameter and femur length are used**. During the **third trimester, biparietal diameter, abdominal circumference, and femur length are best for estimating gestational age.**
09-191. +Ref+ Mac. Which one of the following sonographic measurements is most accurate for estimating gestational age? A) Amniotic sac size at 5 weeks of pregnancy B) Crown-rump length at 10 weeks of pregnancy C) Femur length at 16 weeks of pregnancy D) Biparietal diameter at 20 weeks of pregnancy E) Abdominal circumference at 24 weeks of pregnancy	Gestational age. **09-191. ANS=B.** Estimation of gestational age by ultrasound is most accurate early in the first trimester and begins to decline by 22 weeks gestation. Crown-rump length is typically used to estimate gestational age before 13 weeks gestation. After 11 weeks gestation, combinations of biparietal diameter, femur length, head circumference, and abdominal circumference are used to estimate the gestational age. These factors are used by the software that generates ultrasonography reports.
08-025. +Hem+Adm. An asymptomatic 40-year-old male presents for a routine examination and is found to have a total bilirubin level of 1.8 mg/dL (N ≤1.0) and an indirect bilirubin level of 1.3 mg/dL. He drinks 3–6 beers/week. An examination and laboratory tests, including a CBC and serum liver enzymes, are within normal limits. Which one of the following is true regarding the diagnosis? A) The most likely diagnosis is alcoholic liver disease B) The most likely diagnosis is Dubin-Johnson syndrome C) The most likely diagnosis is Gilbert syndrome D) Ultrasonography of the liver and gallbladder are necessary to make a diagnosis	Gilbert syndrome. **08-025.** Gilbert syndrome is an autosomal dominant disease characterized by indirect hyperbilirubinemia caused by impaired glucuronyl transferase activity. **ANS=C.** The workup includes studies to exclude hemolysis (CBC, reticulocyte count, and haptoglobin) and liver disease (AST, ALT, alkaline phosphatase, and prothrombin time). Alcoholic liver disease is associated with a greater elevation of AST than of ALT. Dubin-Johhnson syndrome is a benign liver disease distinguished by direct or conjugated hyperbilirubinemia. Imaging studies are not required to confirm Gilbert syndrome; such studies are more useful for conditions involving conjugated hyperbilirubinemia. Other causes of indirect hyperbilirubinemia include hematoma, infection, cardiac disease, rhabdomyolysis, living at high altitude, thyrotoxicosis, and some medications.
08-007. +Rem+Adm. Which one of the following is appropriate and effective treatment for genitourinary gonorrhea in a 20-year-old male with a purulent urethral discharge? A) Amoxicillin, 3.5 g orally once B) Ciprofloxacin (Cipro), 500 mg orally once C) Ceftriaxone (Rocephin), 125 mg intramuscularly once D) Doxycycline, 100 mg 2 times daily for 3 days E) Erythromycin, 500 mg 4 times daily for 7 days	Gonorrhea/Chlamydia. **08-007. ANS=C.** Not only has the incidence of gonorrhea increased since 2002, but the rate of quinolone-resistant infection has also increased. Ceftriaxone is therefore the currently recommended treatment, and amoxicillin, ciprofloxacin, and erythromycin are no longer recommended because of resistance to these drugs. Doxycycline can be used but should be continued for 7 days.
10-146. +Ref+Mac. A 27-year-old white female at 12 weeks gestation comes to your office complaining of a vaginal discharge. On speculum examination you note a purulent cervical discharge with a friable cervix. A gonorrhea culture is negative. You make a diagnosis of *Chlamydia trachomatis* cervicitis. Which one	*Gonorrhea/Chlamydia.* **10-146.** *Chlamydia trachomatis* infections in pregnant patients**. ANS=C.** Azithromycin is the drug of choice for *Chlamydia trachomatis* infections in pregnant patients. Metronidazole is used to treat trichomoniasis and *Gardnerella* vaginitis after 12 weeks gestation. The use of tetracycline is not

of the following is the appropriate treatment? A) Metronidazole (Flagyl) B) Tetracycline C) Azithromycin (Zithromax) D) Miconazole (Monistat) cream	appropriate in pregnant women, and miconazole is used to treat vaginal candidiasis.
09-102. +Pbc+Com. In which one of the following scenarios is a physician most likely to be protected by a Good Samaritan statute? A) Assisting flight attendants with the care of a fellow passenger who develops respiratory distress while in flight over the United States B) Attending to an unconscious player while acting as an unpaid volunteer physician at a high-school football game C) Attending to a bicyclist with heat exhaustion while volunteering at a first-aid station during a fund-raising ride D) Attending to the family member of a patient who slips and falls in the waiting room at the physician's office E) Attending to a nurse's aide who collapses while the physician is staffing the hospital emergency department	Good Samaritan law. **09-102. ANS=A.** Generally, Good Samaritan laws apply to situations in which the physician does not have a preexisting duty to provide care to the patient. **A physician who volunteers as a standby health care provider at an event assumes a duty to care for illness or injury in the participants.** Likewise, **physicians have a duty to provide emergency care to a person in need within a facility where they are working, such as a medical office or an emergency department**. On an airplane, there is no preexisting duty for a physician to attend to a fellow passenger who becomes ill. In addition, a specific federal law, the Aviation Medical Assistance Act, ensures that physicians have Good Samaritan protection if they provide medical assistance while in flight over the United States.
10-204. +Pbc+Com. Which one of the following situations is most likely to result in immunity from court-awarded damages for personal injuries occurring as a result of reasonable and ordinary emergency care? A) Evaluating a football injury as a volunteer team physician at a local high-school game B) Stabilizing an injured victim at the scene of an automobile accident until EMS arrives C) Providing emergency care to your office nurse after he collapses while on the job D) Responding to the collapse of one of your patients in the hospital parking lot E) Treating an asthma attack while staffing the first-aid shelter at an outdoor rock concert	Good Samaritan law**. 10-204. ANS=B.** Laws providing immunity from civil damages for injuries or death resulting from care deemed reasonable under the circumstance (ordinary negligence) are generally described as Good Samaritan laws. Good Samaritan statutes have been enacted in some form in all 50 states, the District of Columbia, and Puerto Rico to protect physicians from liability (in the absence of gross negligence) if they provide emergency care to individuals with whom they share no preexisting obligation to provide medical care. In most states such protection is limited to emergency care provided outside of the hospital setting, although a few states offer protection for hospital care in certain circumstances. While there is no legal obligation to provide Good Samaritan care in most states, in some states (e.g., Louisiana, Minnesota, and Vermont) not doing so is a violation of "duty to assist" laws. A preexisting obligation to provide care exists in each of the examples given, except for the provision of care at the scene of a traffic accident. Providing stabilizing care at the scene of an accident clearly fits within the protections defined by Good Samaritan laws. The obligation to provide care when volunteering at an event such as a football game or concert is implied even if it is provided without charge. An obligation to provide care for someone identified as your patient exists even outside of the office setting; a similar responsibility to provide emergency care for office employees is generally accepted. Federal law provides for similar Good Samaritan protection from liability to physicians who respond to in-flight emergencies originating in the United States. Protection is also offered by statute in the U.K., Canada, and other countries; Australian law also includes a legal obligation to provide emergency care.
07-114. +Mus+Adm. A 72-year-old patient has an acute onset of joint pain and swelling. Aspiration reveals monosodium urate crystals. Compared with younger patients, geriatric patients presenting for the first time with this condition are more likely to A) be male B) have a monoarticular presentation C) have involvement of joints of the upper extremity D) have podagra (first metatarsophalangeal joint involvement) E) be free of tophi	Gout. **07-114. ANS=C.** The presentation of **gout in the elderly is often different from the classic presentation**. It **occurs more often in women, has a polyarticular onset, and often involves small joints of the hands. Older patients also tend to develop tophi early**. Gout may appear in joints with Heberden's nodes from osteoarthritis. **Podagra is the classic presentation of gout in the younger population.**
07-133. +Mus+Adm. A 62-year-old female presents to the emergency department complaining of right leg and knee pain. The pain has progressed over the past 2 weeks so that now she is unable to bear weight on her right leg. She has a history of a recent pulmonary embolus and is on warfarin (Coumadin). Her INR is therapeutic. On examination she is afebrile. Her pulse rate is 102 beats/min, her blood pressure is 158/96 mm Hg, and her respiratory rate is 14/min. Her right knee is erythematous, warm, and tender on palpation over the entire knee joint, and a large effusion is noted. Arthrocentesis reveals numerous WBCs and crystals that are birefringent on polarizing microscopy. What is the best initial treatment for the patient's knee problem? A) Ceftriaxone (Rocephin) intravenously, 1.0 g every 24 hr B) Prednisone orally, 10 mg/day C) Colchicine, 0.6 mg every 1–2 hr, up to 4.8 mg total D) Indomethacin (Indocin) orally, 50 mg every 8 hr E) Allopurinol (Zyloprim) orally, 100 mg/day	Gout. **07-133. A**ttack**. ANS=C.** This patient is having an acute gout attack. While indomethacin is a good choice for treating an acute gout attack, this patient should not take indomethacin because of the increased risk of bleeding created by warfarin. Colchicine would be the best agent in this case. The dosage is titrated up until symptoms are relieved, side effects occur, or the maximum dose of 4.8 mg in 24 hours is reached. There is no evidence that corticosteroids are an effective treatment for acute gout. Allopurinol should not be used in an acute gout attack. Ceftriaxone is not an appropriate treatment for gout.
08-203. +Mus+Adm. A 60-year-old male presents with an acute onset of pain and swelling in the right big toe. He can recall no mechanism of injury. He has hypertension which is well controlled with hydrochlorothiazide. On examination the area around the toe is slightly warm. Which one of the following should be AVOIDED in this patient at this time? A) Allopurinol (Zyloprim) B) Colchicine C) NSAIDs D) Prednisone E) Aspiration of the joint	Gout. **08-203.** This patient likely has gout. Aspiration should be attempted to get a specific diagnosis. **ANS=A.** The initial treatment for gout is NSAIDs, colchicine, or cortisone injections (SOR B). Allopurinol should be avoided until the episode of gout is controlled, because it may precipitate worsening. In addition to medication, recommended management includes addressing risk factors such as obesity, diuretic use, high-purine diet, and alcohol intake (SOR B).
09-110. +Mus+Adm. A 54-year-old male comes to your office with a 2-day history of swelling, erythema, and pain in his right first metatarsophalangeal joint. This is the third time this year he has had this problem. He has treated previous	Gout. **09-110. ANS=A.** All of the treatments listed are commonly used in the management of gout with good success. **Allopurinol** decreases the production of uric acid and is effective in reducing the frequency of acute gouty flare-ups.

episodes with over-the-counter pain medicines, ice packs, and elevation. Your evaluation suggests gout as the diagnosis. Which one of the following treatments for gout is most likely to worsen his current symptoms? A) Allopurinol (Zyloprim) B) Colchicine C) Elastic compression bandages D) Indomethacin E) Prednisone	However, it **should not be started during an acute attack since fluctuating levels of uric acid can actually worsen inflammation** and intensify the patient's pain and swelling. **Colchicine** inhibits white blood cells from enveloping urate crystals and is **effective during acute attacks, as are NSAIDs such as indomethacin. Corticosteroids such as prednisone** are **also considered a first-line treatment for acute attacks.** Compression as an adjunctive therapy may help control pain and swelling.
10-119. +Mus+Adm. In a patient with hyperuricemia who has experienced an attack of gout, which one of the following is LEAST likely to precipitate another gout attack? A) Red meat B) Milk C) Seafood D) Nuts E) Beans	Gout**. 10-119. ANS=B.** Reducing consumption of red meat, seafood, and alcohol may help reduce the risk of a gout attack. Dairy products, in contrast to other foods high in protein, decrease the risk of another attack. Nuts and beans are high in purines and will worsen gout.
08-046. +Pbc+Cca. A white male adolescent is concerned because he is the shortest boy in his class. His age is 14.3 years and his parents are of normal height. He has a negative past medical history and no symptoms. On physical examination you note that he is 151 cm (59 in) tall. The average height for his age is 165 cm. His weight is 43 kg (95 lb). His sexual maturity rating is 3 for genitalia and 2 for pubic hair. A wrist radiograph shows a bone age of 12.2 years (the average height is 152 cm for this bone age). On the basis of this evaluation you can tell the patient and his parents that A) he should have a growth hormone stimulation test B) his adult height will be below average C) his sexual development is about average for his age D) he will begin to grow taller within a year or so E) an underlying nutritional deficiency may be the cause of his short stature	Growth and development. **08-046.** Growth delay, constitutional. **ANS=D.** Constitutional growth delay, defined as delayed but eventually normal growth in an adolescent, is usually genetic. If evaluation of the short adolescent male reveals no evidence of chronic disease, if his sexual maturity rating is 2 or 3, and if his height is appropriate for skeletal age he can be told without endocrinologic testing that he will begin to grow taller within a year or so. Adult height may be below average, but cannot be predicted reliably. Average sexual maturity ratings for a male of 14.3 years are 4 for genitalia and 3 to 4 for pubic hair. The history and physical examination would have given clues to any illnesses or nutritional problems.
09-089. +Non+Cca. In assessing the nutritional status of an infant it is useful to know that birth weight is expected to be regained within A) 5 days B) 14 days C) 21 days D) 28 days	Growth and development. **09-089. ANS=B.** A helpful guideline for assessing **normal growth in the very young infant is that birth weight should be regained within 14 days.**
09-148. +Non+Cca. A 16-year-old male accompanied by his mother presents to your outpatient clinic with concerns about his short stature and "boyish" looks. He is a sophomore in high school but is frequently mistaken for someone much younger. Radiographs reveal a bone age of 14.7 years. Which one of the following would suggest the need for further evaluation? A) A family history of delayed growth B) Height below the fifth percentile for age C) Weight below the fifth percentile for age D) Prepubescent testicular size	Growth and development. **09-148.** Growth delay; constitutional growth delay**. ANS=D.** Most cases of short stature are due to constitutional growth delay, a term which implies that the child is normal but delayed in his development. A hallmark of this condition is being below the fifth percentile for height for most of childhood. Usually these children are thin and have a family history of delayed development. Bone age would be expected to be at least 2.5 standard deviations below the mean for agematched peers of the same chronologic age. However, most experts agree that if no signs of puberty are seen by 14 years of age (no breast development in girls, no testicular enlargement in boys), then further workup for a more serious condition should be sought. Other indications for evaluation would be no menarche in a girl by 16 years of age and underdeveloped genitalia in a boy 5 years after his first pubertal changes.
10-020. +Non+Cca. >L**?*** A 5-year-old female is seen for a kindergarten physical and is noted to be below the 3rd percentile for height. A review of her chart shows that her height curve has progressively fallen further below the 3rd percentile over the past year. She was previously at the 50th percentile for height. The physical examination is otherwise normal, but your workup shows that her bone age is delayed. Of the following conditions, which one is the most likely cause of her short stature? A) Constitutional growth delay B) Growth hormone deficiency C) Genetic short stature D) Turner syndrome E) Skeletal dysplasia	Growth and development. **10-020.** Growth delay**;** Growth hormone deficiency. **ANS=B.** This patient has delayed bone age coupled with a reduced growth velocity, which suggests an underlying systemic cause. Growth hormone deficiency is one possible cause for this. Although bone age can be delayed with constitutional growth delay, after 24 months of age growth curves are parallel to the 3rd percentile. Bone age would be normal with genetic short stature. Patients with Turner syndrome or skeletal dysplasia have dysmorphic features, and bone age would be normal.
09-082. +Int+Adm. A 47-year-old female presents to your office with a complaint of hair loss. On examination she has a localized 2-cm round area of complete hair loss on the top of her scalp. Further studies do not reveal an underlying metabolic or infectious disorder. Which one of the following is the most appropriate initial treatment? A) Topical minoxidil (Rogaine) B) Topical immunotherapy C) Intralesional triamcinolone (Kenalog) D) Oral finasteride (Proscar) E) Oral spironolactone (Aldactone)	Hair loss. **09-082.** Alopecia areata. **ANS=C.** These findings are consistent with alopecia areata, which is thought to be caused by a localized autoimmune reaction to hair follicles. It occasionally spreads to involve the entire scalp (alopecia totalis) or the entire body (alopecia universalis). Spontaneous recovery usually occurs within 6–12 months, although areas of regrowth may be pigmented differently. Recovery is less likely if the condition persists for longer than a year, worsens, or begins before puberty. **The initial treatment of choice for patients older than 10 years of age, in cases where alopecia areata affects less than 50% of the scalp, is intralesional corticosteroid injections**. **Minoxidil is an alternative for children younger than 10 years of age or for patients in whom alopecia areata affects more than 50% of the scalp**. While **topical immunotherapy is the most effective treatment for chronic severe alopecia areata, it has the potential for severe side effects and should not be used as a first-line agent**. Finasteride inhibits 5a-reductase type 2, resulting in a decrease in dihydrotestosterone levels, and is used in the treatment of androgenic alopecia (male-pattern baldness). Similarly, **spironolactone is sometimes used for androgenic alopecia because it is an aldosterone antagonist with antiandrogenic effects**.
10-230. +Int+Adm.**?** A 24-year-old female has noted excessive hair loss over the past 2 months, with a marked increase in hairs removed when she brushes her	Hair loss. **10-230.** Telogen effluvium**. ANS=A.** The recycling of scalp hair is an ongoing process, with the hair follicles rotating through three phases. The **actively**

hair. She delivered a healthy baby 5 months ago. She is on no medications, and is otherwise healthy. Examination of her scalp reveals diffuse hair thinning without scarring. An evaluation for thyroid dysfunction and iron deficiency is negative. Which one of the following is the most likely cause of her hair loss? A) Telogen effluvium B) Anagen effluvium C) Alopecia areata D) Female-pattern hair loss E) Discoid lupus erythematosus	**growing anagen-phase hairs give way to the catagen phase, during which the follicle shuts down, followed by the resting telogen phase, during which the hair is shed.** The normal ratio of anagen to telogen hairs is 90:10. This patient most likely has a **telogen effluvium, a nonscarring, shedding hair loss that occurs when a stressful event, such as a severe illness, surgery, or pregnancy, triggers the shift of large numbers of anagen-phase hairs to the telogen phase.** Telogen-phase hairs are easily shed. Telogen effluvium **occurs about 3 months after a triggering event**. **The hair loss with telogen effluvium lasts 6 months after the removal of the stressful trigger**. **Anagen effluvium is the diffuse hair loss that occurs when chemotherapeutic medications cause rapid destruction of anagen-phase hair. Alopecia areata, which causes round patches of hair loss, is felt to have an autoimmune etiology**. **Female-pattern hair loss affects the central portion of the scalp, and is not associated with an inciting trigger or shedding.** Discoid lupus erythematosus causes a scarring alopecia.
10-112. +Res+Com.>L Hantavirus pulmonary syndrome results from exposure to the excreta of A) migratory fowl B) bats C) parrots D) mice E) turtles	Hantavirus. **10-112.** Hantavirus pulmonary syndrome results from exposure to rodent droppings, mainly the deer mouse in the southwestern U.S. **ANS=D.** About 10% of deer mice are estimated to be infected with hantavirus. In other parts of the country the virus is carried by the white-footed mouse. While other rodents are carriers of the virus, they are less likely to live near dwellings, and populations are less dense.
10-181. +Int+Cca.>L**?*** Which one of the following is NOT considered a first-line treatment for head lice? A) Lindane 1% B) Malathion 0.5% (Ovide) C) Permethrin 1% (Nix) D) Pyrethrins 0.33%/pipernyl butoxide 4% (RID)	Head lice treatment. **10-181. ANS=A.** Lindane's efficacy has waned over the years and it is inconsistently ovicidal. Because of its neurotoxicity, lindane carries a black box warning and is specifically recommended only as second-line treatment by the FDA. **Pyrethroid resistance is widespread, but permethrin is still considered to be a first-line treatment because of its favorable safety profile.** The efficacy of malathion is attributed to its triple action with isopropyl alcohol and terpineol, likely making this a resistance-breaking formulation. The probability of simultaneously developing resistance to all three substances is small. Malathion is both ovicidal and pediculicidal.
07-067. +Neu+Adm. A 35-year-old male who works as an EMT has recently developed deep, severe, continuous headaches behind his left eye. The headaches occur daily around 10:00 a.m. and last 1–2 hours. He notes that the headaches bother him less when he remains active. When the headaches occur he also has tearing from the left eye and a nasal discharge from the left naris. He has found that using oxygen gives him relief. A physical examination reveals no significant findings. Which one of the following would be most appropriate at this time? A) MRI B) Carbamazepine (Tegretol) C) Neurologic consultation D) Avoiding triptan medications such as sumatriptan (Imitrex) E) Daily therapy with verapamil (Isoptin)	Headache. **07-067.** Cluster headaches are repetitive headaches that occur for weeks or months at a time. **ANS=E.** They are more common in men between the ages of 30 and 50. The headaches begin without warning and reach a crescendo within minutes. **Most times the headaches are located behind the eye or at the temple, and are associated with ipsilateral lacrimation, redness of the eye, nasal stuffiness, sweating, pallor, and Horner's syndrome.** Patients note that **they are sensitive to alcohol.** They often prefer to remain active rather than rest in a dark, quiet room as someone with a migraine would likely do. A typical attack will last from 30 minutes to 3 hours. It is common for the pain to recur each day at the same time. These attacks occur 1–3 times a day over a 4- to 8-week period. The patient will often remain pain-free for 6 months to a year. A cluster headache can be distinguished from a migraine, a tension-type headache, and a brain tumor by its presentation. Headaches associated with a brain tumor are often accompanied by nausea, vomiting, and worsening of the pain (which is usually bifrontal) with change in body position. There are usually positive findings on neurologic examination, as well as a change from the previous headache pattern. Migraines are more common in women and may be associated with an aura. They are throbbing in nature and accompanied by nausea, photophobia, and phonophobia. These patients are usually much more comfortable in the dark. **Both cluster and migraine headaches will respond to abortive therapy with triptan medications**. **Prophylaxis for migraine is normally begun if there are four or more attacks within a month**. In contrast, **once the diagnosis of cluster headache is made, it is important to initiate both abortive and prophylactic therapy right away**. **Abortive therapy can be with 100% oxygen, triptans, octreotide, or dihydroergotamine**. A number of **prophylactic medications are available, including verapamil, lithium, prednisone (short-term use only), ergotamine, cyproheptadine, and indomethacin**.
08-130. +Neu+Adm. A 35-year-old white female complains of unilateral frontotemporal headaches. During these episodes, which occur every 2–3 weeks, she becomes nauseated, sometimes to the point of vomiting. The headaches are throbbing in character and last for 1–3 hours, often causing her to leave work early. Relief is sometimes obtained with simple analgesics, but more often with sleep or the passage of time. On the basis of this history alone, the most likely diagnosis is A) sinusitis B) a brain tumor C) muscle tension headache D) cluster headache E) migraine headache	Headache. **08-130.** Migraine. Migraine is the most likely diagnosis in this scenario, because the patient is young and female; the headaches are unilateral, infrequent, and throbbing; the headaches are associated with nausea and vomiting; and sleep offers relief. **ANS=E.** Symptoms of sinusitis usually include fever, facial pain, and a purulent nasal discharge. The pain of cerebral tumor tends to occur daily and becomes more frequent and severe with time. Furthermore, the prevalence of brain tumor is far less than that of migraine. The pain of muscle tension headache is described as a pressure or band-like tightening, often in a circumferential or cap distribution. This headache also has a pattern of daily persistence, often continuing day and night for long periods of time. Cluster headache is more common in males, and presents as a constant, agonizing orbital pain, usually beginning within 2 or 3 hours after falling asleep.
09-101. +Neu+Adm. A 45-year-old male presents with a complaint of recent headaches. He has had four headaches this week, and his description indicates that they are moderate to severe, bilateral, frontal, and nonthrobbing. There is no associated aura. He has had similar episodes of recurring headaches in the past. Based on this limited history, which one of the following headache types can be	Headache. **09-101. T**ypes. **ANS=D.** Cluster headache can be removed from the differential because it is always unilateral, although the affected side can vary. The remainder of these headache types can be bilateral, frontal, and nonthrobbing. Brain tumor headaches may be similar in character to previous headaches, but are often more severe or frequent.

eliminated from the differential diagnosis? A) Tension-type headache B) Sinus headache C) Migraine headache D) Cluster headache E) Headache of intracranial neoplasm	
09-228. +Neu+Adm. Which one of the following is considered first-line therapy for migraine prophylaxis in adults? A) Gabapentin (Neurontin) B) Propranolol (Inderal) C) Fluoxetine (Prozac) D) Vitamin B2 (riboflavin) E) Naproxen (Naprosyn)	Headache. **09-228.** Migrane. **ANS=B.** Propranolol is a first-line therapy for migraine prophylaxis in adults (SOR A). In a review of 26 placebo controlled trials using data pooled from nine studies, the calculated responder ratio (comparable to relative risk) was 1.9 (95% confidence interval 1.6–2.35). Other first-line agents include timolol, amitriptyline, divalproex sodium, sodium valproate, and topiramate. Gabapentin, fluoxetine, vitamin B2 , and naproxen are considered second-line therapies for migraine prophylaxis in adults (SOR B), and should be used when no first-line agent or combination is effective or tolerable.
10-151. +Neu+Adm. A 40-year-old white male presents with a 5-year history of periodic episodes of severe right-sided headaches. During the most recent episode the headaches occurred most days during January and February and lasted about 1 hour. The most likely diagnosis is which one of the following? A) Migraine headache B) Cluster headache C) Temporal arteritis D) Trigeminal neuralgia	Headache. **10-151.** Cluster. Cluster headache is predominantly a male disorder. **ANS=B.** The mean age of onset is 27–30 years. Attacks often occur in cycles and are unilateral. Migraine headaches are more common in women, start at an earlier age (second or third decade), and last longer (4–24 hours). Temporal arteritis occurs in patients above age 50. Trigeminal neuralgia usually occurs in paroxysms lasting 20–30 seconds.
08-123. +Sen+Cca. Which one of the following is the most likely cause of hearing loss in newborns? A) Intraventricular hemorrhage B) Anomalies of the external ear canal C) Congenital cholesteatoma D) Genetic disorders E) Infectious diseases	Hearing loss. **08-123.** In children. Genetic disorders (e.g., Waardenburg syndrome, Usher's syndrome, Alport syndrome, and Turner's syndrome) are responsible for more than 50% of hearing impairments in children. **ANS=D.** Intraventricular hemorrhage is a central cause of hearing loss, and is rare. Conductive abnormalities such as external canal anomalies and congenital cholesteatoma, and sensorineural causes other than genetic disorders (e.g., infectious diseases) are important but less frequent. **Epocrates:** Cholesteatoma is defined as the presence of keratinizing squamous epithelium within the middle ear, or in other pneumatized areas of the temporal bone. This keratinizing epithelium exhibits independent growth, leading to expansion and to resorption of underlying bone. [2] Focal erosion of external canal bone with accumulation of keratin is called external canal cholesteatoma. The definitive treatment of cholesteatoma is surgery.
08-161. +Sen+Cca. A 3-year-old male was treated for acute otitis media last month. His mother brings him in for follow-up because she believes his hearing has not been normal since then. He attends day care and has had several upper respiratory infections. On examination the tympanic membranes are not inflamed, but the membrane is retracted on the right side. Tympanography produces a normal peak (type A) on the left side, but a flat tracing (type B) on the right side. Which one of the following would be the most appropriate recommendation? A) Audiometry B) Observation with follow-up C) An antihistamine/decongestant combination D) Intranasal corticosteroids E) Systemic corticosteroids	Hearing loss. **08-161.** Serous Otitis. **ANS=B.** This patient has unilateral serous otitis and is unlikely to have delayed language from decreased hearing on one side. The patient should be observed for now. Hearing loss of longer than 3 months may indicate a need for tympanostomy tubes. Surgical treatment has been shown to be helpful, but should be reserved for patients with chronic problems. Audiometry is not needed to make a decision about surgery at this point, and the mother's judgment is likely correct about his current hearing loss, so a hearing test most likely would not add any useful information. Numerous studies have debunked all medical treatments for serous otitis, including antihistamine and decongestant therapy, and corticosteroids by any route.
09-123. +Sen+Adm. A 47-year-old female presents with progressive difficulty hearing. She is employed as an office worker, has no significant past medical history, and takes no medications. Physical examination shows no gross abnormalities of her outer ears. The external ear canals are free of cerumen, and the tympanic membranes move well to insufflation. Weber's test and the Rinne test have results that are compatible with a conductive hearing loss. Which one of the following is the most likely cause of this patient's hearing loss? A) Noise-induced hearing loss B) Meniere's disease C) Otosclerosis D) Acoustic neuroma E) Perilymphatic fistula	Hearing loss. **09-123.** Otosclerosis typically presents between the third and fifth decades, and is more common in women. **ANS=C.** The chief feature of otosclerosis is a progressive conductive hearing loss. Occasionally, when lesions impinge on the stapes footplate, a sensorineural loss may occur. All of the other choices are exclusively sensorineural in character. Meniere's disease also causes fluctuating hearing loss. Noise-induced hearing loss frequently and characteristically is accompanied by tinnitus. Perilymphatic fistula is associated with sudden unilateral hearing loss with tinnitus and vertigo. Acoustic neuroma is associated with tinnitus and gradual hearing impairment.
09-190. +Sen+Cel. Which one of the following historical or audiographic findings in an elderly person would indicate that hearing loss is due to something other than presbycusis? A) Conductive hearing loss B) Bilateral hearing loss C) Symmetric hearing loss D) Gradual hearing loss E) High-frequency hearing loss	Hearing loss. **09-190.** Presbycusis, the hearing loss associated with aging, is gradual in onset, bilateral, symmetric, and sensorineural. **ANS=A.**
07-004. +Car+Adm. A 56-year-old white male has New York Heart Association (NYHA) class III chronic heart failure. Despite conventional therapy with appropriate dosages of a diuretic, an ACE inhibitor, and a B-adrenergic blocker, his left ventricular ejection fraction hovers around 35%, and he continues to have dyspnea on exertion. At a recent office visit his electrolytes were within normal limits. After you obtain an EKG during an office visit today, you consider adding digoxin to his treatment regimen. Which one of the following is true regarding digoxin therapy in this situation? A) It is the treatment of choice if the patient's EKG shows atrioventricular block B) It is not likely to improve the ejection fraction C) A loading dose will be necessary D) Serial drug levels are generally not necessary E) A reasonable dosage is 0.50 mg/day orally	Heart failure. **07-004. C**hronic. Digoxin remains a useful drug in the management of chronic heart failure caused by systolic dysfunction. **ANS=D.** Randomized, controlled studies have convincingly confirmed its efficacy in improving ejection fraction and submaximal exercise capacity. Current consensus guidelines recommend its use for patients in whom NYHA class II–IV symptoms persist despite conventional therapy with diuretics, ACE inhibitors, and B-adrenergic blockers. Digoxin should not be administered to a patient who has an atrioventricular block, unless it is first treated with a permanent pacemaker. Loading doses of digoxin are not necessary during initiation of therapy for patients with chronic heart failure, and serial assessments of serum digoxin levels are not necessary in most patients. The radioimmunoassay was developed to assist in the evaluation of toxicity, rather than the efficacy of the drug. There appears to be little relationship between serum digoxin concentration and the drug's therapeutic effect. The dosage of digoxin should be 0.125–0.25 mg daily in the majority of patients. Higher doses (e.g., 0.375–0.50 mg) are rarely needed, especially as initial therapy for chronic heart failure.
07-135. +Car+Adm. A 69-year-old male who has a history of hypertension and ischemic heart disease presents with fatigue, dyspnea on exertion, and orthopnea.	Heart failure. **07-135. BNP. ANS=E.** The serum brain natriuretic peptide (BNP) test can accurately differentiate heart failure from noncardiac conditions in a

A clinical examination demonstrates pulmonary rales, tachycardia, a third heart sound, and mild pedal edema. A chest radiograph reveals cardiomegaly and pulmonary venous congestion, and a two-dimensional echocardiogram confirms heart failure. Which one of the following is true regarding the management of this patient? A) The serum brain natriuretic peptide (BNP) test can accurately differentiate diastolic from systolic heart failure B) Optimal treatment for systolic heart failure is necessary to treat diastolic heart failure C) Drugs that inhibit the production of angiotensin or block angiotensin II receptors are contraindicated D) Calcium channel blockers reduce mortality in patients with isolated diastolic dysfunction E) B-Blockers are indicated for treating diastolic dysfunction	patient with dyspnea, but it cannot distinguish diastolic from systolic heart failure. Optimal treatment for systolic heart failure may exacerbate diastolic heart failure. ACE inhibitors and angiotensin receptor blockers (ARBs) directly affect myocardial relaxation and compliance by inhibiting production of angiotensin or by blocking angiotensin II receptors, thereby reducing interstitial collagen deposition and fibrosis. The indirect benefits of optimizing hemodynamics include improved left ventricular filling, reduced blood pressure, and improved exercise capacity and quality of life. Large randomized, controlled trials have not proved that calcium channel blockers reduce mortality in patients with isolated diastolic function. **B-Blockers** control heart rate and prevent tachycardia, thereby **maximizing diastolic filling in patients with diastolic dysfunction**. They also reduce blood pressure and myocardial ischemia, promote regression of left ventricular hypertrophy, and antagonize the excessive adrenergic stimulation that occurs with heart failure. B-Blockers also have been independently associated with improved survival in patients with diastolic heart failure.
08-022. +Car+Adm. A 55-year-old male who has a long history of marginally-controlled hypertension presents with gradually increasing shortness of breath and reduced exercise tolerance. His physical examination is normal except for a blood pressure of 140/90 mm Hg, bilateral basilar rales, and trace pitting edema. Which one of the following ancillary studies would be the preferred diagnostic tool for evaluating this patient? A) 12-lead electrocardiography B) Posteroanterior and lateral chest radiographs C) 2-dimensional echocardiography with Doppler D) Radionuclide ventriculography E) Cardiac MRI	Heart failure. **08-022.** The **most useful diagnostic tool for evaluating patients with heart failure is two-dimensional echocardiography with Doppler** to assess left ventricular ejection fraction (LVEF), left ventricular size, ventricular compliance, wall thickness, and valve function. The test should be performed during the initial evaluation. **ANS=C.** Radionuclide ventriculography can be used to assess LVEF and volumes, and MRI or CT also may provide information in selected patients. Chest radiography (posteroanterior and lateral) and 12-lead electrocardiography should be performed in all patients presenting with heart failure, but should not be used as the primary basis for determining which abnormalities are responsible for the heart failure.
08-055. +Car+Cel. A 70-year-old male with a history of hypertension and type 2 diabetes mellitus presents with a 2-month history of increasing paroxysmal nocturnal dyspnea and shortness of breath with minimal exertion. An echocardiogram shows an ejection fraction of 25%. Which one of the patient's current medications should be discontinued? A) Lisinopril (Zestril) B) Pioglitazone (Actos) C) Glipizide (Glucotrol) D) Metoprolol (Toprol-XL) E) Repaglinide (Prandin)	Heart failure. **08-055.** Thiazolidinediones (TZDs), e.g. rosiglitazone and pioglitazone. According to the American Diabetes Association guidelines, **thiazolidinediones (TZDs) are associated with fluid retention, and their use can be complicated by the development of heart failure.** **ANS=B.** Caution is necessary when prescribing TZDs in patients with known heart failure or other heart diseases, those with preexisting edema, and those on concurrent insulin therapy (SOR C). Older patients can be treated with the same drug regimens as younger patients, but special care is required when prescribing and monitoring drug therapy. Metformin is often contraindicated because of renal insufficiency or heart failure. Sulfonylureas and other insulin secretagogues can cause hypoglycemia. Insulin can also cause hypoglycemia, and injecting it requires good visual and motor skills and cognitive ability on the part of the patient or a caregiver. TZDs should not be used in patients with New York Heart Association class III or IV heart failure.
08-083. +Car+Adm. A 55-year-old male has New York Heart Association Class II heart failure. He becomes dyspneic with significant exertion. His only medication is an ACE inhibitor. Which one of the following additional medications has been shown to improve longevity in this situation? A) Digitalis B) Warfarin (Coumadin) C) B-Blockers D) Amiodarone (Cordarone) E) Nondihydropyridine calcium channel blockers	Heart failure. **08-083.** **B-Blockers are recommended to reduce mortality in symptomatic patients with heart failure** (SOR A). **ANS=C.** Because polypharmacy can reduce compliance, the role that digoxin will ultimately play in heart failure is unclear. The Digitalis Investigation Group study revealed a trend toward increased mortality among women with heart failure who were taking digoxin, but digoxin levels were higher among women than men. There is no evidence that warfarin decreases mortality in patients with heart failure. There is also no evidence that amiodarone decreases mortality from heart failure in patients with no history of atrial fibrillation. Calcium channel blockers should be used with caution in patients with heart failure because they can cause peripheral vasodilation, decreased heart rate, decreased cardiac contractility, and decreased cardiac conduction.
08-139. +Car+Adm. A 72-year-old African-American male with New York Heart Association Class III heart failure sees you for follow-up. He has shortness of breath with minimal exertion. The patient is adherent to his medication regimen. His current medications include lisinopril (Prinivil, Zestril), 40 mg twice daily; carvedilol (Coreg), 25 mg twice daily; and furosemide (Lasix), 80 mg daily. His blood pressure is 100/60 mm Hg, and his pulse rate is 68 beats/min and regular. Findings include a few scattered bibasilar rales on examination of the lungs, an S3 gallop on examination of the heart, and no edema on examination of the legs. An EKG reveals a left bundle branch block, and echocardiography reveals an ejection fraction of 25%, but no other abnormalities. Which one of the following would be most appropriate at this time? A) Increase the lisinopril dosage to 80 mg twice daily B) Increase the carvedilol dosage to 50 mg twice daily C) Increase the furosemide dosage to 160 mg daily D) Refer for coronary angiography E) Refer for cardiac resynchronization therapy	Heart failure. **08-139.** Cardiac resynchronization therapy (CRT). **ANS=E.** This patient is already receiving maximal medical therapy. The 2002 joint guidelines of the American College of Cardiology, the American Heart Association (AHA), and the North American Society of Pacing and Electrophysiology endorse the use of cardiac resynchronization therapy (CRT) in patients with medically refractory, symptomatic, New York Heart Association (NYHA) class III or IV disease with a QRS interval of at least 130 msec, a left ventricular end-diastolic diameter of at least 55 mm, and a left ventricular ejection fraction (LVEF) ≤30%. These guidelines were refined by an April 2005 AHA Science Advisory, which stated that "optimal candidates for CRT have a dilated cardiomyopathy on an ischemic or nonischemic basis, an LVEF ≤0.35, a QRS complex ≥120 msec, and sinus rhythm, and are NYHA functional class III or IV despite maximal medical therapy for heart failure."
08-194. +Car+Adm. A 60-year-old male with a right-sided pleural effusion undergoes thoracentesis. Analysis of the pleural fluid reveals a protein level of 2.0 g/dL and an LDH level of 70 U/L. His serum protein level is 7.0 g/dL (N 6.0–8.3) and his serum LDH level is 200 U/L (N 100–105). Based on these findings, which one of the following is the most likely diagnosis? A) Heart failure B) Pulmonary embolism C) Tuberculous pleurisy D) Malignancy E) Bacterial pneumonia	Heart failure. **08-194.** Pleural effusion. **ANS=A.** Pleural effusions may be exudates or transudates. The distinction is important for an accurate diagnosis and to help determine what further evaluations may be necessary. **Light's criteria use ratios of fluid/serum values for protein and LDH**. **Pleural fluid/serum ratios greater than 0.6 for LDH and 0.5 for protein are indicative of exudates**. In the scenario presented, both ratios are approximately 0.3; therefore, the fluid is a transudate. The list of causes for transudates is much shorter than for exudates.

Transudates: any fluid (solvent and solute) that has passed through a presumably normal membrane, such as the capillary wall, as a result of imbalanced hydrostatic and osmotic forces; characteristically low in protein unless there has been secondary concentration.	**The vast majority of transudates are due to heart failure, with cirrhosis being the next most common cause.** Once there is reasonable certainty that the fluid is a transudate, additional studies usually are not necessary. The other conditions listed result in exudative pleural effusions.
09-038. +Car+Cel. A 72-year-old white female is admitted to the hospital with her first episode of acute heart failure. She has a history of hypertension treated with a thiazide diuretic. An echocardiogram reveals no evidence of valvular disease and no segmental wall motion abnormalities. Left ventricular hypertrophy is described, and the ejection fraction is 55%. Her pulse rate is 72 beats/min. The most likely cause of her heart failure is A) systolic dysfunction B) diastolic dysfunction C) hypertrophic cardiomyopathy D) high-output failure	Heart Failure. **09-038. Diastolic dysfunction** is now recognized as an important cause of heart failure. It is **due to left ventricular hypertrophy as a response to chronic systolic hypertension. The ventricle becomes stiff and unable to relax or fill adequately, thus limiting its forward output.** The **typical patient** is an **elderly** person who **has systolic hypertension, left ventricular hypertrophy, and a normal ejection fraction (50%–55%).**
09-107. +Res+Adm. An anxious 62-year-old white male comes to the emergency department complaining of extreme shortness of breath and a cough producing blood-tinged sputum. The patient denies chest pain and fever. On examination he is afebrile and has expiratory wheezes and a few rales throughout the chest. The heart is normal except for a rapid rate and an S3 gallop. A chest radiograph reveals a right pleural effusion with enlargement of the cardiac silhouette and redistribution of blood flow to the upper lobes. Which one of the following tests would be best for confirming the diagnosis? A) Troponin I B) BNP C) D-dimer D) CT angiography of the chest E) Arterial blood gases **ANP** and **BNP**, formed in heart are secreted in plasma where their respective half-life is about 1 min and 20 min, respectively. BNP is better than ANP to evaluate heart failure.	Heart failure. **09-107.** Differentiating cardiac and pulmonary diseases. **ANS=B.** This patient has heart failure with a bronchospastic component. The S3 gallop occurs with a dilated left ventricle and a right-sided pleural effusion, which are common in heart failure. **A BNP level is useful in differentiating cardiac and pulmonary diseases, while a troponin I level is helpful in assessing for cardiac ischemia.** Arterial blood gasses are not useful in confirming the diagnosis. A CT angiogram of the chest would be useful for diagnosing pulmonary embolism. A d-dimer test is helpful to rule out venous thromboembolic disease. UpToDate: **The release of both *ANP* and BNP is increased in heart failure (HF), as ventricular cells are recruited to secrete both ANP and BNP in response to the high ventricular filling pressures**.
09-183. +Car+Adm. A 55-year-old male consults you because he wants to begin an exercise program. He is asymptomatic, but because of his family history you determine that he should undergo a stress test with echocardiography. Which one of the following would be considered a normal ejection fraction in this patient? A) 48% B) 65% C) 76% D) 84% E) 92%	Heart Failure. **09-183. E**jection fraction. **ANS=B.** The ejection fraction value is an important measure of left ventricular function, especially with regard to previous cardiac events, medications, exercise tolerance, and preoperative risk. **The normal predicted value is 55%–75% when measured by echocardiography in a healthy asymptomatic patient.** There is no gender difference, but there is a decline with age. It may be as low as 15% in patients with left ventricular dysfunction. Ischemic and valvular heart disease may significantly reduce the ejection fraction.
09-232. +Car+Cel. An 86-year-old female presents to your office with a complaint of increasing cough, especially at night, over the past 2–3 weeks. On examination you hear some crackles at the bases of both lungs. The chest radiograph shown in **Figure 1** is consistent with which one of the following causes of this patient's cough? A) Bilateral pneumonia B) Asbestosis C) Tuberculosis D) Heart failure E) Emphysema 	Heart failure**. 09-232. ANS=D.** The chest radiograph is consistent with heart failure. It shows cardiomegaly, with a cardiothoracic ratio >6.50, as well as some enlargement of pulmonary veins due to pulmonary venous hypertension. The radiograph does not show an infiltrate, as would be expected with community-acquired pneumonia. Pleural plaques would be expected with asbestosis, and upper-lobe involvement or cavitary lesions with tuberculosis. With emphysema, there is typically a small vertical heart and evidence of hyperexpansion.
10-062. +Car+Adm. Brain natriuretic peptide (BNP) is a marker for which one of the following? A) Renal failure B) Acute adrenal insufficiency C) Cerebrovascular accident D) Heart failure E) Ureteral obstruction	Heart failure**. 10-062. BNP**. Brain-type natriuretic peptide (BNP) is synthesized, stored, and released by the ventricular myocardium in response to volume expansion and pressure overload. **ANS=D.** It is a marker for heart failure. This hormone is highly accurate for identifying or excluding heart failure, as it has both high sensitivity and high specificity. BNP is particularly valuable in differentiating cardiac causes of dyspnea from pulmonary causes. In addition, the availability of a bedside assay makes BNP useful for evaluating patients in the emergency department.
10-100. +Car+Adm. A 72-year-old male with a history of hypertension and a	Heart failure. **10-100.** Due to systolic dysfunction**. ANS=E.** ACE inhibitors such

previous myocardial infarction is diagnosed with heart failure. Echocardiography reveals systolic dysfunction, and recent laboratory tests indicated normal renal function, with a serum creatinine level of 1.1 mg/dL (N <1.5), a sodium level of 139 mEq/L (N 136–145), and a potassium level of 3.5 mEq/L (N 3.5–5.0). He is currently asymptomatic. Which one of the following medications would be the best choice for initial management in this patient? A) Furosemide (Lasix) B) Isosorbide dinitrate (Isordil) C) Spironolactone (Aldactone) D) Digoxin E) Lisinopril (Prinivil, Zestril)	as lisinopril are indicated for all patients with heart failure due to systolic dysfunction, regardless of severity. ACE inhibitors have been shown to reduce both morbidity and mortality, in both asymptomatic and symptomatic patients, in randomized, controlled trials. Unless absolutely contraindicated, ACE inhibitors should be used in all heart failure patients. No ACE inhibitor has been shown to be superior to another, and no study has failed to show benefit from an ACE inhibitor (SOR A). Direct-acting vasodilators such as isosorbide dinitrate also could be used in this patient, but ACE inhibitors have been shown to be superior in randomized, controlled trials (SOR B). B-Blockers are also recommended in heart failure patients with systolic dysfunction (SOR A), except those who have dyspnea at rest or who are hemodynamically unstable. These agents have been shown to reduce mortality from heart failure. A diuretic such as furosemide may be indicated to relieve congestion in symptomatic patients. Aldosterone antagonists such as spironolactone are also indicated in patients with symptomatic heart failure. In addition, they can be used in patients with a recent myocardial infarction who develop symptomatic systolic dysfunction and in those with diabetes mellitus (SOR B). Digoxin currently is recommended for patients with heart failure and atrial fibrillation, and can be considered in patients who continue to have symptoms despite maximal therapy with other agents.
10-160. +Car+Adm.>L* A 73-year-old female presents with complaints of dyspnea and decreasing exercise tolerance over the past few months. She says she has to prop herself up on two pillows in order to breathe better. She also complains of palpitations, even at rest. She has long-standing hypertension, but has not taken any antihypertensive medications for several years. She has no history of ischemic heart disease. On examination her blood pressure is 155/92 mm Hg, her pulse rate is 108 beats/min and irregular, and her lungs have bibasilar crackles. An EKG reveals atrial fibrillation, but no changes of acute ischemia. Which one of the following would be most useful for determining her initial treatment? A) A chest radiograph B) Cardiac catheterization C) Echocardiography D) A TSH level E) A D-dimer level	Heart failure**. 10-160.** Diastolic or systolic? **ANS=C.** This patient's history and clinical examination suggest heart failure. **The most important distinction to make is whether it is diastolic or systolic, as the drug treatment may be somewhat different**. Physical findings and chest radiographs do not distinguish systolic from diastolic heart failure. An echocardiogram is the study of choice, as it will assess left ventricular function. In diastolic dysfunction, the left ventricular ejection fraction is normal or slightly elevated. **Diastolic failure is more common in elderly females and patients with hypertension, and less common in patients with a previous history of coronary artery disease. Diuretics and angiotensin receptor blockers (ARBs) are useful treatments.** Because of their effects on diastolic filling times, tachycardia and atrial fibrillation often cause decompensation in patients with diastolic heart failure. At this time, cardiac catheterization is not indicated, and a stress test will not provide useful information. **If the patient had systolic failure, a workup for ischemic disease would be needed, but most cases of diastolic dysfunction are not caused by ischemia.** While hyperthyroidism can cause tachycardia and atrial fibrillation, the more immediate issue in this patient is the heart failure, which requires diagnosis and treatment. A pulmonary embolus can cause shortness of breath but usually has an acute onset, so a D-dimer level would not help at this time.
10-213. +Car+Cel. A 74-year-old female presents with a several-month history of gradually increasing dyspnea on exertion, swelling in her feet and lower legs, and having to sleep sitting up due to increased shortness of breath while lying flat. She has been healthy otherwise, with no known heart disease or hypertension, and she has no significant family history of heart disease. An echocardiogram shows an ejection fraction of 20% and a thin-walled, diffusely enlarged left ventricle. Which one of the following is the most likely diagnosis? A) Dilated cardiomyopathy B) Hypertrophic cardiomyopathy C) Restrictive cardiomyopathy D) Arrhythmogenic right ventricular cardiomyopathy E) Athlete's heart	Heart Failure. **10-213.** dilated cardiomyopathy. **ANS=A.** This patient's symptoms and echocardiographic findings indicate a dilated cardiomyopathy. In patients with hypertrophic cardiomyopathy the echocardiogram shows left ventricular hypertrophy and a reduction in chamber size. In restrictive cardiomyopathy, findings include reduced ventricular volume, normal left ventricular wall thickness, and normal systolic function with impaired ventricular filling. Arrhythmogenic right ventricular cardiomyopathy usually presents with syncope and without symptoms of heart failure, and segmental wall abnormalities would be seen on the echocardiogram. Highly trained athletes may develop echocardiographic evidence of eccentric cardiac hypertrophy, but no symptoms of heart failure would be present.
08-158. +Pbc+Cel. The risk of heat wave–related death to elderly patients is highest in those who A) have COPD B) have diabetes and are insulin-dependent C) have a functioning fan, but not air conditioning D) are homebound	Heat-related deaths. **ANS=D.** Factors associated with a higher risk of heat-related deaths include being confined to bed, not leaving home daily, and being unable to care for oneself. Living alone during a heat wave is associated with an increased risk of death, but this increase is not statistically significant. Among medical conditions, the highest risk is associated with preexisting psychiatric illnesses, followed by cardiovascular disease, use of psychotropic medications, and pulmonary disease. A lower risk of heat-related deaths has been noted in those who have working air conditioning, visit air-conditioned sites, or participate in social activities. Those who take extra showers or baths and who use fans have a lower risk, but this difference is not statistically significant.
08-102. +Gas+Adm. Treatment for *Helicobacter pylori* infection will reduce or improve which one of the following? A) The risk of peptic ulcer bleeding from chronic NSAID therapy B) The risk of developing gastric cancer in asymptomatic patients C) Symptoms of nonulcer dyspepsia D) Symptoms of gastroesophageal reflux disease	*Helicobacter pylori.* **08-102. ANS=A.** Eradication of *Helicobacter pylori* significantly reduces the risk of ulcer recurrence and rebleeding in patients with duodenal ulcer, and reduces the risk of peptic ulcer development in patients on chronic NSAID therapy. Eradication has minimal or no effect on the symptoms of nonulcer dyspepsia and gastroesophageal reflux disease. Although *H. pylori* infection is associated with gastric cancer, no trials have shown that eradication of *H. pylori* purely to prevent gastric cancer is beneficial.
09-214. +Gas+Adm. A 35-year-old white male presents with dyspepsia. He has had no symptoms that suggest gastroesophageal reflux or bleeding, but a test for *Helicobacter pylori* is positive. After 2 weeks of treatment with omeprazole (Prilosec), amoxicillin, and clarithromycin (Biaxin), he is asymptomatic. Which one of the following is recommended to test for the eradication of *H. pylori* in this patient? A) Immunoglobulin G serology B) A urea breath test	*Helicobacter pylori.* **09-214. ANS=B.** There is strong evidence that eradication of *H. pylori* improves healing and reduces the risk of recurrence or rebleeding in patients with duodenal or gastric ulcer. A test-and-treat approach is recommended for most patients with undifferentiated dyspepsia. This strategy reduces the need for antisecretory medications, as well as the number of endoscopies. The currently recommended test for eradication of *H. pylori* in this clinical setting is either the urea breath test or *H. pylori* stool antigen. Serology remains positive for months after eradication and may give misleading information. Although upper

C) Upper endoscopy with a biopsy D) An upper gastrointestinal series	endoscopy, with a biopsy for histology, urease activity, or culture, can be used to test for eradication, it is an invasive procedure with a higher cost and the potential for more morbidity compared to the urea breath test or the *H. pylori* stool antigen test. Rather than recommending endoscopy for all patients, most national guidelines suggest a test-and-treat strategy unless the patient is over 45 years old or has red flags for malignancy or a complicated ulcer. Although an upper gastrointestinal series might provide information about gross pathology, it will not provide information about the eradication of *H. pylori* following treatment.
07-213. +Hem+Adm. A 48-year-old sedentary white male who is in excellent health presents for a routine evaluation. He takes no medications. He smokes 1 pack of cigarettes a day and does not drink alcohol. His laboratory work is normal except for a urinalysis that reveals 3–5 RBCs/hpf. Results are similar on repeat urinalysis 2 weeks later. A CT scan of the abdomen and pelvis finds the kidneys to be normal with no evidence of stones. Which one of the following would be the most appropriate next step? A) A repeat urinalysis in 1 month B) A urine culture, and if negative, a repeat urinalysis in 3 months C) Referral to urology for cystoscopy D) Urine cytology E) CT of the urinary bladder	Hematuria. **07-213.** Bladder cancer; Recommendations. **ANS=C.** The American Urological Association (AUA) recommends that all patients over 40 years of age and those who have risk factors for bladder cancer undergo cystoscopy to complete the evaluation of microscopic hematuria. Cystoscopy is the only reliable method of detecting transitional cell carcinoma of the bladder and the urethra.
08-179. +Nep+Adm. A 45-year-old male sees you for follow-up after a pre-employment physical examination reveals blood in his urine. He brings a copy of a urinalysis report that shows 3–5 RBCs/hpf. He has not seen any gross blood himself. He is asymptomatic, is on no medications, and does not smoke. You perform a physical examination, with normal findings. A repeat urinalysis confirms the presence of red blood cells but is otherwise normal. Which one of the following would be most appropriate at this point? A) Observation and reassurance B) A repeat urinalysis in 6 months C) Urine cytology only D) Ultrasonography of the kidneys and urine cytology only E) Ultrasonography of the kidneys, urine cytology, and cystoscopy	Hematuria**. 08-179. ANS=E.** The American Urological Association (AUA) defines clinically significant microscopic hematuria as ≥3 RBCs/hpf. Microscopic hematuria is frequently an incidental finding, but may be associated with urologic malignancy in up to 10% of adults. The upper urinary tract should be evaluated in this patient. There are no clear evidence-based imaging guidelines for upper tract evaluation; therefore, intravenous urography, ultrasonography, or CT can be considered. Ultrasonography is the least expensive and safest choice because it does not expose the patient to intravenous radiographic contrast media. Urine cytology and cystoscopy are used routinely to evaluate the lower urinary tract. The AUA recommends that patients with microscopic hematuria have radiographic assessment of the upper urinary tract, followed by urine cytology studies. The AUA also recommends that all patients older than 40 and those who are younger but have risk factors for bladder cancer undergo cystoscopy to complete the evaluation. Cystoscopy is the only reliable method of detecting transitional cell carcinoma of the bladder and urethra.
09-195. +Nep+Adm. A 44-year-old male sees you for evaluation of an episode of pink-tinged urine last week. He denies any flank or abdominal pain, as well as frequency, urgency, and dysuria. He has no prior history of renal or other urologic disease, and no other significant medical problems. He has a 24-pack-year smoking history. A urinalysis today reveals 8–10 RBCs/hpf. You refer him to a urologist for cystoscopy. Which one of the following would be the most appropriate additional evaluation? A) KUB radiography B) Transabdominal ultrasonography C) Voiding cystourethrography D) CT urography E) Magnetic resonance urography	Hematuria**. 09-195. ANS=D.** CT urography or intravenous pyelography is recommended by the American College of Radiology as the most appropriate imaging procedure for hematuria in all patients, with the exception of those with generalized renal parenchymal disease, young women with hemorrhagic cystitis, children, and pregnant females.
07-231. +Hem+Adm. Which one of the following is the best initial screening test for hemochromatosis? A) Total iron binding capacity B) Hemoglobin electrophoresis C) Serum iron concentration D) Serum ferritin concentration E) Serum transferrin saturation	Hemochromatosis, hereditary. **07-231. ANS=E.** The diagnosis of hereditary hemochromatosis is based on a **combination of clinical, laboratory, and pathologic criteria, including elevated serum transferrin saturation and elevated serum ferritin concentration**. **Elevated serum transferrin saturation is the earliest phenotypic abnormality**. While this is the best initial screening test, results may be normal early in the course of the disease. In addition, because **serum iron concentrations vary throughout the day and measurements may be affected by the ingestion of food, a test showing elevated serum transferrin saturation should be repeated as a fasting early-morning determination.** Furthermore, the **serum ferritin concentration and serum transferring saturation may be elevated in 30%–50% of patients with acute or chronic viral hepatitis or alcoholic liver disease**. **Serum ferritin concentration is a sensitive measure of iron overload, but it is also an acute-phase reactant and is therefore elevated in a variety of infectious and inflammatory conditions in the absence of iron overload.** Consequently, it should not be used as the initial screening test to detect hereditary hemochromatosis.
08-023. +Hem+Adm. A 45-year-old white male is admitted to the intensive-care unit after being pinned in a car wreck for 2 hours. He has sustained several broken bones and crush injuries to both thighs. On admission his urine is clear but the next morning it is burgundy colored. Some fresh urine is drawn from his Foley catheter and sent for analysis, with the following results: Specific gravity. . . . . 1.020 pH.. . . . . 6.0 Protein. . . . . 30 mg/dL (N 1–14) Glucose. . . . . negative Hemoglobin.. . . . . 4+ Urobilinogen. . . . . 0.1 Ehrlich Units (N 0.1–1.0) Bile. . . . . negative RBCs.. . . . . 1–2/hpf WBCs. . . . . 0–2/hpf Occasional hyaline casts You immediately order a CBC which shows his hematocrit to have dropped 4 percentage points overnight. Visual inspection of the serum shows it is clear. The color of his urine is most likely due to A) myoglobinuria B) hematuria from	Hemoglobinuria. **08-023. ANS=A.** A positive dipstick for hemoglobin without any RBCs noted in the urine sediment indicates either free hemoglobin or myoglobin in the urine. Since the specimen in this case was a fresh sample, significant RBC hemolysis within the urine would not be expected. **If a transfusion reaction occurs, haptoglobin binds enough free hemoglobin in the serum to give it a pink coloration. Only when haptoglobin is saturated will the free hemoglobin be excreted in the urine. Myoglobin is released when skeletal muscle is destroyed by trauma, infarction, or intrinsic muscle disease.** If the hematuria were due to trauma there would be many RBCs visible on microscopic examination of the urine. Free hemoglobin resorption from hematomas does not occur. Porphyria may cause urine to be burgundy colored, but it is not associated with a positive urine test for hemoglobin.

trauma to the urinary tract C) a transfusion reaction with hemolysis of RBCs and free hemoglobin into the urine D) hemoglobinuria resulting from reabsorption of hemoglobin from hematomas E) acute porphyria provoked by trauma	
07-103. +Gas+Adm. Which one of the following would be the best treatment option for prolapse of a fourth degree hemorrhoid that cannot be reduced? A) Rubber band ligation B) Infrared coagulation C) Injection sclerotherapy D) Hemorrhoidectomy E) A high-fiber diet	Hemorrhoids. **07-103.** Hemorrhoids are divided into four categories. **ANS=D**. **First degree hemorrhoids** bleed with defecation but do not prolapse through the anus. They are **associated with mild symptoms and usually are secondary to leakage of blood from mildly inflamed, thin-walled veins or arterioles. Conservative management with dietary manipulation (addition of fiber) and attention to anal hygiene often is adequate**. Recurrent rectal bleeding may require ablation of the vessels with nonsurgical techniques (e.g., injection sclerotherapy, infrared coagulation, rubber band ligation). **Second degree hemorrhoids prolapse with defecation and reduce spontaneously. These can be treated with rubber band ligation or other nonsurgical ablative techniques. Third degree hemorrhoids prolapse and require manual reduction.** There is significant destruction of the suspensory ligaments. Relocation and fixation of the mucosa to the underlying muscle wall generally is necessary. Prolapse initially can be treated with rubber band ligation, although hemorrhoidectomy may be required. **Fourth degree hemorrhoids prolapse and cannot be reduced. If treatment is necessary, these require hemorrhoidectomy.**
08-075. Rep+Csp. A 72-year-old male slipped on a rug in his kitchen and struck his right side against a counter. He presents several days after the fall with a complaint of ongoing pain in his flank. He has a history of chronic atrial fibrillation, which is treated with warfarin (Coumadin). His vital signs are normal. A physical examination reveals tenderness to palpation along the posterior-lateral chest wall and decreased breath sounds in the right base. Radiographs reveal two fractured ribs on the right side and a moderately large pleural effusion in the right hemithorax. Laboratory test results include a hemoglobin of 10.5 mg/dL (baseline 11.0–12.0 mg/dL) and a prothrombin time of 33.5 seconds with an INR of 3.5. Which one of the following would be the most appropriate management at this time? A) Evacuation of the pleural space B) Prophylactic antibiotics C) Open fixation of the ribs with control of bleeding D) Symptomatic treatment and close follow-up E) Use of a rib binder for 2–3 weeks	Hemothorax. **08-075. ANS=A.** This patient has been clinically stable despite losing what appears to be a fair amount of blood into his pleural space after fracturing two ribs, a condition referred to as hemothorax. The treatment of choice in this condition is to remove the bloody fluid and re-expand the associated lung. This therapy is felt to decrease any ongoing blood loss by having the lung pleura put a direct barrier over the site that is bleeding. It also prevents the development of empyema or fibrosis, which could occur if the blood were to remain.
07-107. +Hem+Adm. A 56-year-old white male has a prosthetic heart valve and is anticoagulated with warfarin (Coumadin). He undergoes bilateral total knee replacement, and the warfarin is discontinued and replaced with perioperative unfractionated heparin. The day after surgery his platelet count has fallen from 225,000/mm3 to 75,000/mm3 (N 150,000–300,000). In addition to discontinuing heparin, which one of the following would be most appropriate at this time? A) Restart warfarin B) Begin low molecular weight heparin C) Begin aspirin D) Begin lepirudin (Refludan) E) Place an inferior vena cava filter	Heparin-induced thrombocytopenia. **07-107.** (HIT) can have devastating consequences, leading to both arterial and venous thrombosis, limb ischemia, and death. **ANS=D**. Patients with this condition should not be treated with low molecular weight heparin, since these medications have high cross-reactivity with circulating PF4-heparin antibodies. Warfarin monotherapy in patients with active heparin-induced thrombocytopenia is also contraindicated, on the basis of reports of warfarin-induced skin necrosis and venous gangrene in the limbs. Neither aspirin nor placement of an inferior vena cava filter is considered adequate therapy. **Lepirudin is a highly specific direct thrombin inhibitor indicated for patients with HIT in the setting of acute thromboembolic disease. (Hint: LEP zeppelIN (LEPirudIN) was a HIT)**
10-053. +Hem+Adm. A 62-year-old female undergoes elective surgery and is discharged on postoperative day 3. A week later she is hospitalized again with pneumonia. A CBC shows that her platelet count has dropped to 150,000/mm3 (N 150,000–300,000) from 350,000 /mm3 a week ago. She received prophylactic heparin postoperatively during her first hospitalization. The patient is started on intravenous antibiotics for the pneumonia and subcutaneous heparin for deep-vein thrombosis prophylaxis. On hospital day 2, she has an acute onset of severe dyspnea and hypoxia; CT of the chest reveals bilateral pulmonary emboli. Her platelet count is now 80,000/mm3. Which one of the following would be most appropriate at this point? A) Continue subcutaneous heparin B) Discontinue subcutaneous heparin and start a continuous intravenous heparin drip C) Discontinue heparin and give a platelet transfusion D) Discontinue heparin and start a non-heparin anticoagulant such as argatroban or desirudin (Iprivask) E) Discontinue unfractionated heparin and start a low molecular weight heparin such as enoxaparin (Lovenox)	Heparin-induced thrombocytopenia. **10-053.** (HIT)**. ANS=D.** This patient needs prompt evaluation and treatment for probable HIT. HIT is a potentially life-threatening syndrome that usually occurs within 1–2 weeks of heparin administration and is characterized by the presence of HIT antibodies in the serum, associated with an otherwise unexplained 30%–50% decrease in the platelet count, arterial or venous thrombosis, anaphylactoid reactions immediately following heparin administration, or skin lesions at the site of heparin injections. Postoperative patients receiving subcutaneous unfractionated heparin prophylaxis are at highest risk for HIT. Because of this patient's high-risk scenario and the presence of acute thrombosis, it is advisable to begin immediate empiric treatment for HIT pending laboratory confirmation. Management should include discontinuation of heparin and treatment with a non-heparin anticoagulant.
08-021. +Pbc+Com. Which one of the following preventive measures is recommended for nearly all international travelers to developing countries? A) Gamma-Globulin B) Hepatitis A vaccine C) Hepatitis B vaccine D) Typhoid vaccine E) Yellow fever vaccine	Hepatitis A. **08-021. P**rophylaxis. **ANS=B.** More than a dozen vaccines are available for diseases with a high prevalence in developing countries. The primary care physician should make sure that international travelers are up to date on routine immunizations, given that vaccine-based immunity to tetanus, diphtheria, polio, and measles wanes over time, and that these diseases are highly prevalent abroad. While location-specific situations may require particular immunizations such as typhoid, yellow fever, or hepatitis B vaccine, and/or administration of Gamma-globulin, hepatitis A vaccine is recommended for nearly all international travelers.
10-210. +Pbc+Com.* Which one of the following patients is unlikely to benefit	Hepatitis A. **10-210. P**rophylaxis. **ANS=E.** Each of the individuals listed is at

from vaccination against hepatitis A? A) A missionary traveling to Mexico B) A man who has sex with men C) A methamphetamine addict D) A patient with chronic hepatitis C E) A 40-year old recent immigrant from India	increased risk for hepatitis A infection or its complications, except for the Indian immigrant. Hepatitis A is so prevalent in developing countries such as India that virtually everyone is infected by the end of childhood, and therefore immune. Infection with hepatitis A confers lifelong immunity, so an adult from a highly endemic area such as India has little to gain from vaccination.
07-072. +Gas+Adm. A 30-year-old nurse was vaccinated more than 10 years ago for hepatitis B. When attempting to donate blood recently, he was found to have mildly elevated liver transaminases and now is concerned about the possibility of viral hepatitis. Which one of the following serologic results would be consistent with acute hepatitis B virus infection? A) Negative hepatitis B surface antigen (HBsAg) B) Positive hepatitis B surface antibody (anti-HBs) C) Positive hepatitis B core antibody (anti-HBc) D) Positive hepatitis B core antigen (HBcAg)	Hepatitis B. **07-072. Hepatitis B core antibody will be present only if infection with hepatitis B virus has occurred. ANS=C**. It does not result from immunization. **Hepatitis B surface antigen is positive in an acute infection, and clears in infections that do not become chronic.** Therefore, a negative surface antigen does not rule out past infection. **Hepatitis B surface antibody will be negative in the early stages of infection; it can be positive with either viral infection or immunization.** Hepatitis B core antigen is not found in the serum of patients infected with hepatitis B.
08-092. +Gas+Adm. You see a patient for the first time who has AIDS and chronic hepatitis B. He is losing weight, and in spite of adequate antiretroviral therapy, is becoming weaker, to the point of being virtually bedridden. Because of ascites, low serum albumin, and elevated liver enzymes, you suspect chronic hepatitis as the cause of his decline. Which one of the following would be most likely to improve this patient's condition? A) Antiviral drugs for hepatitis B B) Appetite stimulation with topical androgens C) Appetite stimulation with dronabinol (Marinol) D) Liver transplantation E) No treatment, with palliative care being the only appropriate management	Hepatitis B. **08-092. C**hronic. **ANS=A.** Effective oral antiviral drugs are now available for chronic hepatitis B (at a cost of about $20 per day) and can be added to highly active antiretrovirals. The recent trend in the treatment of newly diagnosed patients with AIDS and hepatitis B is to treat both problems initially, selecting AIDS drugs that are also active against hepatitis B. Various agents to stimulate appetite are used in declining HIV patients, but have little benefit. Liver transplantation has been done in a few cases of coinfection with hepatitis B and HIV, but the hepatitis B viremia has to be suppressed first.
09-165. +Gas+Mac. A patient in the first trimester of pregnancy has just learned that her husband has acute hepatitis B. She feels well, and her screening test for hepatitis B surface antigen (HBsAg) was negative last month. She has not been immunized against hepatitis B. Which one of the following would be the most appropriate management of this patient? A) No further workup or immunization at this time, a repeat HBsAg test near term, and treatment of the newborn if the test is positive B) Use of condoms for the remainder of the pregnancy, and administration of immunization after delivery C) Testing for hepatitis B immunity (anti-HBs), and immunization if needed D) Administration of hepatitis B immune globulin (HBIG) now and hepatitis B vaccine after the first trimester E) Administration of both HBIG and hepatitis B vaccine now	Hepatitis B. **09-165. P**regnancy**. ANS=E.** Hepatitis B immune globulin (HBIG) should be administered as soon as possible to patients with known exposure to hepatitis B. Hepatitis B vaccine is a killed-virus vaccine and can be used safely in pregnancy, with no need to wait until after organogenesis. This patient has been exposed to sexual transmission for at least 6 weeks, given that the incubation period is at least that long, so it is too late to use condoms to prevent infection. The patient is unlikely to be previously immune to hepatitis B, given that she has no history of hepatitis B infection, immunization, or carriage. Because the patient's HBsAg is negative, she is not the source of her husband's infection. Full treatment for this patient has an efficacy of only 75%, so follow-up testing is still needed.
10-078. +Gas+Adm.>L* In a patient with chronic hepatitis B, which one of the following findings suggests that the infection is in the active phase? A) A normal liver biopsy B) Detectable levels of HBeAb C) Detectable levels of HBsAb D) Elevated levels of ALT E) Undetectable levels of HBV DNA	Hepatitis B. **10-078. C**hronic. **ANS=D.** Chronic hepatitis B develops in a small percentage of adults who fail to recover from an acute infection, in almost all infants infected at birth, and in up to 50% of children infected between the ages of 1 and 5 years. Chronic hepatitis B has three major phases: immune-tolerant, immune-active, and inactive-carrier. There usually is a linear transition from one phase to the next, but reactivation from immune-carrier phase to immune-active phase also can be seen. Active viral replication occurs during the immune-tolerant phase when there is little or no evidence of disease activity, and this can last for many years before progressing to the immune-active phase (evidenced by elevated liver enzymes, indicating liver inflammation, and the presence of HBeAg, indicating high levels of HBV DNA). Most patients with chronic hepatitis B eventually transition to the inactive-carrier phase, which is characterized by the clearance of HBeAg and the development of anti-HBeAg, accompanied by normalization of liver enzymes and greatly reduced levels of hepatitis B virus in the bloodstream.
07-217. +Gas+Adm. A 45-year-old white female is diagnosed with hepatitis C. Which one of the following would be most useful to determine the stage of the disease? A) Liver enzymes (ALT/AST) B) A prothrombin time C) A hepatitis C viral assay D) A CT scan of the liver E) A liver biopsy	Hepatitis C. **07-217. ANS=E.** Approximately 2% of the U.S. population is positive for hepatitis C. Intravenous drug users and those who received blood transfusions before 1990 are at risk. Screening is done through antibody screening and confirmed by viral assay. **Liver enzyme testing is not reliable. The best way to determine the stage of the disease is with a liver biopsy**.
07-145. +Neu+Com. When given during acute herpes zoster (varicella) infection, which one of the following drugs has been shown to reduce the incidence of postherpetic neuralgia? A) Imipramine (Tofranil) B) Capsaicin (Zostrix) C) Amitriptyline D) Acyclovir (Zovirax) E) Oral prednisone	Herpes zoster. **07-145. I**nfection. **ANS=D.** A systematic review of 42 randomized, controlled trials showed that acyclovir reduced the incidence of postherpetic neuralgia at 3 months (number needed to treat = 3.2–8.0). Famciclovir was shown to reduce the duration of postherpetic pain. No conclusions could be drawn with regard to amitriptyline, narcotics, capsaicin, anticonvulsants, or percutaneous nerve stimulation. Studies examining these treatments were of fair to poor quality. Systemic corticosteroids showed no additional benefit.
09-203. +Sen+Adm. A 50-year-old female presents with a 2-day history of four vesicles on her upper eyelid, but no pain or swelling. She has not experienced any eye trauma, has had no vision changes, and has no other skin changes. Which one of the following would be the most appropriate next step in treating this patient? A) Referral to an ophthalmologist B) A methylprednisolone (Medrol) dose pack C) A topical corticosteroid D) Topical mupirocin (Bactroban) E) Topical metronidazole (MetroGel)	Herpes zoster. **09-203. O**phthalmicus. **ANS=A.** This patient likely has herpes zoster ophthalmicus. In addition to treatment with a systemic antiviral agent, it is important that the patient see an ophthalmologist to be evaluated for corneal disease and iritis, as vision can be lost. This is a viral infection, so corticosteroids could worsen the infection. Mupirocin or metronidazole would not resolve the infection.
10-051. +Res+Adm. A 53-year-old male presents to your office with a several-day history of hiccups. They are not severe, but have been interrupting his sleep, and he is becoming exasperated. What should be the primary focus of treatment in	Hiccups. **10-051.** Hiccups are caused by a respiratory reflex that originates from the phrenic and vagus nerves, as well as the thoracic sympathetic chain. **ANS=C.** Hiccups that last a matter of hours are usually benign and self-limited, and may be

this individual? A) Drug treatment to prevent recurrent episodes B) Decreasing the intensity of the muscle contractions in the diaphragm C) Finding the underlying pathology causing the hiccups D) Improving the patient's quality of sleep E) Suppressing the current hiccup symptoms	caused by gastric distention. Treatments usually focus on interrupting the reflex loop of the hiccup, and can include mechanical means (e.g., stimulating the pharynx with a tongue depressor) or medical treatment, although only chlorpromazine is FDA-approved for this indication. If the hiccups have lasted more than a couple of days, and especially if they are waking the patient up at night, there may be an underlying pathology causing the hiccups. In one study, 66% of patients who experienced hiccups for longer than 2 days had an underlying physical cause. Identifying and treating the underlying disorder should be the focus of management for intractable hiccups.
09-151. +Pbc+Com. According to the Health Insurance Portability and Accountability Act of 1996 (HIPAA), in which situation would a physician be allowed to disclose personal information without the patient's written authorization? A) The patient makes a verbal request to release information B) The patient's spouse requests information C) The adult children of the patient request written information D) A lawyer who claims to represent the patient requests information E) Another physician involved in the patient's care requests information	HIPAA. **09-151. ANS=E.** HIPAA legislation states that a patient's personal medical and financial information cannot be released unless the patient authorizes such a release in writing. The exceptions to this standard are the following: (1) coordination of care between providers and those involved in the patient's case (i.e., caretakers, nurses, consulting physicians); (2) arranging payment for medical services rendered; and (3) health-care operations such as evaluating a provider or system's competency or quality. The privacy rule allows some discretion to a physician in "coordinating care," even allowing a physician to speak with family members if that physician "in his or her professional judgment" feels it is in the patient's best interest. In such situations it is advisable to ask the patient's permission to do so if possible, and the information should be related on a need-to-know basis.
10-049. +Pbc+Adm. The Health Insurance Portability and Accountability Act (HIPAA) A) sets a federal minimum on the protection of privacy B) requires that privacy notices be acknowledged and signed at each office visit C) allows the patient to inspect and obtain a copy of his/her record without exception D) requires privacy notices prior to giving emergency care	HIPAA**. 10-049.** HIPAA regulations set a minimum standard for privacy protection. **ANS=A.** Privacy notices must be provided at the first delivery of health services, and written acknowledgement is encouraged but not required. Exceptions to patient inspections include psychotherapy notes and instances where disclosure is likely to cause substantial harm to the patient or another individual in the judgment of a licensed health professional. Although it is not necessary to provide patients with a privacy notice before rendering emergency care, it is required that patients be provided with a privacy notice after the emergency has ended.
07-055. +End+Cfp. A 26-year-old white female with regular periods presents to your office with complaints of excessive hair growth. An examination reveals moderately increased facial and body hair. Which one of the following studies would you order initially to evaluate androgen excess? A) Dehydroepiandrosterone B) FSH C) Free testosterone D) Prolactin E) 17 a-hydroxyprogesterone	Hirsutism**. 07-055. ANS=C.** With mild hirsutism, regular menses, and no features to suggest a secondary cause, it is reasonable to forgo laboratory evaluation given the very high likelihood that the hirsutism is idiopathic. About half of women with moderate or severe hirsutism have androgen excess. **The initial step in the workup should be measurement of plasma free testosterone in the early morning, ideally between days 4 and 10 of the menstrual cycle.** If free testosterone is abnormal, further workup would include an evaluation for an underlying cause. The 2002 ACOG guidelines on hirsutism state that dehydroepiandrosterone sulfate levels should be measured only in cases of rapid virilization. **If testosterone is elevated, ACOG recommends measurement of thyrotropin, prolactin, and early-morning levels of 17 a-hydroxyprogesterone to rule out other androgen-excess disorders.** ACOG suggests considering evaluation for Cushing's syndrome and other rare disorders only with suggestive symptoms or signs. **If this woman with hirsutism had reported irregular menses consistent with anovulation, polycystic ovary syndrome (PCOS) should be suspected as the cause of her androgen excess and hirsutism.** The **workup for PCOS should include evaluation for glucose intolerance and metabolic syndrome.**
08-008. +Res+Adm. A 40-year-old male respiratory therapist presents for a health examination prior to hospital employment. His history indicates that as a child he lived on a farm in Iowa, and his examination is unremarkable, but a chest radiograph shows that both lung fields have BB-sized calcifications in a miliary pattern. No other findings are noted. A PPD skin test is negative. The findings in this patient are most likely a result of A) HIV infection B) histoplasmosis C) coccidioidomycosis D) tuberculosis E) cryptococcosis	Histoplasmosis**. 08-008. ANS=B.** Asymptomatic patients in excellent health often present with this characteristic chest radiograph pattern, which is usually due to histoplasmosis infection, especially if the patient has been in the midwestern United States. Exposure to bird or bat excrement is a common cause, and treatment is usually not needed. This pattern is not characteristic of the other infections listed, although miliary tuberculosis is a remote possibility in spite of the negative PPD skin test.
07-223. +Pbc+Com. A visibly distraught 34-year-old female presents to your office. She is a housekeeper at a local motel, and while cleaning a room she sustained a needle stick from a syringe that had been left in a trash can. She produces the syringe, which is an insulin syringe with an uncapped small-bore needle. At this time, it would be appropriate to A) perform DNA polymerase testing on the needle B) reassure the patient that the risk of developing HIV is much less than 1% C) begin two-drug HIV prophylaxis D) begin three-drug HIV prophylaxis	HIV. **07-223.** Prophylaxis**. ANS=B. The risk of developing HIV after a large-bore needle stick from a known HIV positive patient is less than 0.3%. Current guidelines for patients exposed to small-bore or solid needle sticks from unknown sources do not recommend prophylaxis, unless there is a high likelihood of the source being HIV positive.**
09-077. +Hem+Adm. A 34-year-old white male letter carrier has developed progressively worsening dysphagia for liquids and solids over the past 3 months. He says that he has lost about 30 lb during that time. On examination, you note that he is emaciated and appears ill. His pulse rate is 98 beats/min, temperature 37.8°C (100.2°F), respiratory rate 24/min, and blood pressure 95/60 mm Hg. His weight is 45 kg (99 lb) and his height is 170 cm (67 in). His dentition is poor, and there is evidence of oral thrush. His mucous membranes are dry. You palpate	HIV**. 09-077. ANS=A.** A young man with weight loss, oral thrush, lymphadenopathy, and ulcerative esophagitis is likely to have HIV infection. **Intravenous drug use is responsible for over a quarter of HIV infections in the United States**. Esophageal disease develops in more than half of all patients with advanced infection during the course of their illness. **The most common pathogens causing esophageal ulceration in HIV-positive patients include *Candida*, herpes simplex virus, and cytomegalovirus**. Identifying the causative

small posterior cervical and axillary nodes. The heart, lung, and abdominal examinations are normal. You promptly consult a gastroenterologist, who performs upper endoscopy, which reveals numerous small ulcers scattered throughout the esophagus with otherwise normal mucosa. As you continue to investigate, you take a more detailed history. Which one of the following is most likely to be related to the patient's problem? A) Intravenous drug use B) A family history of esophageal cancer C) Chest pain relieved by nitroglycerin D) Recent travel to Russia	agent through culture or tissue sampling is important for providing prompt and specific therapy.
09-192. +Res+Adm. Which one of the following treatment regimens is most appropriate for an HIV-positive 42-year old who has latent tuberculosis infection? A) Isoniazid daily for 9 months B) Rifampin (Rifadin) daily for 4 months C) Rifampin plus pyrazinamide daily for 2 months D) Combination therapy with isoniazid, rifampin, pyrazinamide, and ethambutol (Myambutol) for 2 months	HIV. **09-192.** Tuberculosis, latent. ANS=A. Latent tuberculosis infection carries a risk of progression to active disease, especially among patients who are immunosuppressed. Isoniazid monotherapy is the treatment of choice for most patients with latent tuberculosis infection. Rifampin is not recommended as monotherapy in patients with HIV infection because of increased rates of resistance and drug interactions with many antiretrovirals. Rifampin plus pyrazinamide is no longer recommended for treatment of latent tuberculosis infection because cases of significant hepatotoxicity have occurred with preventive therapy. Combination drug therapy is reservedfor treatment of active tuberculosis in order to prevent drug resistance.
10-067. +Pbc+Com.* The Centers for Disease Control and Prevention currently recommends that all patients between the ages of 13 and 64 years be screened for A) tuberculosis B) hepatitis B C) human papillomavirus infection D) elevated serum cholesterol levels E) HIV infection	HIV. **10-067.** screening. **ANS=E.** The focus of screening for HIV has been shifted from testing only high-risk individuals to routine testing of all individuals in health-care settings. There are an estimated 1.1 million people in the United States with HIV, and 25% are undiagnosed. Only 36.6% of adults have had an HIV test. Screening for hepatitis B and for tuberculosis is recommended only for certain at-risk populations. There is no generally used test for human papillomavirus. The CDC has not made any recommendations regarding screening for high cholesterol.
10-110. +Hem+Adm.* The most common initial symptom of Hodgkin lymphoma is A) unexplained fever B) night sweats C) weight loss D) painless lymphadenopathy E) cough	Hodgkin lymphoma. **10-110. ANS=D.** The most common presenting symptom of Hodgkin lymphoma is painless lymphadenopathy. Approximately one-third of patients with Hodgkin lymphoma present with unexplained fever, night sweats, and recent weight loss, collectively known as "B symptoms." Other common symptoms include cough, chest pain, dyspnea, and superior vena cava obstruction caused by adenopathy in the chest and mediastinum.
07-076. +Pbs+Adm. Which one of the following statements is true regarding medication for homeless populations? A) For children >5 years old, a liquid formulation is preferred B) Sleeping pills should be prescribed to improve rest in noisy shelters C) Pseudoephedrine can be used to make crack cocaine D) Once-daily therapy is preferable	Homeless. **07-076.** Homeless patients face many barriers in accessing and complying with medical care. **ANS=D**. The goal of a provider should be to decrease the difficulty of adhering to medical regimens. Using the simplest medical regimen warranted by standard clinical guidelines is helpful, with once-daily, directly observed therapy being preferable. Liquid formulations should be avoided if possible, because of the need for measuring and refrigerating. Medications with sedative effects may compromise a patient's safety on the streets or in shelters. Pseudoephedrine should be prescribed carefully, as it can be used to make methamphetamine. Albuterol can be used to enhance the effects of crack cocaine. Diuretics can be problematic for patients who have limited access to bathroom facilities during the day.
08-096. +Mus+Adm. A 56-year-old female has been on combined continuous hormone therapy for 6 years. This is associated with a reduced risk for which one of the following? A) Bone fracture B) Myocardial infarction C) Stroke D) Breast cancer E) Venous thromboembolism	Hormone replacement therapy. **08-096. Hormone replacement therapy that includes estrogen has been shown to decrease osteoporosis and bone fracture risk. ANS=A. The risk for colorectal cancer also is reduced after 5 years of estrogen use. The risk for myocardial infarction, stroke, breast cancer, and venous thromboembolism increases with long-term use.** See also **10-143: Hormone replacement therapy is recommended for osteoporosis only in women with moderate or severe vasomotor symptoms. The lowest possible dose should be used for the shortest amount of time possible (SOR C).**
08-165. +Neu+Adm. A 54-year-old white male presents with drooping of his right eyelid for 3 weeks. On examination, he has ptosis of the right upper lid, miosis of the right pupil, and decreased sweating on the right side of his face. Extraocular muscle movements are intact. In addition to a complete history and physical examination, which one of the following would be most appropriate at this point? A) A chest radiograph B) MRI of the brain and orbits C) I thyroid scanning 131 D) A fasting blood glucose level E) An acetylcholine receptor antibody level	Horner's syndrome**. 08-165. ANS=A.** The clinical triad of Horner's syndrome—ipsilateral ptosis, miosis, and decreased facial sweating—suggests decreased sympathetic innervation due to involvement of the stellate ganglion, a complication of Pancoast's superior sulcus tumors of the lung. Radiographs or MRI of the pulmonary apices and paracervical area is indicated. Horner's syndrome may accompany intracranial pathology, such as the lateral medullary syndrome (Wallenberg's syndrome), but is associated with multiple other neurologic symptoms, so MRI of the brain is not indicated at this point. The acetylcholine receptor antibody level is a test for myasthenia gravis, which can also present with ptosis, but not with full-blown Horner's syndrome. Diabetes mellitus and thyroid disease do not commonly present with Horner's syndrome.
07-025. +Pbs+Com. An 85-year-old female with hypertension is receiving hospice care for oral cancer. Which one of the following services typically would NOT be covered under hospice? A) Dietary counseling B) Short-term inpatient care C) Drugs for symptom control D) Drugs for hypertension E) Speech therapy	Hospice**. 07-025.** Hospice covers a wide array of services, including dietary counseling; short-term hospital and respite care; medicine and supplies to treat symptoms of terminal illness; physical, occupational, and speech therapies; and many other benefits as deemed appropriate by the hospice team. **ANS=D.** However, medicine used to cure the illness that led to hospice care, as well as medicines that treat other comorbid illnesses, are not covered under the hospice benefit. Therefore, it is important for patients to maintain other coinsurances.
09-067. +Pbs+Com. Under current guidelines, hospice programs are most likely to serve patients dying from A) heart failure B) COPD C) severe dementia D) multiple strokes E) cancer	Hospice. **09-067. ANS=E.** The general requirement for enrolling an individual in hospice is that they have a terminal illness and an estimated life expectancy of 6 months or less. Given these criteria, it is not surprising that over 40% of hospice patients have a cancer diagnosis. Cancer usually has a short period of obvious decline at the end and is predictable to a degree. Diseases such as COPD, end-

	stage liver disease, and heart failure result in long-term disability with periodic exacerbations, any one of which could result in death, but far less predictably. Those with severe dementia or frailty often experience a dwindling course that is also difficult to predict.
07-094. +Pbc+Com. Homosexual males who engage in anal receptive intercourse are at risk for developing anal carcinoma associated with which one of the following infections? A) Syphilis B) Human papillomavirus C) *Chlamydia* D) Gonorrhea E) *Calymmatobacterium granulomatis* (granuloma inguinale)	HPV. **07-094.** Human papillomavirus types 16 and 18 are associated with anal and genital warts and the development of anal carcinomas. **ANS=B.** Anal Papanicolaou smears are recommended yearly for HIV-positive patients because of their increased risk for HPV-related carcinoma. The other STDs listed are not associated with anal carcinoma.
08-189. +Ref+Cfp. You see a 17-year-old female for a routine visit. She tells you she has been sexually active for 3 years and that her partners have used condoms, but not consistently. She has never had a Papanicolaou (Pap) test. You provide counseling regarding contraception and sexually transmitted diseases, and perform a gynecologic examination, including a Pap test. The results of the test are reported as atypical squamous cells of undetermined significance (ASC-US). According to the American Society for Colposcopy and Cervical Pathology, which one of the following would be most appropriate with regard to the abnormal smear? A) A repeat Pap test in 3–6 months B) A repeat Pap test in 12 months C) HPV DNA testing D) Colposcopy E) Loop electrical excisional procedure (LEEP)	HPV. **08-189.** The risk associated with abnormal results on cytologic testing vary with the age of the patient. **ANS=B.** Adolescents have a high prevalence of human papillomavirus (HPV) infection, but a very low risk for invasive cervical cancer. The vast majority of HPV infections will clear within 2 years after the initial infection, and have little clinical significance. Follow-up annual cytologic testing is the only recommended management for adolescents with ASC-US. Only those whose smears are classified as high-grade squamous intraepithelial lesions (HSIL) or higher on repeat cytology should be referred for colposcopy at the 12-month follow-up. At the 24-month follow-up, those with smears classified as ASC-US or higher should be referred for colposcopy (AII). HPV DNA testing is inappropriate for adolescents, and LEEP is not recommended at any age for women with ASC-US.
09-125. +Ref+Cfp. Women should be tested for human papillomavirus (HPV) DNA A) every year, when a Papanicolaou (Pap) test is performed B) every 2 years, when a Pap test is performed C) prior to receiving HPV vaccine (Gardasil) D) when a Pap smear shows ASC-US E) when genital warts are noted	HPV. **09-125.** Human papillomavirus (HPV) DNA testing is useful for determining whether colposcopy is needed in patients whose Papanicolaou (Pap) test shows aytpical squamous cells of undetermined significance (ASCUS). **ANS=D**. Women with a negative result for high-risk HPV can be safely followed without colposcopy. Some recent studies suggest that screening HPV DNA testing for women in their thirties may be useful, most likely as a replacement for Pap smears; however, this is in the preliminary stages of study. Younger women would not benefit from screening for HPV DNA because it would identify the very large number of young women who have a transient infection. The addition of HPV DNA testing to Pap smears at currently recommended intervals would not change management. The presence or absence of HPV DNA does not alter the indications for HPV vaccine, because patients with or without HPV are candidates for vaccination. The vaccine protects against HPV strains that the patient may not have contracted. Genital warts are caused by HPV, usually a low-risk strain, so testing for HPV in patients with this problem does not provide useful information.
10-236. +Ref+Adm.>L* The condition shown in **Figure 4** occurred in a 31-year-old sexually active male. Which one of the following is true regarding this problem? A) Diagnosis by biopsy and viral typing is recommended B) Acetowhite staining is indicated to accurately map margins prior to treatment C) Treatment with 5% fluorouracil cream (Efudex) is effective and safe D) Treatment has a favorable impact on the incidence of cervical and genital cancer E) HPV testing is indicated for this patient's sexual partners 	HPV. **10-236.** Genital warts are typically caused by human papillomavirus (HPV) types 5 and 11, which are rarely associated with invasive squamous cell carcinoma. **ANS=E.** In general, chemical treatments are more effective on soft, moist, nonkeratinized genital lesions, while physical ablative treatments are more effective for keratinized lesions. Diagnosis by biopsy and viral typing is no longer recommended. Acetowhite staining has not been shown to favorably affect the course or treatment of HPV-associated genital warts. Topical 5% fluorouracil cream has been associated with severe local reactions and teratogenicity, and is no longer recommended. Treatment of genital warts has not been shown to reduce the incidence of cervical or genital cancer.
08-233. +Int+Adm. A 27-year-old female office worker presents with the inflamed lesion shown in. She is in good health otherwise and takes only iron supplements and oral contraceptives. She has not had any recent illnesses, but she states that she may have had a similar lesion as a teenager. Which one of the following is the most likely diagnosis? A) Orf virus infection B) Herpes simplex C) Herpes zoster nasociliary infection D) Staphylococcal infection E) Contact dermatitis from cosmetics	HSV-1. **08-233.** Although the consequences of nasal (or facial) staphylococcal lesions demand that they receive careful evaluation and culture, most lesions in this area of the face are related to HSV-1 infections. **ANS=B.** The painful grouped vesicles on an erythematous base indicate a viral infection, likely HSV-1. Herpes zoster would be unlikely because the lesion involves only the distal nose area without other lesions, and symptoms would be unlikely. The appearance of staphylococcal infection would be quite different, contact dermatitis would be more widespread, and orf virus is a sheep-related virus usually seen on the hands.

	
08-085. +Rem+Cca. During a well child examination of a healthy-appearing 4-week-old white male born at term, his mother questions you about a prominence in the left side of his scrotum, which she has noted since his baths were begun. Your physical examination reveals an oblong, nontender, nonreducible, light-transmitting mass closely adhered to or involving the testis. You should recommend which one of the following? A) Further observation B) Sterile aspiration of the mass C) Immediate surgery D) Surgery in 3–4 months	Hydrocele. **08-085.** Hydrocele of the tunica vaginalis testis occurs frequently at birth but usually resolves in a few weeks or months. **ANS=A.** No treatment is indicated during the first year of life unless there is a clinically evident hernia. A simple scrotal hydrocele without communication with the peritoneal cavity and no associated hernia should be excised if it has not spontaneously resolved by the age of 12 months. Aspirating the mass for diagnostic or therapeutic reasons is not recommended, since a loop of bowel may be injured; removing the fluid is ineffective.
07-129. +End+Cfp. Which one of the following is the most common cause of hyperandrogenism in women? A) Acromegaly B) Carcinoma of the ovary C) Congenital adrenal hyperplasia D) Cushing's syndrome E) Polycystic ovary syndrome	Hyperaldosteronism**. 07-129.** Hyperandrogenism is caused by polycystic ovary syndrome in at least 75% of cases. **ANS=E**. This diagnosis is made when there is otherwise unexplained chronic hyperandrogenism and oligo-ovulation or anovulation. Women with polycystic ovary syndrome should also be evaluated for glucose intolerance and the metabolic syndrome. Congenital adrenal hyperplasia is present in 2% of women with hyperandrogenism; androgen-secreting tumors are seen in 0.2%, with more than half being malignant. Cushing's syndrome and acromegaly are other infrequent causes of androgen excess.
10-073. +End+Adm.**?*** A 46-year-old female presents to your office for follow-up of elevated blood pressure on a pre-employment examination. She is asymptomatic, and her physical examination is normal with the exception of a blood pressure of 160/100 mm Hg. Screening blood work reveals a potassium level of 3.1 mEq/L (N 3.7–5.2). You consider screening for primary hyperaldosteronism. Which one of the following tests is recommended to screen for this condition? A) 24-hour urine aldosterone levels B) An ACTH infusion test C) Adrenal venous sampling D) CT of the abdomen E) A serum aldosterone-to-renin ratio	Hyperaldosteronism**. 10-073.** Primary hyperaldosteronism is relatively common in patients with stage 2 hypertension (160/100 mm Hg or higher) or treatment-resistant hypertension. **ANS=E.** It has been estimated that 20% of patients referred to a hypertension specialist suffer from this condition. Experts recommend screening for this condition using a ratio of morning plasma aldosterone to plasma renin. A ratio >20:1 with an aldosterone level >15 ng/dL suggests the diagnosis. The level of these two values is affected by several factors, including medications (especially most blood pressure medicines), time of day, position of the patient, and age. Patients who are identified as possibly having this condition should be referred to an endocrinologist for further confirmatory testing.
07-012. +End+Adm. The initial step in the management of hypercalcemia of malignancy should be A) fluid restriction B) bisphosphonates intravenously C) phosphate depletion D) aggressive rehydration E) diuresis with furosemide (Lasix)	Hypercalcemia**. 07-012.** Hypercalcemia of malignancy should be treated initially with aggressive rehydration, followed by diuresis with furosemide, phosphorus replacement if hypophosphatemia is present, and intravenous bisphosphonates. **ANS=D.** Adjunctive therapies include dialysis, glucocorticoids, calcitonin, plicamycin, and gallium nitrate.
09-036. +End+Adm. A 56-year-old male with a history of nephrolithiasis presents with a complaint of right flank pain. Further evaluation reveals a right ureteral calculus 4 mm in diameter. Laboratory tests reveal a serum calcium level of 12.1 mg/dL (N 8.5–10.5), a normal albumin level, and normal kidney and liver function tests. The patient takes no chronic medications. Which one of the following is most likely to reveal the cause of this patient's elevated calcium? A) A 24-hour urine calcium level B) A repeat serum calcium level in 4–6 weeks C) A serum 25-hydroxyvitamin D level D) A serum calcitonin level E) A serum intact parathyroid hormone level.	Hypercalcemia. **09-036.** Ans=E. **Primary hyperparathyroidism and malignancy are the most common causes of hypercalcemia**, accounting for **about 90% of cases**. An **intact parathyroid hormone (PTH) level should be obtained initially**, as the results will indicate what kind of additional evaluation is needed. Vitamin D and urine calcium studies are useful in evaluating hypercalcemia, but a PTH level should be obtained first. It would not be appropriate to wait for a repeat calcium level in 4–6 weeks, because this patient has nephrolithiasis and a calcium level ≥ 12 mg/dL, indicating a possible need for surgery or perhaps a malignancy. Calcitonin levels generally are not necessary in the evaluation of hypercalcemia. **UpToDate:** In the presence of **low serum PTH concentrations** (<20 pg/mL), **parathyroid hormone-related peptide (PTHrp) and vitamin D metabolites should be measured to assess for hypercalcemia of malignancy and vitamin D intoxication.** If PTHrp and vitamin D metabolites are also low, another source for the hypercalcemia must be considered. Additional laboratory data (including serum protein electrophoresis for possible multiple myeloma, TSH, vitamin A) will often lead to the correct diagnosis.
09-051. +End+Adm. Which one of the following is the best INITIAL management for hypercalcemic crisis? A) Intravenous furosemide B) Intravenous pamidronate (Aredia) C) Intravenous plicamycin (Mithramycin)	Hypercalcemia. **09-051.** Hypercalcemic crisis. **ANS=D.** The **initial management** of hypercalcemic crisis involves **volume repletion and hydration**. The combination of inadequate fluid intake and the inability of hypercalcemic patients

D) Intravenous saline	to conserve free water can lead to calcium levels over 14–15 mg/dL. Because patients often have a fluid deficiency of 4–5 liters, delivering 1000 mL of normal saline during the first hour, followed by 250–300 mL/hour, may decrease the hypercalcemia to less than critical levels (<13 mg/dL). If the clinical status is not satisfactory after hydration alone, **then renal excretion of calcium can be enhanced by saline diuresis using furosemide**. **Intravenous pamidronate, a diphosphonate, reduces the hypercalcemia of malignancy and is best used in the semi-acute setting**, since calcium levels do not start to fall for 24 hours. **The same is true for intravenous plicamycin.**
07-204. +End+Adm. An asymptomatic 38-year-old white male takes lisinopril (Prinivil, Zestril) for hypertension. At a routine follow-up visit you order a basic metabolic profile. The results are normal except for a serum potassium level of 6.3 mEq/L (N 3.5–5.0). Which one of the following should you do at this point? A) Order another serum potassium level but make sure the patient repeatedly clenches his fist during the phlebotomy B) Order another metabolic profile but make sure the sample stands for several hours before being centrifuged C) Reassure the patient that the potassium elevation is likely due to a laboratory error and disregard the result D) Temporarily discontinue the lisinopril and order a repeat potassium level	Hyperkalemia. **07-204.** **Pseudo-hyperkalemia is most commonly caused by lysis of red cells released from platelets in clotted serum**. **ANS=D.** Clenching the fist repeatedly can aggravate red cell damage. As the patient is on an **ACE inhibitor** that **can raise potassium levels, reassurance without investigation would not be appropriate**. **A plasma potassium level does not reflect potassium released from cells damaged by phlebotomy.**
08-058. +End+Adm. A 75-year-old female is admitted to the hospital with a change in mental status. The initial workup includes a chemistry profile that reveals a plasma potassium level of 6.4 mEq/L (N 3.7–5.2). Which one of the following should be given now to rapidly lower the plasma potassium level? A) Corticosteroids B) Albuterol C) Furosemide (Lasix) D) 0.45% saline	Hyperkalemia. **08-058.** Severe hyperkalemia (>6.0 mEq/L) requires aggressive treatment. **ANS=B.** Calcium gluconate has no effect on the plasma potassium level, but it should be given first, as it rapidly stabilizes the membranes of cardiac myocytes, reducing the risk of cardiac dysrhythmias. Therapies that translocate potassium from the serum to the intracellular space should be instituted next, as they can quickly (albeit temporarily) lower the plasma concentration of potassium. These interventions include sodium bicarbonate, glucose with insulin, and albuterol. Total body potassium can be lowered with sodium polystyrene sulfonate, but this takes longer to affect the plasma potassium level than translocation methods. In the most severe cases, acute hemodialysis can be instituted.
08-070. +End+Adm. A 59-year-old male reports nausea, vomiting, and progressive fatigue for the past few months. At his last visit, 6 months ago, his blood pressure was poorly controlled and hydrochlorothiazide was added to his B-blocker therapy. At this visit he appears moderately dehydrated on examination. Laboratory testing reveals a serum calcium level of 12.5 mg/dL (N 8.0–10.0), a BUN level of 36 mg/dL (N 6–20), and a creatinine level of 2.2 mg/dL (N 0.6–1.1). A CBC, albumin level, and electrolyte levels are normal. His intact parathyroid hormone level is reported a few days later, and is 60 pg/mL (N 10–65). What is the most likely cause of his hypercalcemia? A) Renal failure B) Hyperparathyroidism C) Milk alkali syndrome D) Sarcoidosis	Hyperparathyroidism. **08-070. ANS=B.** **Many patients have mild hyperparathyroidism that becomes evident only with an added calcium load**. **Thiazide diuretics reduce calcium excretion and can cause overt symptoms in a patient whose hyperparathyroidism would otherwise have remained asymptomatic**. **The finding of a normal parathyroid hormone (PTH) level in a patient with hypercalcemia is diagnostic for hyperparathyroidism, since PTH should be suppressed in the presence of elevated calcium.** Symptomatic hypercalcemia causes dehydration because of both intestinal symptoms and diuresis. Reversible renal insufficiency can result, and can become permanent if it is long-standing and severe. Conversely, renal failure usually causes hypocalcemia, but can cause hypercalcemia resulting from tertiary hyperparathyroidism. This develops after severe hyperphosphatemia and vitamin D deficiency eventually produce hypersecretion of PTH. This patient's renal insufficiency is not severe enough to cause tertiary hyperparathyroidism. **Milk alkali syndrome is hypercalcemia resulting from a chronic overdose of calcium carbonate, and is becoming more common as more patients take calcium and vitamin D supplements**. **In milk alkali syndrome, and other causes of hypercalcemia such as sarcoidosis, the PTH level is appropriately suppressed.**
08-202. +End+Adm. A 35-year-old male with a previous history of kidney stones presents with symptoms consistent with a recurrence of this problem. The initial workup reveals elevated serum calcium. Which one of the following tests would be most appropriate at this point? A) Serum calcitonin B) 24-hour urine for calcium and phosphate C) Serum phosphate and magnesium D) Serum parathyroid hormone E) Spot urine for microalbumin	Hyperparathyroidism. **08-202.** A patient with a recurrent kidney stone and an elevated serum calcium level most likely has hyperparathyroidism, and a parathyroid hormone (PTH) level would be appropriate. **ANS=D.** Elevated PTH is caused by a single parathyroid adenoma in approximately 80% of cases. The resultant hypercalcemia is often discovered in asymptomatic persons having laboratory work for other reasons. An elevated PTH by immunoassay confirms the diagnosis. In the past, tests based on renal responses to elevated PTH were used to make the diagnosis. These included blood phosphate, chloride, and magnesium, as well as urinary or nephrogenous cyclic adenosine monophosphate. These tests are not specific for this problem, however, and are therefore not cost-effective. Serum calcitonin levels have no practical clinical use.
09-175. +End+Cca. A 14-year-old female sees you for follow-up after hypercalcemia is found on a chemistry profile obtained during a 5-day episode of vomiting and diarrhea. She is now asymptomatic, but her serum calcium level at this visit is 11.0 mg/dL (N 8.5–10.5). Her aunt underwent unsuccessful parathyroid surgery for hypercalcemia a few years ago. Which one of the following laboratory findings would suggest a diagnosis other than primary hyperparathyroidism? A) Low 24-hour urine calcium B) Decreased serum phosphate C) High-normal to increased serum chloride D) Elevated alkaline phosphatase E) Elevated parathyroid hormone	Hyperparathyroidism**. 09-175. ANS=A.** Low urine 24-hour calcium levels or a low urine calcium to urine creatinine ratio is not characteristic of hyperparathyroidism. This finding should suggest familial hypocalciuric hypercalcemia (SOR C). Awareness of this condition is important to avoid unnecessary surgery. The parathyroid hormone level may be mildly elevated. Parathyroid hormone is elevated in hyperparathyroidism. Serum chloride tends to be high normal or mildly elevated. Alkaline phosphatase may be elevated in more severe cases, while serum phosphate levels tend to be low.
10-027. +End+Adm. A 61-year-old female is found to have a serum calcium level of 11.6 mg/dL (N 8.6–10.2) on routine laboratory screening. To confirm the hypercalcemia you order an ionized calcium level, which is 1.49 mmol/L (N 1.14–1.32). Additional testing reveals an intact parathyroid hormone level of 126 pg/mL (N 15–75) and a urine calcium excretion of 386 mg/24 hr (N	Hyperparathyroidism. **10-027.** Primary. **ANS=A.** Primary hyperparathyroidism and malignancy account for more than 90% of hypercalcemia cases. These conditions must be differentiated early to provide the patient with optimal treatment and an accurate prognosis. Humoral hypercalcemia of malignancy implies a very limited life expectancy—often only a matter of weeks. On the other

100–300). Which one of the following is the most likely cause of the patient's hypercalcemia? A) Primary hyperparathyroidism B) Malignancy C) Familial hypocalciuric hypercalcemia D) Hypoparathyroidism E) Hyperthyroidism	hand, primary hyperparathyroidism has a relatively benign course. Intact parathyroid hormone (PTH) will be suppressed in cases of malignancy-associated hypercalcemia, except for extremely rare cases of parathyroid carcinoma. Thyrotoxicosis-induced bone resorption elevates serum calcium, which also results in suppression of PTH. Patients with familial hypocalciuric hypercalcemia (FHH) have moderate hypercalcemia but relatively low urinary calcium excretion. PTH levels can be normal or only mildly elevated despite the hypercalcemia. This mild elevation can lead to an erroneous diagnosis of primary hyperparathyroidism. The conditions can be differentiated by a 24-hour urine collection for calcium; calcium levels will be high or normal in patients with hyperparathyroidism and low in patients with FHH.
07-034. +Car+Adm. Which one of the following would be most likely to blunt the antihypertensive effects of an ACE inhibitor? A) Allopurinol (Zyloprim) B) Ibuprofen C) Chlorpromazine D) Triamterene (Dyrenium) **Uptodate:** •Nonselective NSAIDs should be avoided in patients with an acute myocardial infarction, unstable angina, or heart failure, and during the perioperative period in patients undergoing coronary artery bypass graft surgery. •Nonselective NSAIDs should be used with caution in patients with hypertension or manifestations of cardiovascular disease other than those listed in the preceding paragraph. If given, they should be used at the lowest effective dose and for the shortest duration necessary for the given indication. •Naproxen is preferred for patients with known cardiovascular disease or increased cardiovascular risk who require treatment with a nonselective NSAID [31]. Diclofenac should be AVOIDED because of a possible increase in cardiovascular risk. •There are insufficient data to guide NSAID usage in patients at low risk of cardiovascular disease, in whom the absolute increase in risk of adverse cardiovascular events (if any) from use of nonselective NSAIDs is likely to be small. The author prefers to use naproxen or ibuprofen at the lowest effective dose in such patients. **http://cmbi.bjmu.edu.cn/ :** "Patients with treated hypertension or congestive heart failure (CHF) may have elevated levels of angiotensin II and norepinephrine. These vasoconstrictors increase the release of vasodilator prostaglandins from the kidney, which act locally to minimize the degree of renal ischemia. When this compensatory response is inhibited by a nonsteroidal antiinflammatory drug (NSAID), the increase in renal and systemic vascular resistance can have three deleterious hemodynamic effects: acute renal failure; an elevation in blood pressure (BP); and worsening of CHF."	Hypertension. **07-034.** Many medications interfere with the absorption, metabolism, and pharmacologic action of ACE inhibitors. Of the choices given, the one most likely to do this is ibuprofen, a commonly used NSAID. **ANS=B.** **Ibuprofen (or other NSAIDs) may blunt the antihypertensive effects of an ACE inhibitors.** **Uptodate:** Nonselective (ie, non-COX-2 selective) nonsteroidal antiinflammatory drugs **(NSAIDs) may have several adverse effects on the cardiovascular system, including interference with the beneficial antiplatelet activity of aspirin, an increase in cardiovascular events, and exacerbation of heart failure**. All nonsteroidal antiinflammatory drugs **(NSAIDs) in doses adequate to reduce inflammation and pain can increase blood pressure in both normotensive and hypertensive individuals** [1]. The average rise in blood pressure is 3/2 mmHg but varies considerably [2]. In addition, **NSAID use may reduce the effect of all antihypertensive drugs except calcium channel blockers** [3]. These effects may contribute to the increase in cardiovascular risk associated with the selective COX-2 inhibitors [4]. The **prohypertensive effect is dose-dependent and probably involves inhibition of cyclooxygenase-2 (COX-2) in the kidneys, which reduces sodium excretion and increases intravascular volume** [3]. In the doses used, aspirin has no COX-2-inhibiting or prohypertensive effects, and **low dose aspirin does not interfere with the efficacy of antihypertensive drugs** [5]. Acetaminophen produces its analgesic effect by inhibiting the same cyclooxygenase, prostaglandin H2 synthase, that is the target of NSAID and aspirin [6]. However, acetaminophen blocks this enzyme at its peroxidase catalytic rather than at the cyclooxygenase catalytic site. Therefore, the acetaminophen-mediated inhibition is sensitive to changes in the tissue peroxide levels; higher concentrations of peroxide in activated leukocytes and platelets block the effect of acetaminophen on inflammation and platelet thrombosis. However, acetaminophen is able to inhibit prostaglandins in the central nervous system, thus providing relief of pain and fever. Therefore, acetaminophen is not an NSAID or anti-thrombotic agent.
07-057. +Car+Adm. According to the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-7), which one of the following should be first-line treatment for otherwise healthy older adults with hypertension? A) ACE inhibitors B) B-Blockers C) Calcium channel blockers D) Thiazide diuretics E) A-Blockers	Hypertension**. 07-057.** JNC-7 recommendations for treating hypertension are similar in the general population and in older persons. **ANS=D.** The key points include the recommendation to treat isolated systolic blood pressure, and that thiazide diuretics should be first-line treatment. **Thiazide diuretics should be first-line treatment for otherwise healthy older adults with hypertension.**
07-123. +Car+Cca. The most common cause of hypertension in adolescents is A) Cushing's syndrome B) essential hypertension C) hyperthyroidism D) pheochromocytoma E) renal disease	Hypertension**. 07-123. In children and adolescents; ANS=B.** Primary or essential hypertension accounts for 85%–95% of adolescent cases (But, **Although essential hypertension is most common in adolescents and adults, it is rarely found in children less than 10 years old, where the most common cause of hypertension is renal parenchymal disease).**
07-152. +Car+Adm. An asymptomatic 60-year-old male who has a history of hypertension comes to your office for the first time. He has not taken antihypertensive medication in over a year and cannot recall the name of the drug prescribed. His examination is unremarkable. A CBC, urinalysis, and chemistry profile are all normal. His blood pressure is 159/92 mm Hg. An EKG shows a sinus rhythm, but is compatible with left ventricular hypertrophy. An echocardiogram confirms this finding. Which one of the following would be most appropriate for the management of this patient's hypertension? A) Hydralazine B) Minoxidil C) Doxazosin (Cardura) D) Amlodipine (Norvasc) E) Lisinopril (Prinivil, Zestril)	Hypertension. **07-152.** **Regression of left ventricular hypertrophy is an important therapeutic target, as successful treatment significantly reduces cardiovascular events**. **ANS=E.** Optimal blood pressure control is the goal, but it appears that the **most helpful drugs in this setting would be an ACE inhibitor, a thiazide diuretic, a B-blocker, or an angiotensin receptor blocker (ARB).** **If low-dose thiazide monotherapy fails to attain goal blood pressure in uncomplicated hypertensives, an ACE inhibitor/ARB, beta-blocker, or calcium channel blocker can be sequentially added or substituted. Most often an ACE inhibitor/ARB, which acts synergistically with a diuretic, is used.** **Amlodipine (Norvasc): a Calcium channel blockers.** Like beta-blockers, they can be given **for rate control in patients with atrial fibrillation or for control of angina. Calcium channel blockers may be preferred in obstructive airways disease.** Minoxidil (Rogaine) is an antihypertensive vasodilator medication also claimed to slow or stop hair loss and promote hair regrowth.
07-183. +Car+Csp. A 65-year-old nonsmoker is scheduled to undergo right knee replacement. His cardiac history is negative, and he takes aspirin, 81 mg/day, to prevent cardiovascular problems. He also takes simvastatin (Zocor), 20 mg/day,	Hypertension. **07-183.** B-blockers in patients undergoing surgery. **ANS=E.** American College of Cardiology/ American Heart Association (ACC/AHA) guidelines recommend continuing B-blockers in patients undergoing surgery who

for hypercholesterolemia, and metoprolol (Lopressor), 25 mg twice daily, for hypertension. His body mass index (BMI) is 26 kg/m2, his heart rate is 60 beats/min, and his blood pressure is controlled. Which one of the following is the best recommendation regarding metoprolol? A) Withhold 12 hours before and after surgery B) Withhold 24 hours before and after surgery C) Withhold 48 hours before and after surgery D) Withhold the day of surgery and restart it the next morning E) Continue the drug on his regular schedule when he has surgery	take them for angina, symptomatic arrhythmias, hypertension, or other ACC/AHA Class I indications.
08-019. +Car+Adm. A 60-year-old African-American female has a history of hypertension that has been well controlled with hydrochlorothiazide. However, she has developed an allergy to the medication. Successful monotherapy for her hypertension would be most likely with which one of the following? A) Lisinopril (Prinivil, Zestril) B) Hydralazine (Apresoline) C) Clonidine (Catapres) D) Atenolol (Tenormin) E) Diltiazem (Cardizem)	Hypertension**. 08-019.** Monotherapy for hypertension in African-American patients is more likely to consist of diuretics or calcium channel blockers than B-blockers or ACE inhibitors. It has been suggested that hypertension in African-Americans is not as angiotensin II–dependent as it appears to be in Caucasians. **ANS=E.**
08-090. +Car+Cel. A 68-year-old female has an average blood pressure of 150/70 mm Hg despite appropriate lifestyle modification efforts. Her only other medical problems are osteoporosis and mild depression. The most appropriate treatment at this time would be A) lisinopril (Prinivil, Zestril) B) clonidine (Catapres) C) propranolol (Inderal) D) amlodipine (Norvasc) E) hydrochlorothiazide	Hypertension. **08-090. Elderly. ANS=E.** Randomized, placebo-controlled trials have shown that isolated systolic hypertension in the elderly responds best to diuretics, and to a lesser extent B-blockers. Diuretics are preferred, although long-acting dihydropyridine calcium channel blockers may also be used. In the case described, B-blockers or clonidine may worsen the depression. Thiazide diuretics may also improve osteoporosis, and would be the most cost-effective and useful agent in this instance. Clonidine: Stimulates alpha-2 adrenergic receptors (centrally-acting antihypertensive); epidural clonidine prevents pain signal transmission to the brain, producing analgesia at spinal presynaptic and postjunctional alpha-2 adrenergic receptors.
08-128. +Car+Euc. A 79-year-old male presents with left-sided hemiparesis. His previous medical history is significant for long-standing hypertension and type 2 diabetes mellitus. On examination his blood pressure is 220/130 mm Hg and his pulse rate is 96 beats/min. CT of the head shows no acute bleeding. An EKG shows left ventricular hypertrophy with diffuse nonspecific changes. Which one of the following would be most appropriate with regard to his blood pressure at this time? A) Watchful waiting B) Reduction of systolic blood pressure (SBP) to 190 mm Hg C) Reduction of SBP to 170 mm Hg D) Reduction of SBP to 150 mm Hg E) Reduction of SBP to 130 mm Hg	Hypertension**. 08-128. Hypertensive urgency. ANS=B.** Cautious reduction of systolic blood pressure by 10%–15% while monitoring neurologic status seems to be the safest treatment goal in the setting of acute ischemic stroke when the systolic blood pressure is >220 mmHg or the diastolic blood pressure is 120–140 mm Hg. According to JNC-7, more aggressive blood pressure reduction may increase cerebrovascular complications. Note: Hypertensive urgency is defined as severe hypertension without symptoms. Severe hypertension is defined as systolic blood pressure 180 mmHg and/or diastolic blood pressure 120 mmHg.When hypertension of this degree is asymptomatic with no acute signs of end-organ damage it is designated hypertensive urgency.
08-214. +Car+Cc. Which one of the following is the most common cause of hypertension in children under 6 years of age? A) Essential hypertension B) Pheochromocytoma C) Renal parenchymal disease D) Hyperthyroidism E) Excessive caffeine use	**Hypertension. 08-214. In children < 10 y/o. ANS=C. Although essential hypertension is most common in adolescents and adults, it is rarely found in children less than 10 years old** and should be a diagnosis of exclusion. The most common cause of hypertension is renal parenchymal disease, and a urinalysis, urine culture, and renal ultrasonography should be ordered for all children presenting with hypertension. Other secondary causes, such as pheochromocytoma, hyperthyroidism, and excessive caffeine use, are less common, and further testing and/or investigation should be ordered as clinically indicated.
09-048. +Car+Adm. A 59-year-old white female has a blood pressure consistently at or above 140/90 mm Hg. Her only other significant medical problem is diabetes mellitus, which is controlled by diet. Which one of the following is the most clearly established advantage of angiotensin receptor blockers (ARBs) when compared with ACE inhibitors in patients such as this? A) Reduced risk of persistent cough B) Reduced risk of headache C) Reduced risk of heart failure D) Improved control of blood pressure E) Improved lipid profile	Hypertension. **09-048.** ACE inhibitors and ARBs. Ans=A. In multiple studies, **angiotensin receptor blockers (ARBs) have been shown to be less likely to cause a chronic cough when compared with ACE inhibitors**. Although this is not a life-threatening danger, it is a side effect that can be persistent and lead to discontinuation of medication. Angioedema, a more dangerous side effect, was thought to be ACE-inhibitor specific. However, it is rare and there is not yet good evidence that ARBs are safer. There have been case reports of angioedema associated with ARB use. The incidence of headache is similar for the two drug classes. ARBs have not been proven superior to ACE inhibitors in blood pressure control, effects on lipid profiles, or prevention of heart failure, and there is substantially more data on ACE inhibitors for the prevention of heart failure and proteinuria.
09-059. +Car+Adm. Which one of the following antihypertensive drugs is most likely to cause ankle edema? A) Hydrochlorothiazide B) Amlodopine (Norvasc) C) Lisinopril (Prinivil, Zestril) D) Losartan (Cozar) E) Atenolol (Tenormin)	Hypertension. **09-059.** Antihypertensive drugs, calcium channel blockers. **ANS=B.** The most common side effects of **calcium channel blockers, such as amlodipine, are due to vasodilation**. One result of this may be **peripheral edema, but it can also cause dizziness, nausea, hypotension, cough, and pulmonary edema.** These problems may decrease with time, with reductions in dosage, or with the addition of a diuretic or second calcium antagonist. Other classes of drugs are not associated with these problems.
10-063. +Car+Cel. An 82-year-old male presents to your office because his blood pressure has been "high" when taken by a friend on several occasions. His blood pressure in your office is 173/94 mm Hg, which is similar to the levels his friend recorded. The history and physical examination are otherwise unremarkable, and a CBC, metabolic panel, and urinalysis are normal. Which one of the following is most consistent with current evidence? A) This patient's mortality will not be affected by treatment of his hypertension	Hypertension. **10-063. S**ystolic and diastolic treatment. **ANS=C.** Studies have shown that the treatment of systolic and diastolic hypertension, especially with thiazide diuretics, with or without an ACE inhibitor, reduces stroke, heart failure, and death from all causes. Such treatment is effective in both sexes.

B) Treating this patient with an ARB for hypertension would be ineffective and dangerous C) Treatment with a thiazide diuretic will lower this patient's risk of death D) In this age group, treatment of hypertension in males does not reduce stroke and heart failure as it does in females	
10-153. +Car+Adm. A 59-year-old white male is being evaluated for hypertension. His blood pressure is 150/95 mm Hg. His medical history includes impotence, asthma, gout, first degree heart block, diet-controlled diabetes mellitus, and depression, but he is currently taking no medications. He has a past history of alcohol abuse, but quit drinking 10 years ago. Which one of the following would be the best choice for INITIAL therapy of his hypertension? A) Propranolol (Inderal) B) Verapamil (Calan, Isoptin) C) Clonidine (Catapres) D) Hydrochlorothiazide/triamterene (Dyazide) E) Enalapril (Vasotec)	Hypertension. **10-153. Medication. ANS=E.** Because of their favorable side-effect profile, ACE inhibitors (e.g., enalapril) may be the drugs of first choice for the majority of unselected hypertensive patients. ACE inhibitors are not associated with depression or sedation, and they are safe to use in patients with diabetes mellitus. Centrally-acting a-blockers can be associated with depression. Calcium-channel blockers, B-blockers, and other sympatholytic drugs affect cardiac conductivity. B-Blockers are contraindicated in patients with asthma, and are also associated with impotence. Thiazide diuretics raise uric acid and blood glucose levels.
10-178P. +Car+Adm.>L**?*** You see a 68-year-old mechanic for a routine evaluation. He has a 2-year history of hypertension. His weight is normal and he adheres to his medication regimen. His current medications are metoprolol (Lopressor), 100 mg twice daily; olmesartan (Benicar), 40 mg/day; and hydrochlorothiazide, 25 mg/day. His serum glucose levels have always been normal, but his lipid levels are elevated. A physical examination is unremarkable except for an enlarged prostate and a blood pressure of 150/94 mm Hg. Laboratory studies show a serum creatinine level of 1.6 mg/dL (N 0.6–1.5) and a serum potassium level of 4.9 mmol/L (N 3.5–5.0). The patient's record shows blood pressures ranging from 145/80 mm Hg to 148/96 mm Hg over the past year. Which one of the following would be most appropriate at this point? A) Continue his current management with no changes B) Substitute furosemide (Lasix) for hydrochlorothiazide C) Add clonidine (Catapres) D) Add spironolactone (Aldactone) E) Add hydralazine (Apresoline)	Hypertension**. 10-178. R**esistant or refractory. **ANS=B.** Resistant or refractory hypertension is defined as a blood pressure ≥140/90 mm Hg, or ≥130/80 mm Hg in patients with diabetes mellitus or renal disease (i.e., with a creatinine level >1.5 mg/dL or urinary protein excretion >300 mg over 24 hours), despite adherence to treatment with full doses of at least three antihypertensive medications, including a diuretic. JNC 7 **guidelines suggest adding a loop diuretic if serum creatinine is >1.5 mg/dL in patients with resistant hypertension.**
08-079. +End+Mac. A 26-year-old female presents with a 2-month history of amenorrhea, nausea, and fluttering in her chest. The fluttering feels similar to what she experienced 3 years ago when diagnosed with Graves' disease. At that time, she was successfully treated with medication, which she discontinued after 18 months. Current laboratory tests reveal a positive hCG, a TSH of 0.03 µU/mL (N 0.4–5.0), and a free T4 of 4.0 µg/dL (N 0.8–2.0). Which one of the following would be the most appropriate treatment in this situation? A) I ablation 131 B) Propylthiouracil C) Subtotal thyroidectomy D) Methimazole (Tapazole)	Hyperthyroidism. **08-079. ANS=B.** Overt hyperthyroidism causes an increase in neonatal morbidity from preterm birth and low birth weight. Propylthiouracil should be considered the treatment of choice because methimazole may be associated with congenital anomalies. I is contraindicated in pregnancy because of radiation dangers to the fetus, as well 131 as thyroid destruction. Although subtotal thyroidectomy is a viable treatment option, it is recommended only if medical therapy is unsuccessful.
08-210. +End+Adm. A 33-year-old white female presents with tremor and a history of weight loss. On examination she is found to have mild, regular tachycardia and exophthalmos. Laboratory tests confirm hyperthyroidism. Which one of the following treatments has been found to potentially worsen ophthalmopathy? A) Radioactive iodine B) Propylthiouracil C) Methimazole (Tapazole) D) Thyroid hormone replacement plus propylthiouracil E) Thyroidectomy	Hyperthyroidism**. 08-210. ANS: A. The ophthalmopathy of Graves' disease may initially flare and worsen when treated with radioactive iodine. Antithyroid drugs, including carbimazole, propylthiouracil, and methimazole, are not associated with this problem. The addition of thyroid hormone to these drugs at suppressive doses has not shown any clear benefit over titration of the antithyroid drug, and relapse rates are similar. Thyroid surgery in the controlled patient has not been significantly associated with this problem.**
09-076. +End+Cel. A 70-year-old white female comes to your office for an initial visit. She has taken levothyroxine (Synthroid), 0.3 mg/day, for the last 20 years. Although a recent screening TSH was fully suppressed at <0.1 :U/mL, she claims that she has felt "awful" when previous physicians have attempted to lower her levothyroxine dosage. You explain that a serious potential complication of her current thyroid medication is A) adrenal insufficiency B) carcinoma of the ovary C) carcinoma of the thyroid D) hip fracture E) renal failure	Hyperthyroidism. **09-076. P**hysiologic. **ANS=D.** Women older than 65 years of age who have low serum TSH levels, indicating physiologic hyperthyroidism, are at increased risk for new hip and vertebral fractures. Use of thyroid hormone itself does not increase the risk of fracture if TSH levels are normal.
09-088. +End+Adm. In a patient with symptoms of thyrotoxicosis and elevated free thyroxine (T4), the presence of thyroid TSH receptor site antibodies would indicate which one of the following as the cause of thyroid gland enlargement? A) Toxic multinodular goiter B) Toxic adenoma C) Hashimoto's (lymphadenoid) thyroiditis D) Subacute (giant cell) thyroiditis E) Graves' disease	Hyperthyroidism. **09-088.** Graves' disease. **ANS=E.** When there is a question about the etiology of goiter and thyrotoxicosis, the presence of thyroid TSH receptor immunoglobulins would indicate the presence of Graves' disease, which is considered an autoimmune disease. The prevalence of specific forms of TSH receptor site antibodies can distinguish Graves' disease from Hashimoto's disease. Both are autoimmune diseases, but in Graves' disease there is a predominance of TSH receptor antibodies. In Hashimoto's disease TSH receptor–blocking antibodies are more predominant. These immunoglobulins tend to disappear during therapy.
09-153. +End+Adm. Which one of the following is known to cause hyperthyroidism? A) Propranolol (Inderal) B) Amiodarone (Cordarone) C) Methimazole (Tapazole) D) Propylthiouracil E) Methotrexate (Rheumatrex, Trexall)	Hyperthyroidism**. 09-153. A**miodarone. **ANS=B. Amiodarone is 37% iodine and is the most common source of iodine excess in the United States.** Excessive iodine intake from dietary sources, radiographic contrast media, or amiodarone increases the production and release of thyroid hormone in iodine-deficient individuals and in older persons with multinodular goiter. Additionally, **like other medications such as interferon and interleukin-2, amiodarone can trigger thyroiditis in patients with normal thyroid glands.** These

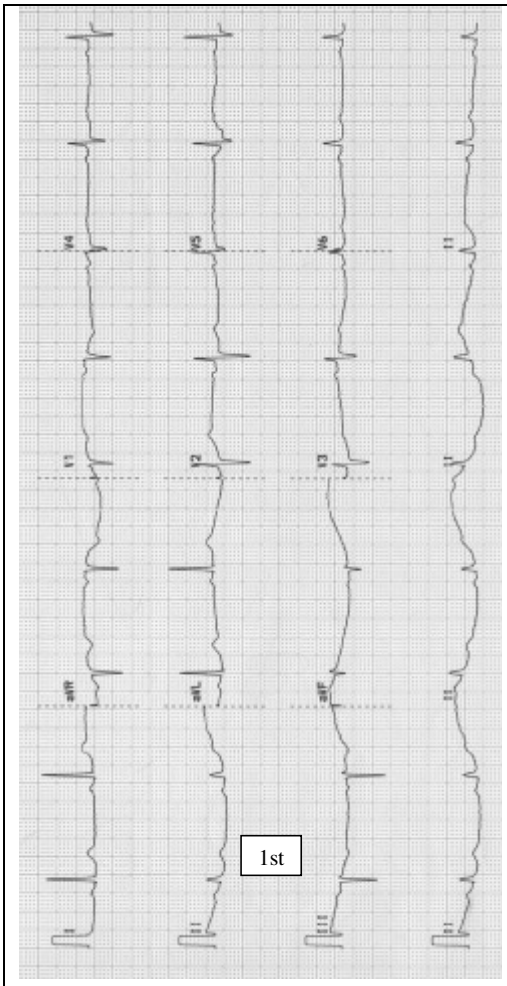
	characteristics combine to induce hyperthyroidism in slightly over 10% of patients treated with amiodarone. B-Blockers such as propranolol may be useful in controlling the symptoms of hyperthyroidism. Methimazole and propylthiouracil interfere with organification of iodine, thereby suppressing thyroid hormone production; they are commonly used as antithyroid agents when treating hyperthyroidism. Research is ongoing to determine if methotrexate plus prednisone is an effective treatment for the ophthalmopathy associated with Graves' hyperthyroidism.
07-169. +End+Adm. A 38-year-old male is admitted to the hospital because of weakness and is found to have severe hypokalemia. His urinary electrolytes show significant potassium wasting. This combination of findings suggests the patient also has a significant deficiency of A) aldosterone B) magnesium C) sodium D) hydrogen ions E) calcium	Hypomagnesemia**. 07-169. ANS=B.** Approximately half of hospitalized patients in whom serum electrolytes are ordered have unrecognized hypomagnesemia. Many of these patients have hypokalemia and/or hypocalcemia. **Hypomagnesemia also causes renal potassium wasting, which is refractory to potassium replacement until magnesium is replaced.**
08-175. +Neu+Adm. Osmotic demyelination can result when which one of the following is corrected too rapidly? A) Hypocalcemia B) Hypoglycemia C) Hypomagnesemia D) Hypokalemia E) Hyponatremia	Hyponatremia**. 08-175. ANS=E.** The adaptation that permits survival in chronic hyponatremia also makes the brain vulnerable to injury from overzealous therapy. When hyponatremia is corrected too rapidly, outpacing the brain's ability to recapture lost organic osmolytes, osmotic demyelination can result. Osmotic demyelination syndrome can usually be avoided by limiting correction of chronic hyponatremia to <10–12 mmol/L in 24 hours and to <18 mmol/L in 48 hours.
09-062. +Non+Euc. A 55-year-old male is brought to the emergency department because of confusion and seizures. He has a history of hypertension and obstructive sleep apnea due to obesity. He is not conscious and no other history is available. An examination shows no focal neurologic findings, but a general examination is limited because of his size. Breath sounds are diminished, and heart sounds are difficult to hear. He has venous insufficiency changes on his lower extremities, with brawny-type edema. Laboratory testing reveals a sodium level of 116 mmol/L (N 135–145), but normal renal and liver functions. A chest radiograph shows mild cardiomegaly. A BNP level is pending, but immediate treatment is felt to be indicated. Which one of the following is the treatment of choice for this patient? A) Valsartan (Diovan) B) Furosemide C) Vasopressin (Pitressin) D) Hypertonic saline E) Conivaptan (Vaprisol)	Hyponatremia. **09-062. ANS=D.** This patient has **severe hyponatremia** manifested by confusion and seizures, a life-threatening situation warranting **urgent treatment with hypertonic (3%) saline**. The serum sodium **level should be raised by only 1–2 mmol/L per hour**, to prevent serious neurologic complications. **Saline should be used only until the seizures stop**. Some authorities recommend **concomitant use of furosemide, especially in patients who are likely to be volume overloaded**, as this patient is, **but it should not be used alone**. The **arginine vasopressin antagonist conivaptan** is approved for the **treatment of euvolemic or hypervolemic hyponatremia, but not in patients who are obtunded or in a coma**, or who are having seizures.
07-163. +End+Euc. A 31-year-old male with type 1 diabetes mellitus is admitted to the hospital with diabetic ketoacidosis and pneumonia. After initial treatment in the emergency department with intravenous fluids and insulin, laboratory tests reveal a serum phosphate level of 2.1 mg/dL (N 2.5–5.0). He is asymptomatic except for related pneumonia symptoms. Which one of the following would be appropriate management of this patient's low serum phosphate level? A) No therapy B) Oral phosphate replacement, 2.5–3.5 g/day in divided doses C) Oral phosphate replacement, 2.5–3.5 g/day in divided doses, and oral vitamin D supplementation, 400–800 IU/day D) Intravenous phosphate replacement, 0.08–0.16 mmol/kg over 6 hours	Hypophosphatemia. **07-163. ANS=A.** **Symptomatic hypophosphatemia rarely occurs unless serum phosphate levels are below 2.0 mg/dL.** **Serious symptoms, including rhabdomyolysis, do not occur until serum phosphate concentrations fall below 1.0 mg/dL**. Thus, treatment of hypophosphatemia with phosphate levels □2.0 mg/dL is targeted at an underlying etiology. **Hypophosphatemia in diabetic ketoacidosis cases is related to the internal redistribution of phosphate from extracellular fluid during treatment, and will resolve when normal dietary intake resumes.** Phosphate supplementation in this setting has not been shown to be beneficial. **Intravenous administration of phosphate can be dangerous, resulting in the precipitation of calcium and producing the adverse effects of hypocalcemia, renal failure, and possibly fatal arrhythmias.**
08-186. +Car+Adm. A 65-year-old female develops gram-negative septicemia from a urinary tract infection. Despite the use of fluid resuscitation she remains hypotensive, with a mean arterial pressure of 50 mmHg. Which one of the following would be the most appropriate treatment for this patient? A) Vasopressin (Pitressin) B) Phenylephrine (Neo-Synephrine) C) Epinephrine D) Norepinephrine (Levophed) E) Low-dose dopamine	Hypotension. **08-186.** Septicemia. **ANS=D.** In a patient with sepsis, vasopressors are indicated when fluid resuscitation does not restore organ perfusion and blood pressure. Norepinephrine and dopamine currently are the preferred pressor agents; however, norepinephrine appears to be more effective and has a lower mortality rate. Phenylephrine, epinephrine, or vasopressin should not be used as first-line therapy. Vasopressin is employed after high-dose conventional vasopressors have failed. The use of low-dose dopamine is no longer recommended based on a clinical trial showing no benefit in critically ill patients at risk for renal failure. If an agent is needed to increase cardiac output, dobutamine is the agent of choice.
07-201. +End+Mac. A 32-year-old Asian female presents to your office for a 6-month follow up for hypothyroidism. She informs you that she is about 8 weeks pregnant. She currently takes levothyroxine (Synthroid), 100 ug daily. Which one of the following changes should be made to her medication regimen? A) Concurrent ferrous sulfate should be added to increase the level of levothyroxine B) The dosage of levothyroxine should be increased C) The dosage of levothyroxine should be decreased D) Levothyroxine should be discontinued until after delivery	Hypothyroidism. **07-201.** Maternal. **ANS=B.** **Women with hypothyroidism who become pregnant usually require an increase of up to 40% in their thyroid maintenance dose**. This adjustment must be made early in pregnancy because normal fetal brain development in the first 12 weeks of gestation depends upon maternal thyroxine as its source of thyroid hormone. There is strong circumstantial evidence that a deficiency of maternal T4 in the first trimester is associated with lower IQs in the offspring. Concurrent iron supplementation will interfere with T4 absorption and should be given at separate times.
08-015. +End+Adm. A 54-year-old female takes levothyroxine (Synthroid), 0.125 mg/day, for central hypothyroidism secondary to a pituitary adenoma. The nurse practitioner in your office orders a TSH level, which is found to be 0.1 mIU/mL (N 0.5–5.0). Which one of the following would you recommend? A) Decrease the dosage of levothyroxine B) Increase the dosage of levothyroxine C) Order a free T4 level D) Order a TRH stimulation test E) Repeat the TSH level in 3 months	Hypothyroidism. **08-015.** Pituitary disease. Although uncommon, **pituitary disease can cause secondary hypothyroidism**. **ANS=C**. The **characteristic laboratory findings are a low serum free T4 and a low TSH**. A free T4 level is needed to evaluate the proper dosage of replacement therapy in secondary hypothyroidism. The TSH level is not useful for determining the adequacy of thyroid replacement in this case, and the low level would prevent the physician from determining whether the dosage of levothyroxine is appropriate. In the initial evaluation of secondary hypothyroidism, a TRH stimulation test would be useful if TSH failed to rise in response to stimulation. It is not necessary in this case, since the diagnosis has already been made.
08-098. +End+Adm. An asymptomatic 55-year-old male visits a health fair, where he has a panel of blood tests done. He brings the results to you because he is concerned about the TSH level of 12.0 _U/mL (N 4 0.45–4.5). His free T level	Hypothyroidism. **08-098.** Thyroid disease. **08-098. S**ubclinical. **ANS=D.** With subclinical thyroid dysfunction, TSH is either below or above the normal range, free T3 or T4 levels are normal, and the patient has no symptoms of thyroid

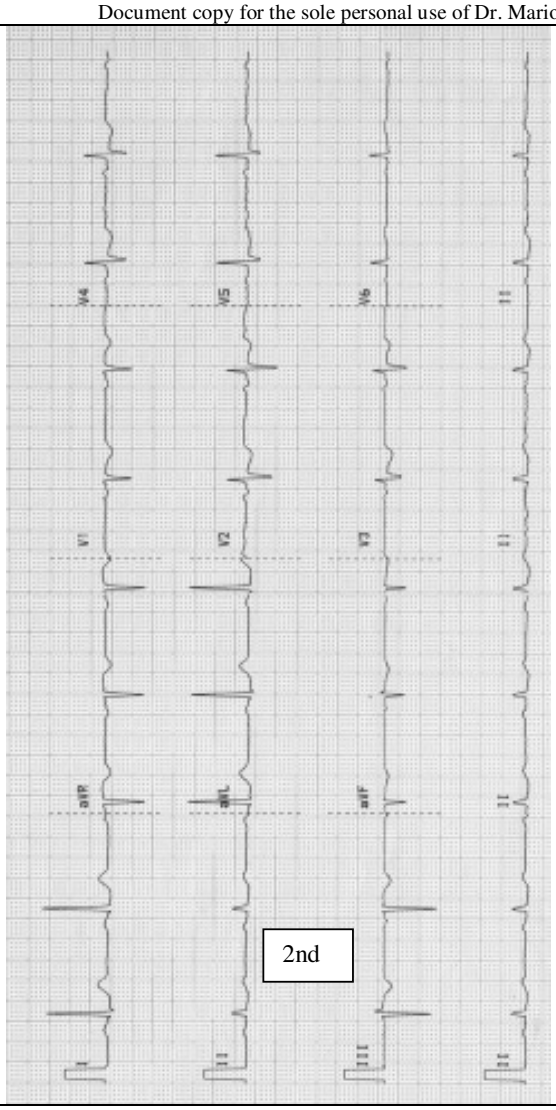
is normal. Which one of the following is most likely to be associated with this finding? A) Atrial fibrillation B) Reduced bone density C) Systolic heart failure D) Elevated LDL cholesterol E) Type 2 diabetes mellitus	disease. Subclinical hypothyroidism (TSH >10 _U/mL) is likely to progress to overt hypothyroidism, and is associated with increased LDL cholesterol. Subclinical hyperthyroidism (TSH <0.1 _U/mL) is associated with the development of atrial fibrillation, decreased bone density, and cardiac dysfunction. Neither type of subclinical thyroid dysfunction is associated with diabetes mellitus. There is insufficient evidence of benefit to warrant early treatment of either condition.
10-097. +End+Mac. A 29-year-old gravida 2 para 1 presents for pregnancy confirmation. Her last menstrual period began 6 weeks ago. Her medical history is significant for hypothyroidism, which has been well-controlled on levothyroxine (Synthroid), 150 ug daily, for the past 2 years. Which one of the following would be the most appropriate next step in the treatment of this patient's hypothyroidism during her pregnancy? A) Add liothyronine (Cytomel) to her current regimen B) Decrease the levothyroxine dosage C) Increase the levothyroxine dosage D) Continue her current regimen	Hypothyroidism. **10-097.** Maternal. **ANS=C.** Maternal hypothyroidism can have serious effects on the fetus, so thyroid dysfunction should be treated during pregnancy. Because of hormonal and metabolic changes in early pregnancy, the levothyroxine dosage often needs to be increased at 4–6 weeks gestation, and the patient eventually may require a 30%–50% increase in dosage in order to maintain her euthyroid status.
08-031. +Gas+Adm. Which one of the following is associated with ulcerative colitis rather than Crohn's disease? A) The absence of rectal involvement B) Transmural involvement of the colon C) Segmental noncontinuous distribution of inflammation D) Fistula formation E) An increased risk of carcinoma of the colon	IBD. **08-031.** Ulcerative colitis (UC). **ANS=E.** Long-standing ulcerative colitis (UC) is associated with an increased risk of colon cancer. The greater the duration and anatomic extent of involvement, the greater the risk. Initial colonoscopy for patients with pancolitis of 8–10 years' duration (regardless of the patient's age) should be followed up with surveillance examinations every 1–2 years, even if the disease is in remission. All of the other options listed are features typically associated with Crohn's disease. Virtually all patients with UC have rectal involvement, even if that is the only area affected. In Crohn's disease, rectal involvement is variable. Noncontinuous and transmural inflammation are also more common with Crohn's disease. Transmural inflammation can lead to eventual fistula formation, which is not seen in UC.
10-172. +Gas+Cca.* Over the last 6 months a developmentally normal 12-year-old white female has experienced intermittent abdominal pain, which has made her quite irritable. She also complains of joint pain and general malaise. She has lost 5 kg (11 lb) and has developed an anal fissure. Which one of the following is the most likely cause of these symptoms? A) Celiac disease (gluten enteropathy) B) Irritable bowel syndrome C) Hepatitis A D) Crohn's disease E) Giardiasis	IBD. **10-172.** Crohn's disease. **ANS=D.** The most common age of onset for inflammatory bowel disease is during adolescence and young adulthood, with a second peak at 50–80 years of age. The manifestations of Crohn's disease are somewhat dependent on the site of involvement, but systemic signs and symptoms are more common than with ulcerative colitis. Perianal disease is also common in Crohn's disease. Irritable colon and other functional bowel disorders may mimic symptoms of Crohn's disease, but objective findings of weight loss and anal lesions are extremely uncommon. This is also true for viral hepatitis and giardiasis. In addition, the historical and epidemiologic findings in this case are not consistent with either of these infections. Celiac disease and giardiasis can produce Crohn's-like symptoms of diarrhea and weight loss, but are not associated with anal fissures.
07-134. +Int+Adm. Which one of the following is a known risk factor for necrotizing soft-tissue infections? A) Age <25 years B) Direct inguinal hernia C) Hyperalbuminemia D) Diabetes mellitus	Infection. **07-134.** Necrotizing soft-tissue **ANS=D.** Known risk factors for necrotizing soft-tissue infections include age >50 years, atherosclerosis, burns, cancer or other immunocompromised states, chronic alcoholism, corticosteroid use, diabetes mellitus, hypoalbuminemia, intravenous drug abuse, malnutrition, obesity, occult diverticulitis, peripheral vascular disease, postoperative infection, strangulated femoral hernia with content extravasation, and trauma.
09-054. +Int+Cca. A 2-year-old female is brought to the emergency department with a 2-day history of fever and increasing redness on the left forearm. She is otherwise healthy. On examination her temperature is 39.9°C (103.8°F), pulse rate 140 beats/min, and respiratory rate 42/min. She is irritable, and the left forearm has a 4-cm erythematous, warm, tender area, with a fluctuant area centrally. Her WBC count is 21,000/mm (N 4300–1 3 0,800), with 14% immature bands. In addition to incision and drainage, which one of the following is the best initial treatment in this patient? A) Intravenous vancomycin B) Intravenous ampicillin/sulbactam (Unasyn) C) Intravenous nafcillin D) Intravenous clindamycin (Cleocin) E) No antibiotics	Infection. **09-054. S**evere. **ANS=A.** This patient has systemic symptoms that suggest a severe underlying infection. Community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) should be considered the cause of this type of infection until definitive cultures are obtained. CA-MRSA can cause aggressive infections in children, especially in the skin and soft tissue. Incision and drainage of the abscess is necessary for treatment. **In a severe infection, vancomycin should be started initially until culture and sensitivities are available (SOR B).**
09-115. +Pbc+Com. You are a member of a committee at your local hospital that has been asked to develop measures to reduce the incidence of postoperative methicillin-resistant *Staphylococcus aureus* (MRSA) infections. Which one of the following would be most effective for preventing these infections? A) Give preoperative antibiotics to all surgical patients to eradicate bacteria B) Screen all admitted patients for MRSA and use antibiotics pre- and postoperatively in positive cases C) Culture the nares of all hospital employees upon hiring and on a routine basis thereafter D) Institute an intensive program of good hand washing for all employees	Infection. **09-115.** prevention. **ANS=D.** Nosocomial infections are a significant factor in morbidity and cost in the health care field. Methicillinresistant *Staphylococcus aureus* (MRSA) has rapidly increased in frequency, first being found only at tertiary centers, then local hospitals, and now in the outpatient setting. In 2004, an estimated 1.5% of U.S. residents carried MRSA in the anterior nares of the nose. Of those who are found to be colonized, either at the time of hospitalization or later by a routine culture, 25% will develop a MRSA infection. However, a recent study showed that of 93 patients who became infected with the organism, 57% were not colonized at the time of infection. The study also attempted to screen all patients for MRSA on admission, but found that even though 337 previously unknown carriers were found (in addition to those already known to harbor the organism), there was not a significant decrease in the rate of MRSA infections during the study. Although MRSA infections can be serious, they comprise only 8% of nosocomial infections in the hospital, and concentrating prevention efforts only on MRSA has little effect on that 8%, and no effect on the 92% of infections caused by other organisms. Iatrogenic complications arise from trying to treat MRSA carriers, including both drug reactions and the development of other resistant organisms. Costs related to attempts at prophylaxis also go up. Culturing all hospital employees has not been proven to be of value, as employees

	can pick up the organism after screening, and also can spontaneously eradicate the organism without treatment. The best way to prevent complications and postoperative infections is to aggressively advocate universal and frequent hand washing and room cleaning, and use good isolation techniques and methods of preventing infection, such as strict catheter and intravenous tubing protocols.
09-147. +Pbc+Com. The most common identifiable cause of skin and soft-tissue infections presenting to metropolitan emergency departments is A) *Staphylococcus epidermidis* B) *Streptococcus pneumoniae* C) *Pseudomonas aeruginosa* D) methicillin-resistant *Staphylococcus aureus* (MRSA) E) *Bacillus cereus*	Infection. **09-147. S**kin and soft-tissue. **ANS=D.** Recent clinical experience has shown that methicillin-resistant *Staphylococcus aureus* (MRSA) is the most common identifiable cause of skin and soft-tissue infections among patients presenting to emergency departments in 11 U.S. cities. The other responses should be considered in evaluating these infections, but they are not as common as MRSA infections.
07-038. +Res+Com. Three members of the same family present with a high fever and cough that began abruptly yesterday. All three report having fevers over 40° C (104° F), painful coughs, moderate sore throats, and prostration. They have loss of appetite, but no vomiting or diarrhea. Two other family members have similar symptoms. On examination the patients appear ill and flushed. There is no cervical adenopathy, no visible pharyngeal inflammation, and no significant findings on examination of the chest. Which one of the following is the most likely diagnosis? A) *Mycoplasma* pneumonia B) Influenza-like illness C) Bacterial bronchitis D) Upper respiratory infection E) Legionnaires' disease	Influenza. **07-038.** Influenza has a **very abrupt onset, and a fever with a nonproductive cough is almost always present**. **ANS=B.** Unconfirmed cases are referred to as "influenza-like illness" (ILI) or "suspected influenza." Patients with confirmed cases tend to say they have never been so ill. *Mycoplasma* pneumonia can spread among family members, but it is milder and has a more indolent onset and a longer incubation period. Bacterial bronchitis is an overdiagnosed, supposed complication of upper respiratory infections, and is not contagious. While the phrase "cold and flu" is often used, upper respiratory infections are not so febrile or prostrating, and coryza is the dominant syndrome sooner or later. *Legionella* can have point-source epidemics, but the incubation period is longer, symptoms vary from mild illness to life-threatening pneumonia, and diarrhea is prominent in many cases.
07-058. +Res+Com+Cca. Which one of the following has activity against influenza A only? A) Influenza vaccine B) Rimantadine (Flumadine) C) Zanamivir (Relenza) D) Oseltamivir (Tamiflu)	Influenza. **07-058. ANS=B.** The specific virus strains contained in influenza vaccine are determined annually by the FDA; current vaccines include two influenza A subtypes, H1N1 and H3N2, and influenza B. **Rimantadine is used for the prevention or treatment of influenza A; it is approved for prophylaxis in those ≥1 year of age, and for treatment in those ≥18 years of age**. **Zanamivir is used for the treatment of influenza type A and B in those ≥7 years of age**. **Oseltamivir is used for the treatment of influenza types A and B in those ≥18 years of age** (no longer valid) ***(UpToDate: as of December 09, the FDA has temporarily approved the use of oseltamivir even in children < 1 y/o).***
07-119. +Res+Com. Influenza A has been isolated in your community. Yesterday, a nurse in the medical-surgical unit developed significant symptoms of influenza. She did not receive the annual influenza immunization, and she asks for your advice. Which one of the following would be most appropriate at this time? A) Amantadine (Symmetrel) B) Atorvastatin (Lipitor) C) Rimantadine (Flumadine) D) Oseltamivir (Tamiflu) E) Acyclovir (Zovirax)	Influenza. **07-119. T**reatment. **ANS=D.** This health care worker should be treated with **oseltamivir** because it is **effective for those who have been symptomatic for less than 48 hours.** Amantadines have activity against influenza A but not influenza B, and recent studies show that 91% of isolates tested between 2004 and January 2006 are resistant to this class of drugs. Interestingly, **the idea has been raised to use statin drugs to calm the immune system's cytokine storm**, which results in respiratory failure from the influenza infection. Acyclovir is not indicated for this patient.
07-232. +Res+Com. The fact that avian influenza has affected only a small number of humans is most likely due to A) the rarity of human-to-human spread B) its lack of spread to animals other than birds C) its lack of spread to domesticated poultry D) its lack of spread to swine E) well-established human immunity to similar strains of influenza	Influenza. **07-232.** H5N1. Human-to-human transmission of the H5N1 avian influenza strain has, to date, been relatively rare and has occurred via means that have not been sustained. **ANS=A**. Domestic pets, poultry, and swine have been infected and are potential sources of infection. Humans have not developed immunity to this strain as a result of recent epidemics of similar strains.
08-035. +Res+Cca. A 6-year-old female presents with a 24-hour history of dry cough, malaise, and a temperature of 39.8°C (103.6°F). She received an influenza vaccination 7 days ago. A rapid influenza test is positive for influenza A. Which one of the following would be the best treatment option for this patient? A) Oseltamivir (Tamiflu) B) Amantadine (Symmetrel) C) Rimantadine (Flumadine) D) Zanamivir (Relenza)	Influenza. **08-035. Influenza A treatment, children under the age of 7; Recommendations. ANS=A.** Amantadine and rimantadine are not recommended for the treatment of influenza A because of the development of resistance to these drugs. **Resistance is not a problem with neuramidase inhibitors such as oseltamivir in immunocompetent patients**. **Zanamivir is not recommended for treatment of children under the age of 7**. Although this child has recently received influenza vaccine, this is not a contraindication to drug therapy.
08-174. +Pbc+Com. The intranasal live, attenuated influenza vaccine would be appropriate for which one of the following? A) A 5-year-old female who is otherwise healthy B) A 12-year-old male who has a history of severe persistent asthma C) A 21-year-old female who has a history of Guillain-Barré syndrome D) A 24-year-old female who is 24 weeks pregnant E) A 55-year-old healthy male who requests influenza vaccine	**Influenza. 08-174. vaccine, live. ANS=A. The live, attenuated influenza vaccine (LAIV) is an option for vaccinating healthy, nonpregnant individuals age 5–49 years.** The vaccine is administered intranasally. It is **not indicated in patients with** underlying medical conditions, such as **chronic pulmonary or cardiovascular disease, or in patients with a history of Guillain-Barré syndrome, pregnant patients, or children and adolescents who receive long-term aspirin or salicylate therapy**. **Patients with a history of hypersensitivity to eggs also should not receive this vaccine.**
09-209. +Res+Mac. At a routine visit in October, a 17-year-old primigravida at 10 weeks gestation asks whether she should get influenza vaccine. Her mother recommended it, but she is concerned about the needle stick and potential harm to the fetus. Which one of the following would you do? A) Recommend intramuscular vaccine and tell her that evidence indicates some protection for the baby up to 6 months of age B) Recommend nasal vaccine because the patient is under age 50 and needle-averse C) Recommend vaccine only if the patient has a coexistent chronic illness D) Recommend that vaccination be delayed until the second trimester to reduce fetal risk E) Recommend immunization of household contacts to reduce maternal risk, but no immunization of the patient	Influenza. **09-209.** vaccine; Recommendations. **ANS=A. Women who will be pregnant during the influenza season should receive the inactivated vaccine** (SOR C). **The live nasal vaccine is not approved for use in pregnancy. The vaccine can be given in any trimester**. Coexistent illness is not required for this indication. There appears to be some protective effect for the infant up to the age of 6 months. Immunization of family members is sometimes recommended for immunocompromised patients. In the absence of other indications, however, it has not been recommended for family members of pregnant patients.

10-152. +Res+Adm. A 24-year-old male presents with a fever of 38.9°C (102.0°F), generalized body aches, a sore throat, and a cough. His symptoms started 24 hours ago. He is otherwise healthy. You suspect novel influenza A H1N1 infection, as there have been numerous cases in your community recently. A rapid influenza diagnostic test is positive, and you recommend over-the-counter symptomatic treatment. You see him 2 days later after he is admitted to the hospital through the emergency department with dehydration and mild respiratory distress. A specimen is sent to the state laboratory for PCR testing. Which one of the following would be most appropriate at this point? A) Oseltamivir (Tamiflu) B) Zanamivir (Relenza) C) Amantadine (Symmetrel) D) Rimantadine (Flumadine) E) No antiviral treatment	Influenza. **10-152.** H1N1. **ANS=A.** The currently circulating novel influenza A H1N1 virus is almost always susceptible to neuraminidase inhibitors (oseltamivir and zanamivir) and resistant to the adamantanes (amantadine and rimantadine). Zanamivir should not be used in patients with COPD, asthma, or respiratory distress. Antiviral treatment of influenza is recommended for all persons with clinical deterioration requiring hospitalization, even if the illness started more than 48 hours before admission. Antiviral treatment should be started as soon as possible. Waiting for laboratory confirmation is not recommended.
08-069. +Psy+Mhe. A 37-year-old female presents with concerns about difficulty initiating and maintaining sleep for the past 3–4 months. She is irritable and feels fatigued and sleepy during the day. After further evaluation, she is diagnosed with chronic insomnia. She asks about alternatives to hypnotic drug treatments. Which one of the following management options is best supported by current evidence? A) Diphenhydramine (Benadryl) B) Cognitive behavior therapy C) St. John's wort D) 4 oz of red wine 30 minutes before bedtime E) Vigorous aerobic exercise 30–45 minutes before bedtime -**Cognitive behavioral therapy** (CBT) May be used in patients who prefer not to use medications or those unresponsive to hypnotics. Has been shown to effectively treat insomnia over the long term but requires patient commitment and practitioner training. CBT results in significant symptom improvement after 12 months, and may be of benefit in initial combination therapy of CBT and a hypnotic. In elderly patients, evidence is less strong.[C] Evidence.CBT incorporates elements of stimulus control, sleep restriction, and cognitive restructuring. Stimulus control involves a set of instructional procedures designed to curtail behaviors that are incompatible with sleep and to regulate the sleep-wake cycle. -Sleep hygiene and relaxation techniques. -Chronic insomnia with comorbid anxiety: Hypnotics have been shown to be efficacious when used in combination with anxiolytics in the treatment of insomnia comorbid with anxiety. Primary Options: eszopiclone : 2-3 mg orally once daily at bedtime when required and escitalopram : 10 mg orally once daily. -Chronic insomnia with comorbid depression: Hypnotics have been shown to be efficacious when used in combination with antidepressants in the treatment of insomnia comorbid with depression. Primary Options: zolpidem : 5-10 mg orally (immediate-release) once daily at bedtime when required; 6.25 to 12.5 mg orally (extended-release) once daily at bedtime when required and paroxetine : 10-20 mg orally once daily.	Insomnia**. 08-069. Chronic. 08-069. ANS=B.** Routine use of over-the-counter antihistamines should be discouraged because they are only minimally effective in inducing sleep, may reduce sleep quality, and can cause residual drowsiness. Cognitive-behavioral therapy helps change incorrect beliefs and attitudes about sleep (e.g., unrealistic expectations, misconceptions, amplifying consequences of sleeplessness). Techniques include reattribution training (goal setting and planning coping responses), decatastrophizing (balancing anxious automatic thoughts), reappraisal, and attention shifting. **Cognitive-behavioral therapy is recommended as an effective, nonpharmacologic treatment for chronic insomnia** (SOR A). Many herbs and dietary supplements have been promoted as sleep aids. However, with the exceptions of melatonin and valerian, there is insufficient evidence of benefit. Alcohol acts directly on GABA-gated channels, reducing sleep-onset latency, but it increases wakefulness after sleep onset and suppresses rapid eye movement (REM) sleep. It also has the potential for abuse and should not be used as a sleep aid. Moderate-intensity exercise can improve sleep, but exercising just before bedtime can delay sleep onset. Epocrates: chronic insomnia: without comorbid anxiety/depression: -**Hypnotics are one first-line option for insomnia.** These medications are considered safe and effective. Some hypnotics reduce latency to sleep onset and are appropriate for use with patients who have difficulty falling asleep. Other hypnotics reduce latency to sleep onset and reduce wakefulness after sleep onset, making them appropriate for use in patients with sleep maintenance problems. New-generation hypnotics may be used without limit on the term of use; long-term data indicate no evidence of tolerance over time. **Long-term data in adults indicate that treatment with zolpidem (12.5 mg 3 to 7 nights/week) is efficacious and safe, with sustained improvement in sleep onset and maintenance.** It has been shown to also improve work performance. Ramelteon reduced latency to persistent sleep in a 6-month double-blind, placebo-controlled trial. Consideration has been given to the use of intermittent dosing strategies for the long-term treatment of insomnia. Benzodiazepines are now rarely used in the treatment of insomnia. Primary Options: *zolpidem : 5-10 mg orally (immediate-release) once daily at bedtime when required; 6.25 to 12.5 mg orally (extended-release) once daily at bedtime when required. *zaleplon : 5-10 mg orally once daily at bedtime when required, maximum 20 mg/day. *eszopiclone : 2-3 mg orally once daily at bedtime when required. *ramelteon : 8 mg orally once daily at bedtime when required
10-054. +Psy+Mhe. A 64-year-old male presents with a 3-month history of difficulty sleeping. A history and physical examination, followed by appropriate ancillary testing, leads to a diagnosis of chronic primary insomnia. Which one of the following would be most appropriate for managing this patient's problem? A) An SSRI B) A small glass of wine 1 hour before bedtime C) Cognitive-behavioral therapy D) Watching television at bedtime, with the timer set to turn off in 60 minutes E) Reading in bed with a soft light	Insomnia. **10-054.** Chronic. **10-054. ANS=C.** Chronic insomnia is defined as difficulty with initiating or maintaining sleep, or experiencing nonrestorative sleep, for at least 1 month, leading to significant daytime impairment. Primary insomnia is not caused by another sleep disorder, underlying psychiatric or medical condition, or substance abuse disorder. Cognitive-behavioral therapy is effective for managing this problem, and should be used as the initial treatment for chronic insomnia. It has been shown to produce sustained improvement at both 12 and 24 months after treatment is begun. One effective therapy is stimulus control, in which patients are taught to eliminate distractions and associate the bedroom only with sleep and sex. Reading and television watching should occur in a room other than the bedroom.
08-131. +Mus+Cca. You see a 5-year-old white female with in-toeing due to excessive femoral anteversion. She is otherwise normal and healthy, and her mobility is unimpaired. Her parents are greatly concerned with the cosmetic appearance and possible future disability, and request that she be treated. You recommend which one of the following? A) Observation B) Medial shoe wedges C) Torque heels D) Sleeping in a Denis Browne splint for 6 months E) Derotational osteotomy of the femur	In-toeing. **08-131.** In-toeing due to excessive femoral anteversion**. ANS=A.** There is little evidence that femoral anteversion causes long-term functional problems. Studies have shown that shoe wedges, torque heels, and twister cable splints are not effective. Surgery should be reserved for children 8–10 years of age who still have cosmetically unacceptable, dysfunctional gaits. Major complications of surgery occur in approximately 15% of cases, and can include residual in-toeing, out-toeing, avascular necrosis of the femoral head, osteomyelitis, fracture, valgus deformity, and loss of position. Thus, observation alone is appropriate treatment for a 5-year-old with uncomplicated anteversion.
10-195. +Car+Adm.* A 59-year-old male who is morbidly obese suffers a cardiac	Intraosseous drug administration. **10-195. ANS=E.** The current American Heart

arrest. Intravenous access cannot be obtained. Which one of the following is true regarding intraosseous drug administration in this patient? A) The patient's age and size are a contraindication to intraosseous administration B) The time needed to establish intraosseous access is too great C) Many drugs cannot be administered intraosseously D) Endotracheal administration is preferred E) There are no contraindications to intraosseous administration in this patient	Association ACLS guidelines state that intraosseous access can be obtained in almost all age groups rapidly, and is preferred over the endotracheal route. Any drug that can be administered intravenously can be administered intraosseously. Many drugs administered via an endotracheal tube are poorly absorbed, and drug levels vary widely.
08-006. +Gas+Adm. A 26-year-old female presents with a 1-year history of recurring abdominal pain associated with intermittent diarrhea, 5–7 days per month. Her pain improves with defecation. There has been no blood in her stool and no weight loss. Laboratory findings are normal, including a CBC, chemistry profile, TSH level, and antibodies for celiac disease. Which one of the following would be most appropriate at this point? A) Colonoscopy B) An upper GI series with small-bowel follow-through C) Abdominal CT with contrast D) A gluten-free diet E) Loperamide (Imodium)	Irritable bowel syndrome. **08-006.** classic symptoms. This patient has classic symptoms of IBS and meets the **Rome criteria by having 3 days per month of abdominal pain for the past 3 months, a change in the frequency of stool, and improvement with defecation.** According to current clinical guidelines **IBS can be diagnosed by history, physical examination, and routine laboratory testing, as long as there are no warning signs. Warning signs include rectal bleeding, anemia, weight loss, fever, a family history of colon cancer, onset of symptoms after age 50, and a major change in symptoms.** Colonoscopy, CT, and GI contrast studies are not indicated. A gluten-free diet would not be indicated since the antibody tests for celiac disease are negative. Antidiarrheal agents such as loperamide are generally safe and effective in the management of diarrheal symptoms in IBS. **ANS=E.**
09-121. +Gas+Adm. A 42-year-old white female presents to your office as a new patient. She states that she has an 8-year history of abdominal cramps and diarrhea. Her symptoms have not responded to the usual treatments for irritable bowel syndrome. She has no rectal bleeding, anemia, weight loss, or fever, and no family history of colon cancer. Her medical history and a review of symptoms is otherwise negative, and a physical examination is normal. Which one of the following would be the most appropriate next step in evaluating this patient? A) A CBC B) A TSH level C) A complete metabolic panel D) Serologic testing for celiac sprue E) Stool testing for ova and parasites	Irritable bowel syndrome. **09-121. D**iarrhea-predominant. **ANS=D.** In patients who have symptoms of irritable bowel syndrome (IBS), the differential diagnosis includes celiac sprue, microscopic and collagenous colitis, atypical Crohn's disease for patients with diarrhea-predominant IBS, and chronic constipation (without pain) for those with constipation-predominant IBS. If there are no warning signs, laboratory testing is warranted only if indicated by the history.
10-084. +Gas+Adm.**?** Which one of the following is found most consistently in patients diagnosed with irritable bowel syndrome? A) Passage of blood per rectum B) Passage of mucus per rectum C) Abdominal pain D) Constipation E) Diarrhea	Irritable bowel syndrome. **10-084.** Abdominal pain. **ANS=C.** A large review of multiple studies identified **abdominal pain as the most consistent feature found in irritable bowel syndrome (IBS)**, and its absence makes the diagnosis less likely. Of the symptoms listed, passage of blood is least likely with IBS, and passage of mucus, constipation, and diarrhea are less consistent than abdominal pain (SOR A).
08-236. +Car+Adm. A middle-aged male comes to the emergency department after a single, brief episode of pressure-like chest pain on exertion that was relieved by rest. He is asymptomatic on arrival. His EKG is shown. While awaiting results of cardiac enzyme studies, he has a second episode of similar chest discomfort and a second EKG is performed (**Figure 6**). When considering both EKGs, which one of the following would be the most appropriate interpretation? A) Left ventricular hypertrophy and strain B) Early repolarization C) Old inferior myocardial infarction D) Acute anterior ischemia E) Uninterpretable due to artifact	Ischemic heart disease. **08-236. A**nterior. The second EKG includes ST depression and T-wave inversion in leads V2–V4, the classic picture of anterior ischemia. **ANS=D**. The patient did have a tight stenosis of his proximal left anterior descending artery. The first EKG, from just half an hour earlier, removes any doubt that these features are due to chronic conditions such as left ventricular hypertrophy with strain or early repolarization. Although there is considerable baseline artifact in the first EKG, it is still interpretable, especially with the additional information from the second EKG.





10-190. +Car+Adm.>L According to JNC 7, the risk of cardiovascular disease begins to increase when the systolic blood pressure exceeds a threshold of
A) 150 mm Hg
B) 140 mm Hg
C) 130 mm Hg
D) 125 mm Hg
E) 115 mm Hg

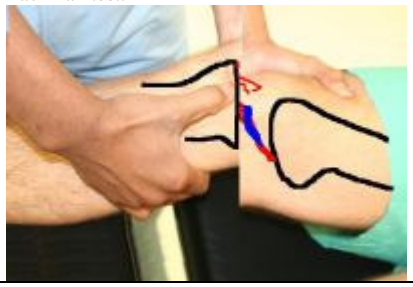
Ischemic heart disease. **10-190. ANS=E.** According to JNC 7, **the risk of both ischemic heart disease and stroke increases progressively when systolic blood pressure exceeds 115 mm Hg and diastolic blood pressure exceeds 75 mm Hg.**

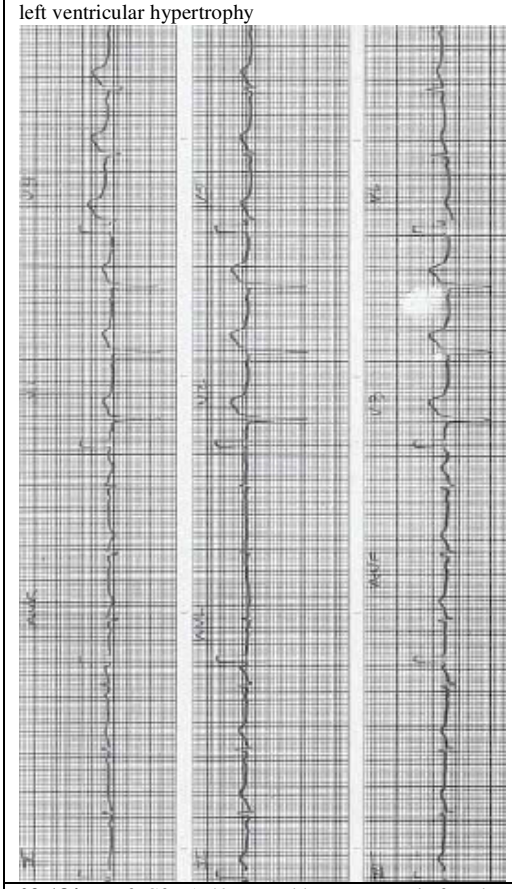
07-203. +Int+Cca. A 3-day-old white female is brought to your office for a weight check. She is breastfed and, based on a recommendation from one of the mother's friends, is receiving supplemental sugar water by bottle. The pregnancy was uneventful, with an uncomplicated labor and delivery at 38 weeks gestation. The mother's blood type is A, Rh-positive. The birth weight was 3000 g (6 lb 10 oz) and the current weight is also 3000 g. You note that the baby is jaundiced, but the examination is otherwise unremarkable. Her total bilirubin level is 16 mg/dL with an indirect (unconjugated) bilirubin level of 14.5 mg/dL. Further testing shows a hemoglobin level of 20 g/dL (N 14.5–22.5), a normal reticulocyte count for age, and a negative Coombs test.
Which one of the following is most likely causing the baby's jaundice?
A) Breastfeeding
B) Spherocytosis
C) Rh incompatibility
D) Biliary atresia
E) Neonatal sepsis

Jaundice. **07-203.** Breastfeeding is the most likely cause of this baby's jaundice. **ANS=A.** It usually appears within the first week of life, when breastfed infants have higher bilirubin levels than do formula-fed infants. Hyperbilirubinemia (>12 mg/dL) develops in 13% of breastfed infants and may be due to the dehydration or reduced caloric intake associated with reduced mild intake. Giving supplemental glucose water to breastfed infants is associated with higher bilirubin levels, in part because of reduced intake of breast milk, which has a higher caloric density. **Frequent breastfeeding (>10/24 hr), rooming-in with night feeding, and discouraging 5% dextrose or water supplementation may reduce the incidence of early breastfeeding jaundice**. With spherocytosis, the predominant bilirubin is indirect (unconjugated), but the hemoglobin is low and the reticulocyte count is increased, with spherocytes seen on the blood smear. Isoimmunization occurs with an Rh-negative mother and an Rh-positive child. There is a positive Coombs test with this condition. The predominant bilirubin in biliary atresia and neonatal sepsis is the direct (conjugated) type. In addition, it is unlikely that a baby with neonatal sepsis would be maintaining weight and have no abnormalities other than jaundice on physical examination.

08-148. +Int+Cca. A 36-hour-old male is noted to have jaundice extending to the abdomen. He is breastfeeding well, 10 times a day, and is voiding and passing meconium-stained stool. He was born by normal spontaneous vaginal delivery at 38 weeks gestation after an uncomplicated pregnancy. The mother's blood type is A positive with a negative antibody screen. The infant's total serum bilirubin is 13.0 mg/dL. Which one of the following would be the most appropriate management of this infant's jaundice?

Jaundice. **08-148.** Hyperbilirubinemia in the newborn. **ANS=B.** In 2004 the American Academy of Pediatrics published updated clinical practice guidelines on the management of hyperbilirubinemia in the newborn infant at 35 or more weeks gestation. These guidelines focus on frequent clinical assessment of jaundice, and treatment based on the total serum bilirubin level, the infant's age in hours, and risk factors. Phototherapy should not be started based solely on the total serum bilirubin level. The guidelines encourage breastfeeding 8–12 times daily in the

A) Continue breastfeeding and supplement with water or dextrose in water to prevent dehydration B) Continue breastfeeding, evaluate for risk factors, and initiate phototherapy if at risk C) Discontinue breastfeeding and supplement with formula until the jaundice resolves D) Discontinue breastfeeding and supplement with formula until total serum bilirubin levels begin to decrease	first few days of life to prevent dehydration. There is no evidence to support supplementation with water or dextrose in water in a nondehydrated breastfeeding infant. This infant is not dehydrated and is getting an adequate number of feedings, and there is no reason to discontinue breastfeeding at this time.
07-143. +Mus+Cel. A 70-year-old retired farmer presents with an angulated right knee and a painful hip. He asks you about the possibility of "getting a new knee," although he is not eager to do so. You would advise him that the major indication for knee replacement is A) severe joint pain at rest B) marked joint space narrowing seen on radiologic studies C) destruction and loss of motion of the contralateral joint D) an acutely infected joint	Joint replacement indication. **07-143. ANS=A.** The major indication for joint replacement is severe joint pain, usually pain at rest. Loss of joint function and radiographic evidence of severe destruction of the joint may also be considered in the decision. The appearance of the joint and the status of the contralateral joint may be minor considerations. Surgical insertion of a foreign body into an infected joint is contraindicated.
07-202. +Mus+Adm. A positive Lachman test indicates injury to the A) medial collateral ligament B) posterior cruciate ligament C) medial meniscus D) anterior cruciate ligament E) lateral collateral ligament	Knee injury. **07-202.** Anterior cruciate ligament**. Lachman test. ANS=D.** The Lachman test is performed with the knee flexed to 25°–30° while the examiner grasps the distal femur in one hand and the proximal tibia in the other. While the femur is held stationary, the tibia is pulled anteriorly, using a "shucking" action. If a distinct end point is reached, as if a piece of loose rope suddenly becomes taut, the test is negative or normal. A soft or indistinct end point, as if stretching an elastic band, is a positive or abnormal test that indicates a ruptured anterior cruciate ligament. In this case, **the anterior drawer test would also be positive, but it is not as specific as the Lachman test.** Injuries to the other structures listed are diagnosed using other maneuvers, and are not associated with a positive Lachman test. 
09-070. +Mus+Csp. A 16-year-old high-school football player plants his left foot to make a cut and feels his left leg give way. He feels a pop in the knee, followed by acute pain. He is evaluated on the field, and examination with the knee flexed 20° reveals that the tibia can be displaced farther anteriorly than with the uninvolved knee. Which one of the following conditions is most likely? A) Patellar tendon rupture B) Posterior cruciate ligament tear C) Anterior cruciate ligament tear D) Tibial plateau fracture E) Patellar dislocation	Knee injury. **09-070. Anterior cruciate ligament** (ACL) tears are the most common ligament injury requiring surgery. **ANS=C.** Females have a significantly higher rate of ACL tears, with the majority of tears in both men and women occurring without physical contact. In addition to the immediate problems, there is a significant increase in premature osteoarthritis of the knee. Approximately 50% of patients with this injury develop osteoarthritis in 10–20 years. Findings that help make the diagnosis of ACL tear include a noncontact mechanism of injury, an audible popping sound, early swelling of the joint, and the inability to participate in the game after the injury. Many patients can walk normally and can perform such straight-plane activities as climbing stairs, biking, or jogging. Physical examination using the Lachman test or pivot shift test can be used to further assess whether the ligament is torn. MRI can be used to confirm the diagnosis, although it is not needed if the diagnosis is clear from the history and examination. The other conditions listed are also sports-related knee injuries, but have different mechanisms of injury or physical findings. **Patients with patellar tendon rupture are unable to fully extend their knee and examination shows a palpable defect in the patellar ligament and a high-riding patella**. While the mechanism of injury in patients with **posterior cruciate ligament tears may be similar to that of ACL injury, the examination would show posterior rather than anterior displacement of the tibia when the knee is flexed at 90° (the posterior drawer sign)**. The mechanism of injury of tibial plateau fractures in a healthy young male generally involves a high energy collision causing a valgus force with axial loading. **Patients with patellar dislocations have symptoms similar to those of an ACL injury, including an audible crack or pop and the feeling of the knee giving way after a twisting motion. Immediately following the injury, however, examination would show an obvious deformity, but the patella may spontaneously relocate prior to the on-field exam.** There would be no instability on the Lachman maneuver.
10-006. +Mus+Csp**.** >L* Which one of the following is true concerning anterior cruciate ligament (ACL) tears? A) The incidence of ACL tears is higher in males than in females B) ACL tears are not associated with early-onset osteoarthritis C) The majority of ACL tears are caused by physical contact D) Strength training can prevent ACL tears	Knee injury. **10-006.** Anterior cruciate ligament. Three trials have shown that neuromuscular training with plyometrics and strengthening reduces anterior cruciate ligament (ACL) tears. Females have a higher rate of ACL tears than males. Early-onset osteoarthritis occurs in the affected knee in an estimated 50% of patients with ACL tears. The ACL typically pops audibly when it is torn, usually with no physical contact. **ANS=D.**
07-113. +Int+Cca. A 3-year-old female is seen for a well child examination. You note that her labia minora seem to adhere together except for about 4 mm at the upper aspect under the clitoris. The most appropriate action would be to A) make no attempt to separate the labia, but monitor for signs of urinary tract infection B) refer to a pediatric surgeon for separation C) have the child's mother apply gentle	Labial adhesion. **07-113.** Labial adhesion is a common clinical problem that is not simply cosmetic, as 20%–40% of females with this condition (generally <6 years of age) have urinary symptoms. **ANS=E.** The treatment of choice is topical estrogen cream applied each evening. It is effective within 1 week in most patients, but may take longer.

traction twice daily D) prescribe a lubricating jelly to be applied daily until the labia separate E) prescribe a topical estrogen cream to be applied daily until the labia separate	
08-199. +Non+Adm. A 45-year-old male was admitted to the hospital for nausea resulting from chemotherapy for colon cancer. He has no other chronic diseases and takes no routine medications. He was mildly dehydrated on admission and has been receiving intravenous fluids (D5 ½-normal saline with potassium chloride) at slightly higher than maintenance rates through an indwelling port for the last 24 hours. The nausea is being controlled by antiemetics, and his condition is improving. Results of routine blood work at the time of admission and from the following morning are shown below. *Admission Following Morning* Glucose 109 mg/dL (N 65–110) 371 mg/dL BUN 13 mg/dL (N 7–21) 9 mg/dL Creatinine 0.9 mg/dL (N 0.6–1.6) 0.9 mg/dL Sodium 143 mmol/L (N 136–144) 129 mmol/L Potassium 3.7 mmol/L (N 3.6–5.1) 6.6 mmol/L Chloride 110 mmol/L (N 101–111) 108 mmol/L Total CO2 20 mmol/L (N 22–32) 22 mmol/L Which one of the following would be the most appropriate next step? A) Start an intravenous insulin drip B) Order blood work taken from a peripheral vein C) Restrict the patient's free water intake D) Switch from normal saline to hypertonic saline E) Treat with diuretics	Labs, abnormal. **08-199. ANS=B.** Physicians should avoid reacting to laboratory values without considering the clinical scenario. This patient presented with mild dehydration and normal laboratory values. Although he is improving clinically, his laboratory values show multiple unexpected results. The most noticeable is the severely elevated glucose, because he has no history of diabetes mellitus or use of medications that could cause this effect. Similarly, the elevated potassium and decreased sodium suggest profound electrolyte abnormalities. Most likely, the laboratory technician drew blood from the patient's indwelling port without discarding the first several milliliters. Thus, the blood was contaminated with intravenous fluids, resulting in the erroneous results. A repeat blood test from a peripheral vein should give more accurate results.
08-239. +Car+Adm. A 60-year-old white male is noted to have a "rocking motion" of his precordium, associated with mild heart failure, about 3 months after an acute anterior myocardial infarction. He denies any current chest pain. His EKG is shown in **Figure 9**. The most likely diagnosis is A) pericarditis B) ruptured papillary muscle C) pulmonary embolus D) left ventricular aneurysm E) left ventricular hypertrophy 	Left ventricular (LV) aneurysm**. 08-239. ANS=D.** The clinical history and the examination suggest the possibility of a left ventricular (LV) aneurysm. The EKG demonstrates an anteroseptal infarction pattern with persistent ST-segment elevation. When ST elevation persists for 3 or more weeks following myocardial infarction an LV aneurysm should be considered. LV aneurysms often lead to symptoms of heart failure, severe angina, ventricular arrhythmias, and mural thrombosis. Thrombus formation sometimes results in systemic embolization. Two dimensional echocardiography, radionuclide ventriculography, and cardiac MRI are useful to confirm the diagnosis. Pericarditis is associated with ST elevation, but in a diffuse pattern with J-point elevation and a concave morphology of the ST segment. A ruptured papillary muscle would result in acute heart failure with a murmur of mitral regurgitation within the first few weeks following a myocardial infarction. No characteristic EKG abnormalities are found with this complication. Pulmonary embolism and left ventricular hypertrophy are sometimes associated with EKG abnormalities, but not ST elevation, and have a different clinical presentation.
09-184. +Ref+Cfp. A 42-year-old asymptomatic female presents for a routine evaluation. On examination her uterus is irregularly enlarged to the size seen at approximately 8 weeks gestation. Pelvic ultrasonography shows several uterine fibroid tumors measuring <5 cm. The patient does not desire future fertility. Which one of the following would be the most appropriate treatment option? A) Laparoscopic myomectomy B) Hysterectomy C) A gonadotropin-releasing hormone (GnRH) agonist D) An oral contraceptive	Leiomyomas**. 09-184. ANS=E.** Uterine fibroid tumors (leiomyomas) are the most common female reproductive tract tumors, with some evidence suggesting that the cumulative incidence in women ages 25–45 is approximately 30%. Symptoms related to fibroids can include menorrhagia, pelvic pain, obstructive symptoms, infertility, or pregnancy loss. However, many fibroids are asymptomatic and are discovered incidentally, with expectant management being the treatment of choice in this situation (SOR B). The risk of malignant leiomyosarcoma is exceedingly small (0.23% in one study) and there is a risk of side effects or complications from other treatment modalities. For women who are symptomatic, the data is

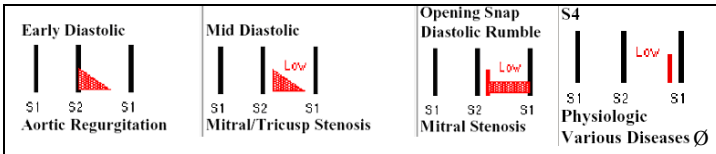
E) Observation	insufficient to allow conclusions to be made about the most appropriate therapy. Surgical options include myomectomy, hysterectomy, uterine artery embolization, and myolysis, but data to allow direct comparison is lacking. With the exception of trials of GnRH-agonist therapy as an adjunct to surgery, there is not enough randomized trial data to support the use of medical therapies (oral contraceptives, NSAIDs, progestins) in the treatment of women with symptomatic fibroids.
08-164. +Int+Csp. A 45-year-old white male consults you because of a painless, circular, 1-cm white spot inside his mouth, which he noticed 3 days ago. You are treating him with propranolol (Inderal) for hypertension, and you know him to be a heavy alcohol user. After a careful physical examination, your tentative diagnosis is leukoplakia of the buccal mucosa. You elect to observe the lesion for 2 weeks. On the patient's return, the lesion is still present and unchanged in appearance. The best course of management at this time is to A) reassure the patient and continue to observe B) discontinue propranolol C) treat with oral nystatin D) order a fluorescent antinuclear antibody test E) perform a biopsy of the lesion	Leukoplakia. **08-164.** Leukoplakia is a white keratotic lesion seen on mucous membranes. **ANS=E**. Irritation from various mechanical and chemical stimuli, including alcohol, favors development of the lesion. **Leukoplakia can occur in any area of the mouth and usually exhibits benign hyperkeratosis on biopsy**. On long-term follow-up, **2%–6% of these lesions will have undergone malignant transformation into squamous cell carcinoma**. Oral nystatin would not be appropriate treatment, as this lesion is not typical of oral candidiasis. Candidal lesions are usually multiple and spread quickly when left untreated. A fluorescent antinuclear antibody test is also not indicated, as **the oral lesions of lupus erythematosus are typically irregular, erosive, and necrotic**. An idiosyncratic reaction to propranolol is unlikely in this patient.
08-061. +Psy+Adm. A 49-year-old female who takes multiple medications has a chemistry profile as part of her routine monitoring. She is found to have an elevated calcium level. All other values on the profile are normal, and the patient is not currently symptomatic. Follow-up testing reveals a serum calcium level of 11.2 mg/dL (N 8.4–10.2) and an intact parathyroid hormone level of 80 pg/mL (N 10–65). Which one of the following should be discontinued for 3 months before repeat laboratory evaluation and treatment? A) Lithium B) Furosemide (Lasix) C) Raloxifene (Evista) D) Calcium carbonate E) Vitamin D	Lithium. **08-061. Lithium therapy can elevate calcium levels by elevating parathyroid hormone secretion from the thyroid gland**. **ANS=A. This duplicates the laboratory findings seen with mild primary hyperparathyroidism. If possible, lithium should be discontinued for 3 months before reevaluation** (SOR C). **This is most important for avoiding unnecessary parathyroid surgery.** Vitamin D and calcium supplementation could contribute to hypercalcemia in rare instances, but they would not cause elevation of parathyroid hormone. Raloxifene has actually been shown to mildly reduce elevated calcium levels, and furosemide is used with saline infusions to lower significantly elevated calcium levels.
07-236. +Gas+Adm. A 40-year-old white male has elevated transaminase levels at a routine visit, but your clinical evaluation shows no apparent cause. At a follow-up visit 6 months later they remain elevated. He remains asymptomatic and has a normal physical examination. You order further tests, including serologic blood analyses. Which one of the following imaging studies would be most appropriate? A) Abdominal ultrasonography with Doppler B) CT with contrast C) MRI of the abdomen D) Magnetic resonance angiography (MRA) of the abdomen E) Positron emission tomography (PET) of the abdomen	Liver disease**. 07-236. Ultrasonography with Doppler should be the first imaging study ordered in the evaluation of suspected liver disease.** It is widely available, relatively inexpensive, involves no radiation or contrast exposure, and provides helpful information regarding the appearance of the liver and blood flow in the portal and hepatic veins. **If hepatic nodules are found on ultrasonography, CT is indicated to help differentiate between benign and malignant lesions**. **MRI is best used as a follow-up study to determine whether lesions have changed in appearance or size**. **MRA can detect portal hypertension, portal flow volume and direction, and portal vein thrombosis. PET scans can detect the presence of liver metastases from certain cancers, but are not used as an initial test for evaluating liver disease. ANS=A.**
09-074. +Gas+Adm. An otherwise healthy 40-year-old male comes to your office for follow-up of elevated liver enzymes on an insurance examination. He is 173 cm (68 in) tall and weighs 113 kg (250 lb) (BMI 37.7 kg/m2). He says he drinks about two beers per week. Findings are normal on a physical examination, **except for a slightly enlarged liver. AST and ALT levels are twice the upper limits of normal.** Which one of the following would be the most appropriate next step? A) A liver biopsy B) Ultrasonography of the liver C) Colonoscopy D) Testing for viral hepatitis E) Repeat AST and ALT levels in 3 months	Liver disease**. 09-074.** Nonalcoholic fatty liver. **ANS=D. Nonalcoholic fatty liver disease is the most likely diagnosis** in this patient, **but hepatitis B and C should be ruled out.** The patient's alcohol consumption of less than two drinks per week makes alcoholic fatty liver disease unlikely. A liver biopsy would not be appropriate at this time. Liver ultrasonography should be considered after hepatitis B and C are ruled out. The patient is younger than the recommended screening age for colonoscopy.
08-206. +Res+Com. Of the following, which one causes the most deaths in the United States? A) Colorectal cancer B) Breast cancer C) Prostate cancer D) Lung cancer	Lung cancer. **08-206.** Lung cancer is the leading cause of cancer-related deaths in the United States. **ANS=D.** In 2006, lung cancer caused more deaths than colorectal, breast, and prostate cancers combined.
08-227. +Res+Com. The manager of a local chicken processing plant asks about arranging screening tests for his 100 employees. Several are smokers, and one individual was recently found to have lung cancer. He asks what the best and most cost-effective way to screen for this would be. Based on randomized, controlled trials and recommendations by the U.S. Preventive Services Task Force, you would advise A) annual chest radiographs B) annual sputum cytology C) both sputum cytology and chest radiographs annually D) annual spiral CT E) no screening for asymptomatic individuals	Lung cancer. **08-227. S**creening. The U.S. Preventive Services Task Force states that there is insufficient evidence to recommend either for or against screening for cancer of the lung. **ANS=E**. To date, screening has not been shown to decrease the number of deaths from lung cancer. Case control studies done in Japan suggest improved mortality with annual chest radiographs, and a large randomized, controlled trial is now under way. While screening CT in high-risk groups would identify a high percentage of stage 1 lung cancers, there is no data available at this time from randomized studies to show that this is worthwhile. Studies of this issue are also currently under way, however.
09-105. +Res+Adm. A 40-year-old male with a 20-pack-year history of smoking is concerned about lung cancer. He denies any constitutional symptoms, or breathing or weight changes. You encourage him to quit smoking and order which one of the following? A) No testing B) A chest radiograph C) Low-dose CT of the chest D) Sputum cytology	Lung cancer. **09-105. Risk.** This patient is at risk for lung cancer, even with no symptoms. He should be encouraged to stop smoking, especially if he has concerns that may help motivate him to quit. No study has demonstrated that screening with any of the tests listed improves survival, and no major organization endorses lung cancer screening. **ANS=A.**
10-175. +Hem+Adm. A 45-year-old female presents to your office because she has had a lump on her neck for the past 2 weeks. She has no recent or current respiratory symptoms, fever, weight loss, or other constitutional symptoms. She has a history of well-controlled hypertension, but is otherwise healthy. On	Lymph node enlarged. **10-175. C**ervical. **ANS=C.** There is limited evidence to guide clinicians in the management of an isolated, enlarged cervical lymph node, even though this is a common occurrence. Evaluation and management is guided by the presence or absence of inflammation, the duration and size of the node, and

examination you note a nontender, 2-cm, soft node in the anterior cervical chain. The remainder of the examination is unremarkable. Which one of the following would be most appropriate at this point? A) Immediate biopsy B) Treatment with antibiotics, then a biopsy if the problem does not resolve C) Monitoring clinically for 4–6 weeks, then a biopsy if the node persists or enlarges D) Serial ultrasonography to monitor for changes in the node	associated patient symptoms. In addition, the presence of risk factors for malignancy should be taken into account. Immediate biopsy is warranted if the patient does not have inflammatory symptoms and the lymph node is >3 cm, if the node is in the supraclavicular area, or if the patient has coexistent constitutional symptoms such as night sweats or weight loss. Immediate evaluation is also indicated if the patient has risk factors for malignancy. Treatment with antibiotics is warranted in patients who have inflammatory symptoms such as pain, erythema, fever, or a recent infection. In a patient with no risk factors for malignancy and no concerning symptoms, monitoring the node for 4–6 weeks is recommended. If the node continues to enlarge or persists after this time, then further evaluation is indicated. This may include a biopsy or imaging with CT or ultrasonography. The utility of serial ultrasound examinations to monitor lymph nodes has not been demonstrated.
08-121. +Psy+Mhe. A 36-year-old female has been seen multiple times in the past several months for various pain-related complaints. On each occasion, no physical or laboratory findings were found to explain the symptoms. The patient is involved in a worker's compensation case and could make a significant amount of money if it is demonstrated that her physical complaints are related to work conditions. Which one of the following diagnoses characterizes her unexplained physical symptoms? A) Somatization disorder B) Conversion disorder C) Hypochondriasis D) Malingering	Malingering**. 08-121. ANS=D.** This patient most likely is malingering, which is to purposefully feign physical symptoms for external gain. Factitious disorder involves adopting physical symptoms for unconscious internal gain, such as deriving comfort from taking on the role of being sick. Somatization disorder is related to numerous unexplained physical symptoms that last for several years and typically begin before 30 years of age. Conversion disorder involves a single voluntary motor or sensory dysfunction suggestive of a neurologic condition, but not conforming to any known anatomic pathways or physiologic mechanisms.
07-118. +Pbs+Com. Which one of the following statements is true regarding malpractice cases? A) The majority of patients who sustain medical injury do not sue the physician B) Family physicians are the most frequently sued physicians C) The majority of malpractice claims involve trivial injury D) Plaintiffs typically win cases brought to trial E) The time between injury and resolution of a case is typically 2 years	Malpractice cases**. 07-118. ANS=A.** The vast majority of medically injured patients do not sue. The usual time to resolution of malpractice cases is 5 years, although many take 6 years or more to resolve. Obstetrician-gynecologists are the most frequently sued doctors. Malpractice claims typically involve severe injuries or death. Plaintiffs win only one-fifth of cases brought to court.
07-155. +Non+Cca. You see a 16-year-old white female for a preparticipation evaluation for volleyball. She is 183 cm (72 in) tall, and her arm span is greater than her height. She wears contacts for myopia. Which one of the following should be performed at this time? A) An EKG B) Echocardiography C) A stress test D) A chest radiograph E) Coronary MRI angiography	Marfan's syndrome. **07-155.** Marfan's syndrome is an autosomal dominant disease manifested by skeletal, ophthalmologic, and cardiovascular abnormalities. **ANS=B**. Men taller than 72 in and women taller than 70 in who have two or more manifestations of Marfan's disease should be screened by echocardiography for associated cardiac abnormalities. Any of these athletes who have a family history of Marfan's syndrome should be screened, whether they have manifestations themselves or not. **If there is no family history, echocardiography should be performed if two or more of the following are present: cardiac murmurs or clicks, kyphoscoliosis, anterior thoracic deformity, arm span greater than height, upper to lower body ratio more than 1 standard deviation below the mean, myopia, or an ectopic lens.** Patients with Marfan's syndrome who have echocardiographic evidence of aortic abnormalities should be placed on B-blockers and monitored with echocardiography every 6 months.
08-094. +Gas+Cca. A previously healthy 3-year-old male is brought to your office with a 4-hour history of abdominal pain followed by vomiting. Just after arriving at your office he passes bloody stool. A physical examination reveals normal vital signs, and guarding and tenderness in the right lower quadrant. A rectal examination shows blood on the examining finger. Which one of the following is the most likely diagnosis? A) Appendicitis B) Viral gastroenteritis C) Midgut volvulus D) Meckel's diverticulum E) Necrotizing enterocolitis	Meckel's diverticulum. **08-094.** Meckel's diverticulum is the most common congenital abnormality of the small intestine. **ANS=D.** It is prone to bleeding because it may contain heterotopic gastric mucosa. Abdominal pain, distention, and vomiting may develop if obstruction has occurred, and the presentation may mimic appendicitis. Children with appendicitis have right lower quadrant pain, abdominal tenderness, guarding, and vomiting, but not rectal bleeding. With acute viral gastroenteritis, vomiting usually precedes diarrhea (usually without blood) by several hours, and abdominal pain is typically mild and nonfocal with no localized tenderness. The incidence of midgut volvulus peaks during the first month of life, but it can present anytime in childhood. Volvulus may present in one of three ways: as a sudden onset of bilious vomiting and abdominal pain in the neonate; as a history of "feeding problems" with bilious vomiting that now appears to be due to bowel obstruction; or, less commonly, as a failure to thrive with severe feeding intolerance. Necrotizing enterocolitis is typically seen in the neonatal intensive-care unit, occurring in premature infants in their first few weeks of life. The infants are ill, and signs and symptoms include lethargy, irritability, decreased oral intake, abdominal distention, and bloody stools. A plain abdominal film showing pneumatosis intestinalis, caused by gas in the intestinal wall, is diagnostic of this disease.
09-178. +Pbc+Com. Increasing patient copayments for prescription medications results in A) an increase in the number of prescriptions filled by low-income medical-assistance Recipients B) little demonstrable change in purchasing patterns C) increased hospitalizations for patients with chronic illnesses D) improved efficiency in the utilization of outpatient medical services	Medicaid. **09-178.** Copayments. **ANS=C.** Increasing prescription copayments results in a decrease in the number of prescriptions filled and worsening clinical outcomes for patients with heart failure, diabetes mellitus, hyperlipidemia, and schizophrenia. With each 10% increase in copayments, it is estimated that overall prescription spending decreases 2%–6%. The cited study found that up to 25% of Medicaid recipients, faced with a copayment, could not afford to fill at least one prescription in the previous year.
09-173. +Pbs+ Com .To be eligible for Medicare hospice benefits, a patient must A) be enrolled in Medicare Part D B) be referred to hospice by a physician C) be debilitated and moribund D) have a malignancy E) have an estimated life expectancy of less than 6 months	Medicare**. 09-173.** Hospice benefits. **ANS=E.** To be eligible for Medicare hospice benefits, a patient must be eligible for Medicare Part A (hospital insurance). Although most hospice referrals come from physicians, nurses, and social workers, a patient's family members can also make a hospice referral. The patient must sign a statement choosing hospice, and both the patient's physician and the hospice medical director must certify that the patient has a terminal illness with an

	estimated life expectancy of less than 6 months. There is no requirement that the patient be debilitated or moribund.
10-015. +Pbs+Com.* Medicare pays for which one of the following? A) Routine dental care B) Custodial nursing-home care C) Hearing aids D) Screening mammography	Medicare**. 10-015.** Medicare pays for some preventive measures, including pneumococcal vaccine, influenza vaccine, annual mammography, and a Papanicolaou test every 3 years. **ANS=D.** Medicare does not pay for custodial care, nursing-home care (except limited skilled nursing care), dentures, routine dental care, eyeglasses, hearing aids, routine physical checkups and related tests, or prescription drugs.
10-161. +Pbs+Com. Which one of the following is true regarding hospice? A) Hospice benefits end if the patient lives beyond the estimated 6-month life expectancy B) A do-not-resuscitate (DNR) order is required for a patient receiving Medicare hospice benefits C) Patients in hospice cannot receive chemotherapy, blood transfusions, or radiation treatments D) Patients must be referred to hospice by their physician E) Any terminal patient with a life expectancy <6 months is eligible	Medicare. **10-161. Hospice. ANS=E.** Any patient with a life expectancy of less than 6 months who chooses a palliative care approach is an appropriate candidate for hospice. There is no penalty if patients do not die within 6 months, as long as the disease is allowed to run its natural course. Medicare does not require a DNR order to enroll in hospice, but it does require that patients seek only palliative, not curative, treatment. Patients may receive chemotherapy, blood transfusions, or radiation if the goal of the treatment is to provide symptom relief. Patients can be referred to hospice by anyone, including nurses, social workers, family members, or friends.
10-173. +Pbs+Com.>L?* A 67-year-old female has started receiving home hospice care. Her attending physician can bill through which one of the following? A) Medicare Part A B) Medicare Part B C) Medicare Part C D) Medicare Part D E) The attending physician cannot bill Medicare	Medicare**. 10-173.** hospice at home. **ANS=B.** As long as the attending physician is not employed by hospice, Medicare Part B can be billed. Medicare Part A (hospital insurance) covers inpatient care in hospitals and skilled nursing facilities, hospice, and home health services, but not custodial or long-term care. Medicare Part B (medical insurance) covers outpatient physician services, including office visits and home health services. Medicare Part C (Medicare Advantage Plans) is offered by private companies, and combines Part A and Part B coverage. These plans always cover emergency and urgent care, and may offer extra coverage such as vision, hearing, dental, and/or health and wellness programs. Most plans also include Medicare Part D, which provides prescription drug coverage. Medicare Part D plans vary with regard to cost and drugs covered.
08-034. +Pbc+Cca. In a child, which one of the following is most likely to improve adherence to a chronic medication regimen? A) Adding a favorite flavor to bitter liquid medications B) More frequent dosing of daily medication C) Having only one person from the health-care team discuss the medication regimen with the patient and his parents D) Advising the parents to avoid giving rewards for following the regimen E) Putting the parents in complete control of the dosing schedule	Medication adherence. **08-034. I**n children. A number of useful strategies for promoting adherence to a chronic medical regimen can be employed in children. **ANS=A.** Adding flavors to unpleasant tasting medicines is helpful (SOR B). Chocolate flavoring is especially useful for masking the taste of bitter medications. Using medications that are given only once or twice a day is associated with compliance rates of greater than 70% (SOR B). Consistent advice given by multiple members of the health-care team reinforces the importance of following a medication regimen. Parental use of rewards for children who take their medicine properly helps improve adherence. Involving children in decisions concerning their care gives them a sense of control and improves adherence. Other strategies for improving adherence include patient handouts, keeping financial costs in mind when prescribing, advising patients to incorporate dosing into daily routines such as meals, keeping tally sheets, and using visual reminders such as notes on the refrigerator.
09-022. +Non+Cel. Which one of the following is most associated with falls in older adults? A) Diphenhydramine (Benadryl) B) Atorvastatin (Lipitor) C) Metformin (Glucophage) D) Memantine (Namenda) E) Theophylline (Theo-24)	Medication SE. Diphenhydramine. **09-022.** Certain classes of medications are frequently associated with falls in older adults. **ANS: A.** These classes include benzodiazepines, antidepressants, antipsychotics, antiepileptics, anticholinergics, sedative hypnotics, muscle relaxants, and cardiovascular medications. Diphenhydramine is one of the anticholinergic medications associated with falls in older adults. The other drugs listed are not in the higher-risk groups of medications.
10-192. +Mus+Euc.>L?* An anxious and agitated 18-year-old white male presents to your office with a 2-hour history of severe muscle spasms in the neck and back. He was seen 2 days ago in a local emergency department with symptoms of gastroenteritis, treated with intravenous fluids, and sent home with a prescription for prochlorperazine (Compazine) suppositories. The best therapy for this problem is intravenous administration of A) atropine B) diphenhydramine (Benadryl) C) haloperidol D) succinylcholine (Anectine) E) carbamazepine (Tegretol)	Medication SE. Diphenhydramine. **10-192. Dystonia; dopamine blocking agent. ANS=B.** While rarely life threatening, an acute dystonic reaction can be frightening and painful to the patient and confusing to the treating physician who may be unaware of what medications the patient is taking. **Dystonia can be caused by any agent that blocks dopamine, including prochlorperazine, metoclopramide, and typical neuroleptic agents such as haloperidol. The acute treatment of choice is diphenhydramine or benztropine.**
08-167. +Int+Csp. A 32-year-old farmer comes to your office because of an upper respiratory infection. While he is there he points out a lesion on his forearm that he first noted approximately 1 year ago. It is a 1-cm asymmetric nodule with an irregular border and variations in color from black to blue. The patient says that it itches and has been enlarging for the past 2 months. He says he is so busy that he is not sure when he can return to have it taken care of. In such cases the best approach would be to A) perform a punch biopsy and have the patient return if the biopsy indicates pathology B) perform a shave biopsy and recheck in 2 months for signs of recurrence C) use electrocautery to destroy the lesion and the surrounding tissue D) perform an elliptical excision as soon as possible E) freeze the site with liquid nitrogen	Melanoma. **08-167.** Suspected, excisional biopsy. **ANS=D.** Despite this individual's busy schedule, he has a potentially life-threatening problem that needs proper diagnosis and treatment. Though an excisional biopsy takes longer, it is the procedure of choice when melanoma is suspected. After removal and diagnosis, prompt referral is essential for further evaluation and therapy. A shave biopsy should never be done for suspected melanoma, as this is likely to transect the lesion and destroy evidence concerning its depth, thus making it difficult to assess the prognosis. A punch biopsy should be used only with discretion when the lesion is too large for complete excision, or if substantial disfigurement would occur. Since this may not actually retrieve cancerous tissue from an unsampled area of a large lesion that might be malignant, it would be safest to refer such patients. Neither cryotherapy nor electrocautery should be used for a suspected melanoma.
10-121. +Int+Csp.>L A patient presents with a pigmented skin lesion that could be a melanoma. Its largest dimension is 0.5 cm. What should be the first step in	Melanoma**. 10-121. ANS=B.** The diagnosis of melanoma should be made by simple excision with clear margins. A shave biopsy should be avoided because

management? A) A shave biopsy B) Excision with a 1-mm margin C) Wide excision with a 1-cm margin D) Wide excision with a 2-cm margin E) Excision with sentinel node dissection	determining the thickness of the lesion is critical for staging. Wide excision with or without node dissection is indicated for confirmed melanoma, depending on the findings from the initial excisional biopsy.
07-081. +Pbc+Com. A 14-year-old male presents to your office with a high fever that began suddenly. He has a diffuse petechial rash and some nuchal rigidity on examination. A lumbar puncture is performed, and gram-negative diplococci are found. You admit him to the hospital. Which one of the following would be most appropriate at this time? A) Immediate chemoprophylaxis for his entire school B) Immediate vaccination of all contacts C) Chemoprophylaxis for family members and very close contacts only D) Isolation of all family members for 1 week E) No preventive measures until culture results are available	Meningitis. **07-081.** Prophylaxis. Meningococcal disease remains a leading cause of sepsis and meningitis. **ANS=C**. Those in close contact with patients who have presumptive meningococcal disease are at heightened risk. While secondary cases have been reported, they are rare because of prompt chemoprophylaxis of household members and anyone directly exposed to the index patient's oral secretions. There is no need to isolate family members. The risk for secondary disease among closest contacts is highest during the first few days after the onset of illness in the index patient, mandating immediate chemoprophylaxis of those exposed. The delay in immunity post vaccination makes it necessary to use other preventive measures instead. **Uptodate:** Chemoprophylaxis should be administered to close contacts as early as possible after the primary case has been identified (ideally within 24 hours of identification of the index patient), but is of little value if administered more than two weeks after the index case. (See 'Antimicrobial chemoprophylaxis' above.) Regimens for antimicrobial prophylaxis have been defined by the Centers for Disease Control and Prevention, and include rifampin, ciprofloxacin, and ceftriaxone (table 1). (See 'Antimicrobial chemoprophylaxis' above.) Among patients with invasive meningococcal disease, systemic antimicrobial therapy with agents other than ceftriaxone or other third-generation cephalosporins does not reliably eradicate nasopharyngeal carriage of N. meningitidis. Thus, if other drugs have been used for treatment, the index patient should receive chemoprophylaxis for eradication of nasopharyngeal carriage before discharge from the hospital in order to prevent subsequent transmission to close contacts. (See 'Nasopharyngeal carriage' above.)
08-087. +Neu+Adm. One day after a nurse performs CPR on an emergency-department patient, she learns that the patient had meningococcal meningitis. Which one of the following is the most appropriate chemoprophylaxis for this condition? A) Penicillin G benzathine (Bicillin), 1.2 million units intramuscularly B) Rifampin (Rifadin), 600 mg every 12 hours for 2 days C) Oral prednisone, 40 mg daily for 5 days D) Quadrivalent meningococcal vaccine E) No prophylaxis	Meningitis. **08-087.** Prophylaxis. **ANS=B.** Health-care workers exposed to a patient with meningococcal meningitis are at increased risk of developing systemic disease and should receive chemoprophylaxis, especially if the contact is intimate. Secondary cases usually occur within 4 days of the initial case. Therefore, prophylactic treatment should begin as soon as possible. Rifampin has been shown to be 90% effective in eliminating meningococcus from the nasopharynx. Other appropriate chemoprophylactic agents include minocycline and ciprofloxacin. Even high doses of penicillin may not eradicate nasopharyngeal meningococci. Prednisone has no place in chemoprophylaxis. Meningococcal vaccine appears to have clinical efficacy, but it usually takes more than 5 days to become effective.
07-044. +End+Cfp. A 49-year-old female complains of disabling hot flashes. Her last menstrual period was 6 months ago. Which one of the following nonhormonal treatments has been shown to be helpful in alleviating menopausal hot flashes? A) Paroxetine (Paxil) B) Black cohosh C) Regular exercise D) Phytoestrogens E) Clonidine (Catapres)	Menopause. **07-044.** Hot flashes. **ANS=A.** The rate of self-reported improvement with placebo treatment of hot flash symptoms after menopause is significant; thus randomized, controlled trials are important when determining efficacy of treatment. There is no evidence that regular exercise, dietary soy, various phytoestrogen preparations, black cohosh, or other alternative therapies are effective in improving menopausal hot flashes. Studies have shown little or no benefit from clonidine. Paroxetine has been shown to have modest value in the treatment of hot flashes.
07-102. +Pbc+Cca. The mother of a newborn has agreed to your suggestion that she breastfeed for at least the first 6 months of her daughter's life. Before being discharged from the hospital, she asks you to clarify some advice she received from friends about the storage and handling of expressed breast milk. Which one of the following would be accurate advice? A) Breast milk can safely be stored at room temperature for up to 8 hours B) Frozen breast milk should be thawed quickly, preferably in a microwave oven C) Once thawed, breast milk may safely be refrozen within 4 hours D) If stored breast milk has separated, it is spoiled E) OSHA guidelines prohibit the storage of human milk in a common refrigerator in the workplace	Milk; breast. **07-102. ANS=A.** With many nursing mothers returning to work it is frequently necessary to shift lactation and feeding schedules using techniques such as expressing milk with pumps and storing the excess. Human breast milk may safely be stored up to 10 hours at room temperature, up to 8 days in the refrigerator, and up to 12 months when frozen. When frozen, it should be thawed slowly to preserve nutritious proteins and should not be refrozen. Human breast milk naturally separates and can easily be re-emulsified by shaking. Exposure to human milk is not an occupational hazard under OSHA standards.
08-027. +Pbc+Cca. A mother brings in her 2-month-old infant for a routine checkup. The baby is exclusively breastfed, and the mother has no concerns or questions. Which one of the following would you recommend at this time in addition to continued breastfeeding? A) Iron supplementation B) Vitamin D supplementation C) A multivitamin D) 8 oz of water daily E) 4 oz of cereal daily	Milk; breast. **08-027. ANS=B.** Although breast milk is the ideal source of nutrition for healthy term infants, **supplementation with 200 IU/day of vitamin D is recommended beginning at 2 months of age and continuing until the child is consuming at least 500 mL/day of formula or milk containing vitamin D** (SOR B). The purpose of supplementation is to prevent rickets. Unless the baby is anemic or has other deficiencies, neither iron nor a multivitamin is necessary. Parents often mistakenly think babies need additional water, which can be harmful because it decreases milk intake and can cause electrolyte disturbances. **Cereal should not be started until 4 months of age.**
08-145. +Pbc+Cca. Cow's milk should be withheld from a child's diet until what age? A) 4 months B) 6 months C) 9 months D) 12 months	Milk; cow's. **08-145. ANS=D.** Whole cow's milk does not supply infants with enough vitamin E, iron, and essential fatty acids, and overburdens their system with too much protein, sodium, and potassium. Skim and low-fat milk lead to the same problems as whole milk, and also fail to provide adequate calories for growth. For these reasons cow's milk is not recommended for children under 12 months of age. Human breast milk or iron-fortified formula, with introduction of

E) 15 months	certain solid foods and juices after 4–6 months of age if desired, is appropriate for the first year of life.
07-144. +Res+Adm. A 28-year-old male visits your office because he is planning a ski trip. You practice in a coastal area, and he plans to be at an altitude of 14,500 feet. On a previous ski trip to the same altitude he experienced symptoms of headache, poor sleep, anorexia, fatigue, nausea, and vomiting. He asks you what he can do to prevent these symptoms on his upcoming trip. Which one of the following would you recommend? A) Caffeine avoidance B) Caffeine tablets C) Furosemide (Lasix) D) Acetazolamide (Diamox) E) Fluid restriction	Mountain sickness. **07-144.** Acute mountain sickness (AMS). **ANS=D.** This patient experienced AMS, which is the most common altitude illness. It occurs in 40%–50% of persons from low altitudes who ascend to 14,000 feet. The onset can occur within 8 to 96 hours of arrival at altitudes above 8000 feet, although the altitudes at which symptoms begin vary significantly. AMS is a clinical diagnosis, with the most common symptoms consisting of headache, poor sleep, anorexia, fatigue, nausea, and vomiting. Slow ascent is the best way to avoid AMS. Adequate hydration may be helpful. **Acetazolamide and dexamethasone help prevent or mitigate the symptoms of AMS.** Individuals who have had AMS in the past should probably be treated prophylactically with acetazolamide. **Acetazolamide is a carbonic anhydrase inhibitor that causes a hyperchloremic metabolic acidosis** through the loss of bicarbonate, sodium, and potassium in the urine. Respiration is stimulated by the acidosis, which leads to a compensatory respiratory alkalosis. Pretreatment with this agent mimics the acclimated state of acid-base balance, so that during the first day of altitude exposure, subjects taking this drug have values for pH, partial pressure of arterial carbon dioxide, and minute ventilation that are not typically observed until day 5 in control subjects.
08-078. +Neu+Euc. A 47-year-old male who lives at sea level attempts to climb Mt. Rainier. On the first day he ascends to 3400 m (11,000 ft). The next morning he complains of headache, nausea, dizziness, and fatigue, but as he continues the climb to the summit he becomes ataxic and confused. Which one of the following is the treatment of choice? A) Administration of oxygen and immediate descent B) Dexamethasone, 8 mg intramuscularly C) Acetazolamide (Diamox), 250 mg twice a day D) Nifedipine (Procardia), 10 mg immediately, followed by 30 mg in 12 hours E) Helicopter delivery of a portable hyperbaric chamber	Mountain sickness. **08-078. A**cute. The patient described initially showed signs of acute mountain sickness. **ANS=A.** These include headache in an unacclimatized person who recently arrived at an elevation >2500 m (8200 ft), plus the presence of one or more of the following: anorexia, nausea, vomiting, insomnia, dizziness, or fatigue. The patient's condition then deteriorated to high-altitude cerebral edema, defined as the onset of ataxia and/or altered consciousness in someone with acute mountain sickness. The management of choice is a combination of descent and supplemental oxygen. Often, a descent of only 500–1000 m (1600–3300 ft) will lead to resolution of acute mountain sickness. Simulated descent with a portable hyperbaric chamber also is effective, but descent should not be delayed while awaiting helicopter delivery. If descent and/or administration of oxygen is not possible, medical therapy with dexamethasone and/or acetazolamide may reduce the severity of symptoms. Nifedipine has also been shown to be helpful in cases of high-altitude pulmonary edema where descent and/or supplemental oxygen is unavailable.
09-031. +Hem+Cel. A 75-year-old white female presents with back pain of several months' duration, which is worsened by movement. A physical examination is unremarkable except for mild pallor. She takes furosemide (Lasix) for hypertension. Laboratory Findings: Hemoglobin 10.0 g/dL (N 12.0–16.0), Serum creatinine 2.0 mg/dL (N 0.6–1.5), BUN 40 mg/dL (N 8–25), Serum uric acid 8.0 mg/dL (N 3.0–7.0), Serum calcium 12.0 mg/dL (N 8.5–10.5), Total serum protein 9.8 g/dL (N 6.0–8.4), Globulin 6.1 g/dL (N 2.3–3.5), Albumin 3.7 g/dL (N 3.5–5.0), Serum IgG 3700 mg/dL (N 639–1349), Urine is positive for Bence-Jones protein. Which one of the following would be most appropriate at this point? A) Repeat the physical examination and laboratory evaluation every 6 months B) Discontinue the diuretic and repeat the laboratory evaluation in 1 month C) Obtain a bone scan D) Obtain a bone marrow examination E) Begin therapy with tamoxifen (Soltamox), 20 mg daily	Multiple myeloma. **09-031.** Ans=D. This patient has typical symptoms and laboratory findings of multiple myeloma, which accounts for 1% of all malignant diseases and has a mean age at diagnosis of 61 years. The **diagnosis is confirmed by a bone marrow examination showing >10% plasma cells in the marrow.** The **serum level of monoclonal immunoglobulin is typically >3 g/dL.** A bone scan is inferior to conventional radiography and should not be used. Tamoxifen is indicated for the treatment of breast cancer, which is unlikely given the physical and laboratory findings in this case.
10-207. +Mus+Adm.>L A previously healthy 60-year-old male is diagnosed with multiple myeloma after a workup for an incidental finding on routine laboratory work. He has no identified organ or tissue damage and is asymptomatic. Which one of the following would be appropriate treatment of this patient's condition? A) No treatment B) Chemotherapy C) Autologous stem cell transplantation D) Radiation	Multiple myeloma**. 10-207. ANS=A.** This patient has smoldering (asymptomatic) multiple myeloma. He does not have any organ or tissue damage related to this disease and has no symptoms. Early treatment of these patients does not improve mortality (SOR A) and may increase the likelihood of developing acute leukemia. The standard treatment for symptomatic patients under age 65 is autologous stem cell transplantation. Patients over 65 who are healthy enough to undergo transplantation would also be appropriate candidates. Patients who are not candidates for autologous stem cell transplantation generally receive melphalan and prednisolone with or without thalidomide. Radiotherapy can be used to relieve metastatic bone pain or spinal cord compression.
07-084. +Car+Adm. Which one of the following most accurately describes the murmur of aortic regurgitation? A) Systolic ejection murmur, loudest at the right upper sternal border B) Diastolic decrescendo murmur, loudest at the lower left sternal border C) Diastolic rumbling murmur, loudest at the left anterior axillary line D) Holosystolic murmur, loudest at the left upper sternal border Ø Harsh crescendo-decrescendo grade III systolic murmur heard most prominently along the left lower sternal border; intensified by Valsalva maneuver and attenuated by leg elevation. Dx? Hypertrophic cardiomyopathy (HCM). TX: 1st avoid dehydration, 2nd strenuous activity prohibited, 3rd BB, 4th Cabs, 5th surgical myectomy. Best Dx is history (screen family) and physical, then echo. Ø Harsh and loud holosystolic murmur over the left, lower sternal border. Palpation reveals a thrill over the precordial region. There is no cyanosis. Dx? Ventricular septal defect; MCC of congenital heart disease.	Murmur. **07-084.** Aortic regurgitation (AR) is the result of incompetent aortic valve leaflets or dilatation of the aortic root. **ANS=B.** The most common etiology of valvular disease is rheumatic fever, but AR may also occur in patients with a congenital bicuspid aortic valve. Patients may remain asymptomatic for many years, until symptoms of heart failure develop due to left ventricular hypertrophy. The murmur is a diastolic decrescendo, "blowing" quality murmur, beginning right after the second heart sound. It is best heard at the left lower sternal border with the patient upright and leaning forward, placing the heart closest to the anterior chest wall. **MURMURS REVIEW:** Ø Early third heart sound, that is also called pericardial knock and the inspiratory increase in the jugular venous pressure (Kussmaul's sign), are important physical findings of? Constrictive pericarditis. Ø Cardiomyopathy, Restrictive: Characterized by 1-Severe Diastolic dysfunction due to a stiff ventricular wall. 2-Echo shows symmetrical thickening of the ventricular wall. 3-Kussmal sign. 4-Apical impulse palpable. DDX:



Tapping apex beat, malar flush; mid-diastolic rumble, best heard at the apex are important physical findings of? Mitral stenosis.

Ø A murmur with a mid-diastolic rumble, best heard along the left lower sternal border. Dx? Tricuspid stenosis

Ø Early diastolic murmur, decrescendo, high-pitched, blowing, best heard along the left sternal border. It becomes more prominent with inspiration. Dx? Pulmonary regurgitation (usually develops secondary to pulmonary hypertension).

Ø Water hammer or collapsing pulse and pistol shot femoral pulses are diagnostic clues to? Aortic regurgitation.

Ø Early diastolic murmur, decrescendo, high-pitched, blowing best heard in the left third intercostal space; the murmur is intensified by leaning forward and holding the breath in expiration (Valsalva). Dx? (remember all rIght sided murmurs increase on Inspiration and vice versa)? Aortic regurgitation.

Ø To-and-fro murmur in the second left intercostal space, a loud S2, bounding peripheral pulses, and a widened pulse pressure. Most likely diagnosis? Patent ductus arteriosus; Rx: indomethacin to close, but 1st investigate. (Similar to aortic regurgitation but do not get confused).

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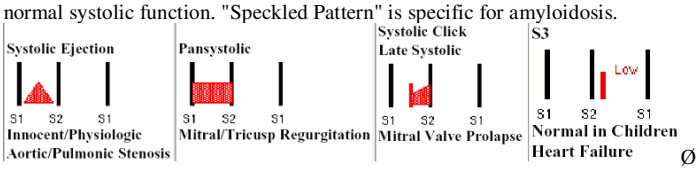
Constrictive pericarditis no number 4; cxr shows calcification, and normal thickness of ventricular wall. **Tx of most causes of RCM is useless except hemochromatosis; phlebotomy and iron chelation with subcutaneous deferoxamine may result in substantial improvement. **Since heart can't relax filling is compromised so both Liver and Lung are congested. **X-ray shows mild cardiac silhouette. Echo shows symmetrically thickened vent wall and near normal systolic function. "Speckled Pattern" is specific for amyloidosis.



A pansystolic murmur at the left sternal border is usually seen in? Tricuspid regurgitation.

Ø Systolic ejection murmur best heard at right 2nd intercostal space. Dx? Aortic stenosis

Ø 2/6 systolic ejection murmur heard along the upper left sternal border; S2 is widely split and does not vary with respiration; A soft mid-diastolic murmur heard along the lower left sternal border. Dx? Atrial septal defect; transesophageal echocardiogram frequently necessary for Dx; Closure recommended.

Ø Pulsus paradoxus and hypotension point toward the diagnosis of? Pericardial tamponade

08-057. +Car+Cca. An asymptomatic 3-year-old male presents for a routine check-up. On examination you notice a systolic heart murmur. It is heard best in the lower precordium and has a low, short tone similar to a plucked string or kazoo. It does not radiate to the axillae or the back and seems to decrease with inspiration. The remainder of the examination is normal. Which one of the following is the most likely diagnosis?
A) Eisenmenger's syndrome
B) Mitral stenosis
C) Peripheral pulmonic stenosis
D) Still's murmur
E) Venous hum

Murmur. **08-057.** benign murmurs of childhood. **ANS=D.** There are several benign murmurs of childhood that have no association with physiologic or anatomic abnormalities. Of these, Still's murmur best fits the murmur described. The cause of Still's murmur is unknown, but it may be due to vibrations in the chordae tendinae, semilunar valves, or ventricular wall. A venous hum consists of a continuous low-pitched murmur caused by collapse of the jugular veins and their subsequent fluttering, and it worsens with inspiration or diastole. The murmur of physiologic peripheral pulmonic stenosis (PPPS) is caused by physiologic changes in the newborn's pulmonary vessels. PPPS is a systolic murmur heard loudest in the axillae bilaterally that usually disappears by 9 months of age. Mitral stenosis causes a diastolic murmur, and Eisenmenger's syndrome involves multiple abnormalities of the heart that cause significant signs and symptoms, including shortness of breath, cyanosis, and organomegaly, which should become apparent from a routine history and examination.

07-033. +Neu+Adm. A high-school football player reports a history of progressive inability to participate over a month's time. Initially he had double vision following a practice. He was better the following morning, but his symptoms recurred during the next day's practice. Now he has double vision most of the time, except right after sleeping. He says his strength and agility are declining, and his coach thinks he is playing too poorly to remain on the team. On examination he has mild ptosis, which increases if he tries to maintain an upward gaze. His arm strength is initially 5/5, but he tires very rapidly. After a few minutes of isotonic exertion he cannot lift his arms against gravity. His deep tendon reflexes are normal. What is the most likely diagnosis?
A) Guillain-Barré syndrome
B) Psychophysiologic weakness
C) Second impact syndrome
D) Myasthenia gravis
E) Myotonic dystrophy

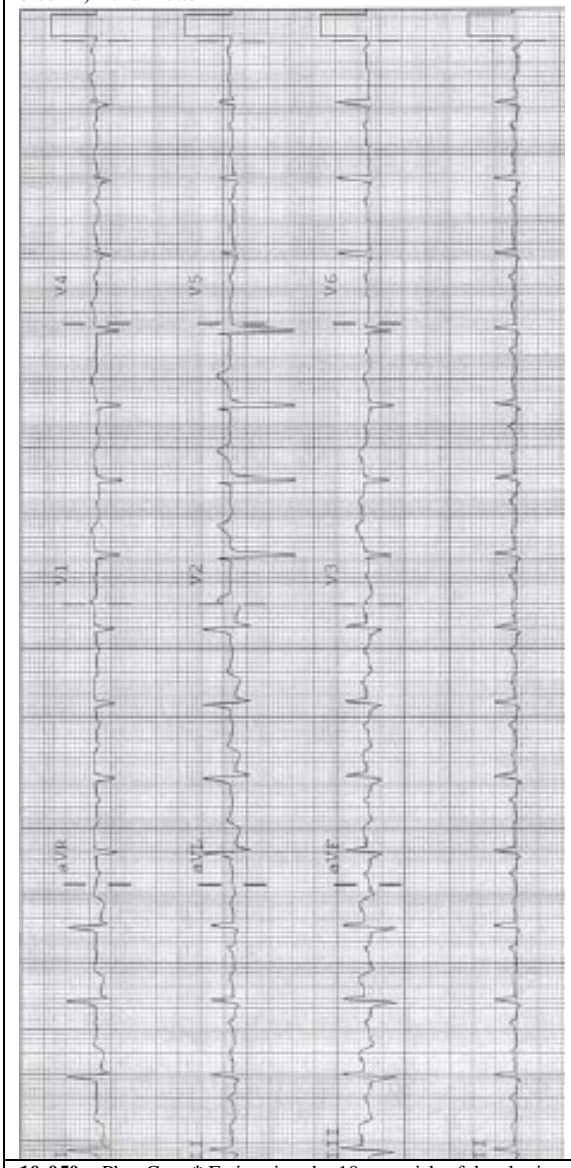
Myasthenia gravis. **07-033.** Myasthenia gravis is a disease of the motor end plate, most often affecting the cranial nerves, especially the oculomotor nerves and the eyelids. **ANS=D.** The disease begins with weakness and fatigue, but can progress over days to months. Confirmatory testing consists of acetylcholine receptor antibody testing or electromyography when the situation is not urgent. When the diagnosis must be made promptly, the old-fashioned Tensilon test gives immediate and dramatic results. Deep tendon reflexes are lost in Guillain-Barré syndrome, which is an autoimmune polyneuropathy affecting the longest nerves preferentially. Myasthenia seems so odd that it can be mistaken for hysterical or stress-related symptoms. Myotonic dystrophy becomes progressively symptomatic in its victims, and is not always diagnosed before adulthood, but it does not cause double vision, and affected individuals would not be athletes at any point in their lives. They have general weakness and a typical facial appearance. Second impact syndrome is a potentially lethal response to repeated head injury.

08-211. +Neu+Adm. A 24-year-old gravida 1 para 1 who is 2 weeks post partum complains of double vision, shortness of breath, and almost dropping her baby while trying to hold her. She says her symptoms worsen as the day progresses. She has no family history of neurologic or muscular illness. A physical examination is normal except for unilateral ptosis and 4/5 proximal weakness of both arms. Breath sounds are generally decreased. Routine blood tests, including TSH and creatine kinase levels, are normal. A chest radiograph and an MRI of the brain and cervical spine are also normal. Of the following, this presentation is most consistent with
A) fibromyalgia syndrome
B) Sheehan's syndrome (postpartum hypopituitarism)
C) polymyositis
D) myasthenia gravis
E) stroke

Myasthenia gravis. **08-211.** Common neurologic disorders in young women include multiple sclerosis, Guillain-Barré syndrome, and myasthenia gravis. **ANS=D.** Myasthenia gravis is part of the differential diagnosis for sudden neurologic weakness, and Guillain-Barré syndrome must also be considered in this patient. Multiple sclerosis would not result in respiratory compromise. Myasthenia gravis is an autoimmune neuromuscular disease characterized by varying degrees of skeletal muscle weakness. Symptoms, which vary in type and severity, may include ptosis of one or both eyelids; blurred vision; diplopia; unstable gait; weakness in the arms, hands, fingers, legs, and neck; difficulty swallowing; shortness of breath; and impaired speech (dysarthria). In most cases, the first noticeable symptom is weakness of the eye muscles. Muscles that control respiration and neck and limb movements may also be affected. Symptoms typically worsen through the day or as the muscles are repetitively used, and improve with rest. Fibromyalgia does not produce objective neurologic findings, and Sheehan's syndrome would not cause a localized neurologic deficit. In addition, the TSH level would be low or zero, and the MRI of the brain would be abnormal. An MRI of the brain would also be abnormal if stroke symptoms had been present for 2 weeks. The patient is unlikely to have unilateral symptoms with polymyositis, and creatine kinase would be elevated.

07-037. +Car+Adm. Having all patients over age 50 take low-dose (81 mg) aspirin daily would result in
A) a decrease in cardiovascular mortality in men and women

Myocardial infarction. **07-037. P**rophylaxis. Aspirin. **ANS=C.** A meta-analysis of six well controlled clinical trials of aspirin prophylaxis showed a 32% decrease in myocardial infarctions in men taking aspirin. There was no decrease in

B) a decrease in hemorrhagic stroke in women C) a decrease in myocardial infarction in men D) a decrease in strokes in men E) no increase in major bleeding episodes	cardiovascular mortality or all-cause mortality in either sex, and there was a trend toward increased risk of stroke, primarily hemorrhagic stroke. There was a 24% decrease in ischemic stroke in women, however. The risk of major bleeding disorders was around 76% higher in aspirin users. The analysis suggests that aspirin may do more harm than good in healthy persons without cardiovascular risk factors.
08-020. +Car+Adm. In a patient who presents with symptoms of acute myocardial infarction, which one of the following would be an indication for thrombolytic therapy? A) New-onset ST-segment depression B) New-onset left bundle branch block C) New-onset first degree atrioventricular block D) New-onset Wenckebach second degree heart block E) Frequent unifocal ventricular ectopic beats	Myocardial infarction. **08-020.** Acute; indication for thrombolytic therapy. **ANS=B** In patients with ischemic chest pain, the EKG is important for determining the need for fibrinolytic therapy. In addition to ST elevation ≥1 mm in two or more contiguous standard limb leads and ≥2 mm in two or more contiguous precordial leads, patients should also have new left bundle branch block. In a patient with a presumed MI, left bundle branch block suggests occlusion of the left anterior descending artery, placing a significant portion of the left ventricle in jeopardy. Thrombolytic therapy could be harmful in patients with ST-segment depression only. Frequent unifocal ventricular ectopy may warrant antiarrhythmic therapy, but not thrombolytic therapy.
08-232. +Car+Adm. A 55-year-old female develops pain in her chest while getting her hair done and arrives at the emergency department within 15 minutes. Her blood pressure is elevated, but other vital signs are normal. An EKG taken a few minutes after her arrival is shown in. Based on the EKG, which one of the following is the most likely diagnosis? A) Pulmonary embolism B) High lateral wall ischemia C) Acute inferior myocardial infarction D) Right bundle branch block E) Atrial flutter  	Myocardial infarction. **08-232. A**cute inferior. **ANS=C.** This EKG tracing is most consistent with acute inferior myocardial infarction with ST-T–wave elevations in inferior leads II, III, and aVF. The ST-T–segment changes in lead II appear more nonspecifically abnormal, but with clear elevations of the ST-T segments in leads III and aVF, acute myocardial infarction is most likely. This can be corroborated by the so-called reciprocal ST-T–segment depressions in leads I and aVL. The ST-T–segment depressions in leads I, aVL, and to a lesser extent V6, might be seen in high lateral wall ischemia, but the inferior leads would not exhibit the ST-T elevations if this were just ischemia. Although the QRS complex is slightly widened in this tracing (107 msec), right bundle branch block is not present. With P waves before each QRS, the rhythm is sinus, not atrial flutter. None of the findings in this EKG are characteristic of pulmonary embolism.
10-050. +Pbc+Com.***** Estimating the 10-year risk of developing coronary heart disease with the Framingham Heart Study Score Sheet would be most reliable when applied to which one of the following individuals? A) A 19-year-old female with a strong family history of cardiac disease B) An obese 50-year-old male with a history of a previous myocardial infarction	Myocardial infarction. **10-050.** Framingham Heart Study**. ANS=C.** The 10-year risk of developing coronary heart disease can be effectively predicted with the algorithmic calculator developed using multivariable data collected over a period of more than half a century as part of the Framingham Heart Study. This iconic study defined what are now commonly known as major risk factors: elevated

C) An otherwise healthy 36-year-old white male smoker D) A postmenopausal 54-year-old female with angina E) A 78-year-old male with a history of hypertension	blood pressure, cigarette smoking, cholesterol levels, diabetes mellitus, and advancing age. Using measurements of each of these risk factors and consideration of the gender of the individual, a reliable determination of risk can be obtained in individuals 30–74 years of age who have no overt coronary heart disease. The largely white study population presumptively makes the risk determination most accurate for white patients.
10-070. +Car+Euc.>L* A 78-year-old male presents for a routine follow-up visit for hypertension. He is a smoker, but has no known coronary artery disease and is otherwise healthy. On examination you note an irregular pulse. An EKG reveals multiple premature ventricular contractions (PVCs), but no other abnormalities. Current guidelines recommend which one of the following? A) Amiodarone (Cordarone) for suppression of PVCs B) Flecainide (Tambocor) for suppression of PVCs C) Evaluation for underlying coronary artery disease D) No further evaluation or treatment	Myocardial infarction. **10-070.** Premature ventricular contractions (PVCs). **ANS=C.** In patients with no known coronary artery disease (CAD), the presence of frequent PVCs is linked to acute myocardial infarction and sudden death. The Framingham Heart Study defines frequent as >30 PVCs per hour. The American College of Cardiology and the American Heart Association recommend evaluation for CAD in patients who have frequent PVCs and cardiac risk factors, such as hypertension and smoking (SOR C). Evaluation for CAD may include stress testing, echocardiography, and ambulatory rhythm monitoring (SOR C). Strong evidence from randomized, controlled trials suggests that PVCs should not be suppressed with antiarrhythmic agents. The CAST I trial showed that using encainide or flecainide to suppress PVCs increases mortality (SOR A).
10-105. +Car+Adm. The U.S. Preventive Services Task Force (USPSTF) has stated that the potential cardiovascular benefits of daily aspirin use outweigh the potential harms of gastrointestinal hemorrhage in certain populations. The USPSTF currently recommends daily aspirin use for which one of the following populations? A) Males 25–44 years of age B) Males over 80 years of age C) Females 25–44 years of age D) Females over 45 years of age E) Females 55–79 years of age	Myocardial infarction. **10-105.** Prophylaxis. **ANS=E.** The U.S. Preventive Services Task Force (USPSTF) recommends daily aspirin use for males 45–79 years of age when the potential benefit of a reduction in myocardial infarction outweighs the potential harm of an increase in gastrointestinal hemorrhage, and for females 55–79 years of age when the potential benefit of a reduction in ischemic strokes outweighs the potential harm of an increase in gastrointestinal hemorrhage (SOR A, USPSTF A Recomendation). The USPSTF has concluded that the current evidence is insufficient to assess the balance of benefits and harms of aspirin for cardiovascular disease prevention in men and women 80 years of age or older (USPSTF I Recommendation). It recommends against the use of aspirin for stroke prevention in women younger than 55, and for myocardial infarction prevention in men younger than 45 (USPSTF D Recommendation).
10-108. +Car+Adm. In the secondary prevention of ischemic cardiac events, which one of the following is most likely to be beneficial in a 68-year-old female with known coronary artery disease and preserved left ventricular function? A) ACE inhibitors B) Hormone therapy C) Calcium channel blockers D) Vitamin E E) Oral glycoprotein IIb/IIIa receptor inhibitors	Myocardial infarction**. 10-108.** Secondary prevention of cardiac events consists of long-term treatment to prevent recurrent cardiac morbidity and mortality in patients who have either already had an acute myocardial infarction or are at high risk because of severe coronary artery stenosis, angina, or prior coronary surgical procedures. **ANS=A.** Effective treatments include aspirin, B-blockers after myocardial infarction, ACE inhibitors in patients at high risk after myocardial infarction, angiotensin II receptor blockers in those with coronary artery disease, and amiodarone in patients who have had a myocardial infarction and have a high risk of death from cardiac arrhythmias. Oral glycoprotein IIb/IIIa receptor inhibitors appear to increase the risk of mortality when compared with aspirin. Calcium channel blockers, class I anti-arrhythmic agents, and sotalol all appear to increase mortality compared with placebo in patients who have had a myocardial infarction. Contrary to decades of large observational studies, multiple randomized, controlled trials show no cardiac benefit from hormone therapy in postmenopausal women.
10-176. +Car+Euc.>L* A 45-year-old male is seen in the emergency department with a 2-hour history of substernal chest pain. An EKG shows an ST-segment elevation of 0.3 mV in leads V4–V6. In addition to evaluation for reperfusion therapy, which one of the following would be appropriate? A) Enteric aspirin, 81 mg B) Intravenous metoprolol (Lopressor) C) Oral clopidogrel (Plavix) D) Warfarin (Coumadin), after blood is drawn to establish his baseline INR E) Delaying treatment pending results of two sets of cardiac enzyme measurements	Myocardial infarction**. 10-176.** ST-segment elevation myocardial infarction (STEMI). **ANS=C.** This patient has an STEMI. STEMI is defined as an ST-segment elevation of greater than 0.1 mV in at least two contiguous precordial or adjacent limb leads. The most important goal is to begin fibrinolysis less than 30 minutes after the first contact with the health system. The patient should be given oral clopidogrel, and should also chew 162–325 mg of aspirin. Enteric aspirin has a delayed effect. Intravenous B-blockers such as metoprolol should not be routinely given, and warfarin is not indicated. Delaying treatment until cardiac enzyme results are available in a patient with a definite myocardial infarction is not appropriate.
10-224. +Car+Euc.>L* Occlusion of the circumflex artery is most likely to cause EKG changes in A) V1 and V2 B) V3 and V4 C) II, III, and AVF D) I and AVL	Myocardial infarction. **10-224.** Circumflex occlusion causes changes in I, AVL, and possibly V5 and V6 as well. **ANS=D.** Left anterior descending coronary artery occlusion causes changes in V1 to V6. Right coronary occlusion causes changes in II, III, and AVF.
09-222. +Car+Csp. Which one of the following surgical procedures is associated with the highest risk for perioperative myocardial ischemia? A) Femoropopliteal bypass B) Pulmonary lobectomy C) Hip arthroplasty D) Transurethral resection of the prostate E) Mastectomy	Myocardial ischemia**. 09-222.** Perioperative **ANS=A.** When deciding whether or not to recommend preoperative noninvasive cardiac testing, both patient risk factors and surgical risk factors should be taken into account. Surgical procedures associated with a high (>5%) risk of perioperative myocardial ischemia include aortic and peripheral vascular surgery and emergent major operations, especially in patients over 75 years of age. Head and neck surgery, intraperitoneal and intrathoracic surgery, orthopedic surgery, and prostate surgery carry an intermediate risk (1%–5%). Endoscopic procedures and cataract and breast surgeries are considered low-risk (<1%) procedures.
08-024. +Mus+Adm. A 44-year-old African-American female reports diffuse aching, especially in her upper legs and shoulders. The aching has increased, and she now has trouble going up and down stairs because of weakness. She has no visual symptoms, and a neurologic examination is normal except for proximal muscle weakness. Laboratory tests reveal elevated levels of serum creatine kinase and aldolase. Her symptoms improve significantly when she is	Myopathy**. 08-024. ANS=E.** The patient described has an inflammatory myopathy of the polymyositis/dermatomyositis group. Proximal muscle involvement and elevation of serum muscle enzymes such as creatine kinase and aldolase are characteristic. Corticosteroids are the accepted treatment of choice. It is extremely unlikely that Duchenne's muscular dystrophy would present after age 30. In amyotrophic lateral sclerosis, an abnormal neurologic examination with findings

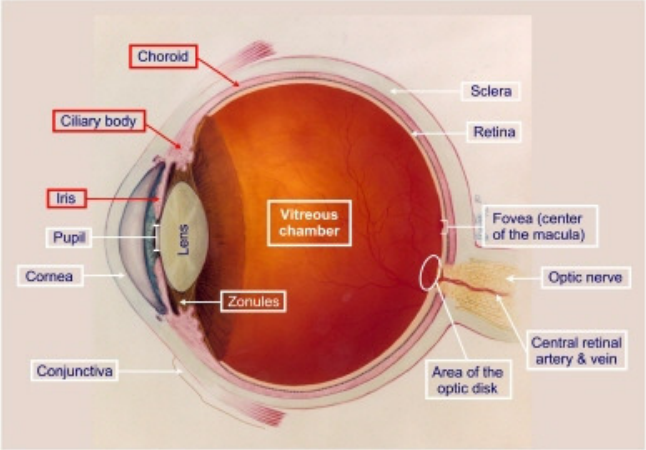
treated with corticosteroids. Which one of the following is the most likely diagnosis? A) Duchenne's muscular dystrophy B) Myasthenia gravis C) Amyotrophic lateral sclerosis D) Aseptic necrosis of the femoral head E) Polymyositis	of upper motor neuron dysfunction is characteristic. Patients with myasthenia gravis characteristically have optic involvement, often presenting as diplopia. The predominant symptom of aseptic necrosis of the femoral head is pain rather than proximal muscle weakness. Elevated muscle enzymes are not characteristic.
09-170. +Mus+Cel An 80-year-old female is seen for progressive weakness over the past 8 weeks. She says she now has difficulty with normal activities such as getting out of a chair and brushing her teeth. Her medical problems include hypertension, diabetes mellitus, and hyperlipidemia. Her medications include glipizide (Glucotrol), simvastatin (Zocor), and lisinopril (Prinivil, Zestril). Findings on examination are within normal limits except for diffuse proximal muscle weakness and normal deep tendon reflexes. A CBC, urinalysis, erythrocyte sedimentation rate, TSH level, and serum electrolyte levels are normal. Her blood glucose level is 155 mg/dL, and her creatine kinase level is 1200 U/L (N 40–150). Which one of the following is the most likely diagnosis? A) Statin-induced myopathy B) Polymyalgia rheumatica C) Guillain-Barré syndrome D) Diabetic ketoacidosis	Myopathy**. 09-170. D**rug-induced. **ANS=A.** This patient is most likely suffering from a drug-induced myopathy caused by the simvastatin, which is associated with elevated creatine kinase. Polymyalgia rheumatica is usually associated with an elevated erythrocyte sedimentation rate. Guillain-Barré syndrome is associated with depressed deep tendon reflexes. This case has no clinical features or laboratory findings that suggest ketoacidosis.
09-025. +Psy+Mhe. A 40-year-old obese African-American male presents with a history of excessive daytime drowsiness. He readily falls asleep when reading or watching television. He admits to nearly crashing his car twice in the past month because he briefly fell asleep behind the wheel. Most frightening to the patient have been episodes characterized by sudden loss of muscle tone, lasting about 1 minute, associated with laughing. An overnight sleep study shows decreased sleep latency and no evidence of obstructive sleep apnea. Appropriate treatment includes which one of the following? A) Methylphenidate (Ritalin) B) Zolpidem (Ambien) at bedtime C) Carbidopa/levodopa (Sinemet) D) Weight reduction E) Avoidance of daytime napping	Narcolepsy. **09-025.** The clinical history and laboratory findings presented are consistent with a diagnosis of narcolepsy. Methylphenidate and other stimulant drugs remain the pharmacologic agents of choice in managing this disorder. Since there is no evidence of obstructive sleep apnea, weight reduction would not be expected to address his sleep problem. In general, sedatives, hypnotics, and alcohol should be avoided. Periodic daytime naps may help to reduce symptoms.
07-085. +Sen+Cca. A 4-month-old male is brought to your office for a routine examination. He has experienced normal growth and development and is current on all vaccines. The mother's only concern is persistent tearing in his left eye. Which one of the following would be the most appropriate course of action? A) Referral to an ophthalmologist for immediate tear duct dilation B) Topical corticosteroid drops to facilitate tear duct opening C) Topical antibiotics to prevent tear duct infection D) Reassuring the parents that this condition usually resolves spontaneously by 1 year of age	Nasolacrimal duct obstruction**. 07-085. ANS=D.** This infant has nasolacrimal duct obstruction. This condition occurs in up to 20% of children during the first year of life. Spontaneous resolution occurs by 6 months of age in 90% of children, but the chance of spontaneous resolution decreases to less than 1% if the obstruction is still present at 1 year of age. This condition usually has a benign course. Referral to an ophthalmologist is indicated only if the tear duct remains clogged at 1 year of age. Antibiotics are necessary only if signs of infection arise, and daily tear duct massage can help prevent infection. Topical corticosteroids would be used only after surgery, to help keep the tear duct open.
10-174. +Gas+Mac**.*** Which one of the following is considered first-line therapy for nausea and vomiting of pregnancy? A) Ginger B) Blue cohosh C) Cranberry D) Vitamin B6 E) Fenugreek	Nausea and vomiting of pregnancy**. 10-174. ANS=D.** A number of alternative therapies have been used for problems related to pregnancy, although vigorous studies are not always possible. For nausea and vomiting, however, vitamin B6 is considered first-line therapy, sometimes combined with doxylamine. Other measures that have been found to be somewhat useful include ginger and acupressure. Cranberry products can be useful for preventing urinary tract infections, and could be recommended for patients if this is a concern. Blue cohosh is used by many midwives as a partus preparator, but there are concerns about its safety. Fenugreek has been used to increase milk production in breastfeeding mothers, but no rigorous trials have been performed.
07-014. +Pbc+Mac. Amnioinfusion during labor is indicated for which one of the following conditions? A) Moderate or thick meconium-stained amniotic fluid B) Prolonged rupture of membranes C) Persistent late fetal heart rate decelerations D) Fetal tachycardia E) Uterine hyperstimulation	Neonatal respiratory distress. **07-014. A**mniotic fluid**. ANS=A.** Amnioinfusion has been shown to be helpful in improving perinatal outcomes in patients with moderate or thick meconium-stained amniotic fluid. It also is useful for suspected umbilical cord compression during labor. Amnioinfusion has been used for preterm rupture of membranes and oligohydramnios, but there is not enough evidence to support its use. It also is not considered a therapeutic option for prolonged rupture of membranes, persistent late fetal heart rate decelerations, fetal tachycardia, or uterine hyperstimulation.
08-077. +Res+Cca. A male infant is delivered by cesarean section because of dystocia due to macrosomia. Apgar scores are 8 at 1 minute and 10 at 5 minutes. However, at about 1 hour of age he begins to have tachypnea without hypoxemia. A chest radiograph shows diffuse parenchymal infiltrates and fluid in the pulmonary fissures. The symptoms resolve without treatment within 24 hours. The most likely diagnosis is A) transient tachypnea of the newborn B) intracranial hemorrhage C) laryngotracheomalacia D) meconium aspiration syndrome E) hyaline membrane disease	Neonatal respiratory distress. **08-077.** Transient tachypnea of the newborn**. ANS=A.** This child had transient tachypnea of the newborn, the most common cause of neonatal respiratory distress. It is a benign condition due to residual pulmonary fluid remaining in the lungs after delivery. Risk factors include cesarean delivery, macrosomia, male gender, and maternal asthma and/or diabetes mellitus. The other conditions listed cause neonatal respiratory distress, but do not resolve spontaneously. They also cause additional significant abnormal findings on physical examination and/or ancillary studies such as imaging and laboratory studies.
08-157. +Res+Cca. A male infant is delivered at 41 weeks gestation by spontaneous vaginal delivery. The amniotic fluid is meconium stained. Apgar scores are 7 at 1 minute and 7 at 5 minutes. The baby is noted to have respiratory distress from birth and is hypoxic by pulse oximetry. Respiration improves with supplemental oxygen, as does the hypoxia, but does not return to normal. Which one of the following would most likely be seen on a chest radiograph? A) A normal heart and lungs B) Fluid in the pulmonary fissures C) Homogeneous opaque infiltrates with air bronchograms D) Patchy atelectasis	Neonatal respiratory distress. **08-157.** Meconium aspiration. **ANS=D.** The **chest radiograph of a child with meconium aspiration syndrome will show patchy atelectasis or consolidation**. If the child has a normal chest film and respiratory distress, a noncardiopulmonary source should be considered (i.e., a neurologic or metabolic etiology). **The chest film of a child with transient tachypnea of the newborn will show a "wet silhouette" around the heart, diffuse parenchymal infiltrates, or intralobar fluid accumulation. Homogeneous opaque infiltrates with air bronchograms on a chest radiograph are seen with hyaline**

	membrane disease.
08-065. +Nep+Adm. A 62-year-old male is admitted to the hospital with acute renal failure. A renal biopsy confirms the diagnosis of acute interstitial nephritis (AIN). Infection and immune-associated causes are ruled out, and you consider medications as a potential cause. Which one of the following would be most likely to cause AIN? A) Chronic daily use of metoprolol (Lopressor) B) Twice-daily use of ibuprofen for 2 weeks C) Initiation of lisinopril (Prinivil, Zestril) therapy 1 week ago D) A 5-day course of azithromycin (Zithromax) 6 months ago E) Intermittent use of acetaminophen, up to 4 g/day	Nephritis. **08-065.** Acute interstitial nephritis, Acute interstitial nephritis (AIN) is often drug-induced. **ANS=B.** Discontinuation of medications that are likely to cause AIN is the most important first step in management. If these medications are withdrawn early, most patients can be expected to recover normal renal function. Of the medications listed, ibuprofen is the most likely offending agent, because all NSAIDs are known to be associated with AIN. Development of AIN usually becomes evident approximately 2 weeks after starting a medication and is not dose-related. Other medications strongly associated with AIN include various antibiotics (particularly cephalosporins, penicillins, sulfonamides, aminoglycosides, and rifampin), diuretics, and miscellaneous medications such as allopurinol.
10-229. +Nep+Adm. The most common cause of acute interstitial nephritis is A) hypertension B) pyelonephritis C) collagen vascular disease D) dehydration E) hypersensitivity to medications	Nephritis. **10-229. A**cute interstitial. **ANS=E.** Approximately 85% of cases of acute interstitial nephritis result from a drug-related hypersensitivity reaction; other cases are due to mechanisms such as an immunologic response to infection or an idiopathic immune syndrome. Hypertension and dehydration do not cause interstitial nephritis. Medications that most commonly cause acute interstitial nephritis through hypersensitivity reactions include penicillins, sulfa drugs, and NSAIDs. Urinalysis typically reveals moderate to minimal proteinuria, except in NSAID-induced acute interstitial nephritis, in which proteinuria may reach the nephrotic range. Other typical findings include sterile pyuria, the absence of red blood cell casts, and frequently eosinophiluria, but none of these findings is pathognomonic. Withdrawal of the causative agent leads to resolution of the problem within 7–10 days in the majority of cases, and most patients have a good recovery.
10-162. +Non+Adm.>L* A 62-year-old male on hemodialysis develops a pruritic rash on his arms and chest, with erythematous, thickened plaques and edema. He had brain imaging with a gadolinium-enhanced MRI for neurologic symptoms 10 days ago. Which one of the following is true regarding this problem? A) A skin biopsy is diagnostic B) The problem is limited to the skin C) Immediate treatment is critical D) The disease is more common in males E) Death from the disease is unusual	Nephrogenic systemic fibrosis. **10-162. G**adolinium-associated. **ANS=A.** This patient has gadolinium-associated nephrogenic systemic fibrosis, which is associated with the use of gadolinium-based contrast material in patients with severe renal dysfunction, often on dialysis. Associated proinflammatory states, such as recent surgery, malignancy, and ischemia, are often present as well. This condition occurs without regard to gender, race, or age. Dermatologic manifestations are usually seen, but multiple organ systems may be involved. There is no effective treatment, and mortality is approximately 30%. A deep biopsy of the affected skin is diagnostic.
07-125. +Nep+Adm. An 81-year-old male is scheduled to have an abdominal CT with contrast to assess for a possible tumor. His medical history is significant for COPD and type 2 diabetes mellitus. His serum creatinine level is 1.5 mg/dL (N 0.6–1.5). Which one of the following would decrease the likelihood of contrast-related nephropathy in this patient? A) Oral acetylcysteine (Mucomyst) begun 24 hours before the procedure B) Oral acetylcysteine begun 24 hours after the procedure C) Oral enalapril (Vasotec) begun 24 hours before the procedure D) Oral enalapril begun 24 hours after the procedure E) Use of a hyperosmolar contrast medium	Nephropathy. **07-125.** Contrast-related nephropathy**,** prevention of**. ANS=A.** Several interventions have been shown to reduce the risk of contrast-related nephropathy (elevation of serum creatinine after contrast is administered). **Oral acetylcysteine lowers the risk if it is taken 24 hours before administration of the contrast**. It is not effective if given after the procedure. **Medications with renal effects, such as the ACE inhibitor enalapril, can increase the risk of contrast-related nephropathy and should be stopped before administering the contrast**. **Hyperosmolar media are more likely to cause contrast nephropathy than are hypo-osmolar contrast media.**
08-110. +Nep+Cel. A 75-year-old patient with underlying chronic renal failure requires cardiac catheterization. Which one of the following interventions is most likely to help prevent acute renal failure due to contrast-induced nephropathy? A) Hydration with normal saline and mannitol B) Hydration with sodium bicarbonate C) Hydration plus a loop diuretic D) Administering fenoldopam (Corlopam) prior to the procedure E) Infusion of natriuretic peptides prior to the procedure	Nephropathy**. 08-110. C**ontrast-induced. **ANS=B.** Several studies have demonstrated that hydration with sodium bicarbonate reduces the risk of contrast-induced nephropathy in those undergoing cardiac catheterization. Studies of interventions to prevent renal failure in patients at high risk have shown that mannitol plus hydration does not reduce acute renal failure compared to hydration alone. Randomized, controlled trials have shown that fenoldopam does not decrease the need for dialysis or improve survival. One systematic review found that low-osmolality contrast media reduced nephrotoxicity in persons with underlying renal failure requiring studies using contrast. One systematic review and one subsequent randomized, controlled trial found that adding loop diuretics to fluids was not effective and may actually increase the possibility of acute renal failure compared to fluids alone. A large randomized, controlled trial found no significant difference between natriuretic peptides and placebo in preventing acute renal failure induced by contrast media.
09-023. +Nep+Adm. A 78-year-old white male is scheduled to undergo CT with contrast. His current diagnoses include type 2 diabetes mellitus, heart failure, anemia of chronic disease, and renal insufficiency. Evidence supports the use of which one of the following to reduce the risk of contrast-induced nephropathy in this patient? A) Intravenous furosemide B) Ascorbic acid C) Calcium antagonists D) Isotonic bicarbonate infusion E) High osmolar contrast media	Nephropathy. **09-023.** Contrast-induced nephropathy. Low-osmolar or iso-osmolar contrast media should be used **to prevent contrast-induced nephropathy** in at-risk patients. The volume of contrast medium should be as low as possible. Evidence also supports **hydration before the procedure, preferably with isotonic saline or isotonic sodium bicarbonate solution.**
09-204. +Gas+Cel. A 70-year-old white male with hypertension has several abnormal liver function tests on routine testing. He says he does not drink alcohol, and the prescription medications he is taking are unlikely to cause hepatotoxicity. However, during more extensive history taking, he tells you that he does use some over-the-counter medications. Which one of these is most likely responsible for the abnormal laboratory findings? A) Aspirin, used occasionally for headache B) A fiber supplement taken to promote regular bowel habits C) One long-acting niacin tablet per day D) One 250-mg vitamin C tablet daily E) Chewable simethicone after meals, almost daily	Niacin hepatotoxicity. **09-204.** Hepatotoxicity resulting from timed-release formulations of niacin has been reported in elderly individuals. **ANS=C.** Patients may be taking this supplement without their physician's knowledge, feeling it is safe because it is a vitamin. Aspirin and vitamin C can result in gastrointestinal iron loss and anemia. The other medications listed, if used in moderation, would not be expected to alter laboratory findings.
07-222. +Neu+Cel. An 81-year-old female is brought to your office by her son.	Normal pressure hydrocephalus. **07-222.** (NPH). **ANS=E.** Gait instability

He reports a decrease in his mother's memory and prolonged delays in her responses to questions. She also has developed urinary incontinence. MRI shows dilated ventricles, but no other pathology, and a lumbar puncture reveals a normal opening pressure. Which one of the following would provide additional evidence of normal pressure hydrocephalus? A) Monocular visual loss B) Internuclear ophthalmoplegia C) Headache D) Motor weakness E) Apraxia of gait	(sometimes referred to as apraxia of gait), urinary incontinence, and dementia are typical signs and symptoms of NPH. A decrease in the absorption of cerebrospinal fluid (CSF) results in ventricular enlargement, but no significant increase in CSF pressure. Although it accounts for less than 5% of dementia cases, it is important to recognize NPH because it may be effectively treated by shunting in some patients. Monocular visual loss and headache are symptoms of benign intracranial hypertension (pseudotumor cerebri), and internuclear ophthalmoplegia is a sign of multiple sclerosis. Motor weakness is not a sign of NPH.
10-147. +Neu+Cel. A previously alert, otherwise healthy 74-year-old African-American male has a history of slowly developing progressive memory loss and dementia associated with urinary incontinence and gait disturbance resembling ataxia. This presentation is most consistent with A) normal pressure hydrocephalus B) Alzheimer's disease C) subacute sclerosing panencephalitis D) multiple sclerosis	Normal pressure hydrocephalus. **10-147. ANS=A.** In normal pressure hydrocephalus a mild impairment of memory typically develops gradually over weeks or months, accompanied by mental and physical slowness. The condition progresses insidiously to severe dementia. Patients also develop an unsteady gait and urinary incontinence, but there are no signs of increased intracranial pressure. In Alzheimer's disease the brain very gradually atrophies. A disturbance in memory for recent events is usually the first symptom, along with some disorientation to time and place; otherwise, there are no symptoms for some period of time. Subacute sclerosing panencephalitis usually occurs in children and young adults between the ages of 4 and 20 years and is characterized by deterioration in behavior and work. The most characteristic neurologic sign is mild clonus. Multiple sclerosis is characteristically marked by recurrent attacks of demyelinization. The clinical picture is pleomorphic, but there are usually sufficient typical features of incoordination, paresthesias, and visual complaints. Mental changes may occur in the advanced stages of the disease. About two-thirds of those affected are between the ages of 20 and 40.
10-019P. +Non+Adm**.** >L* Which one of the following is true regarding NSAIDs? A) They are cardioprotective B) They should be avoided in persons with cirrhotic liver disease C) They are not safe in pregnancy D) They are not safe in lactating women	NSAIDs. **10-019.** NSAIDs are prescribed commonly and many are available over the counter. **ANS=B.** It is important for clinicians to understand when they are not appropriate for clinical use. **They should be avoided, if possible, in persons with hepatic cirrhosis** (SOR C). **While hepatotoxicity with NSAIDs is rare, they can increase the risk of bleeding in cirrhotic patients, as they further impair platelet function.** In addition, **NSAIDs decrease blood flow to the kidneys and can increase the risk of renal failure in patients with cirrhosis.** NSAIDs differ from aspirin in terms of their cardiovascular effects. **They have the potential to increase cardiovascular morbidity, worsen heart failure, increase blood pressure, and increase events such as ischemia and acute myocardial infarction.** There are no known teratogenic effects of NSAIDs in humans. This drug class is considered to be safe in pregnancy in low, intermittent doses, although discontinuation of NSAID use within 6–8 weeks of term is recommended. Ibuprofen, indomethacin, and naproxen are considered safe for lactating women, according to the American Academy of Pediatrics.
07-206. +Pbc+Com. Food with a higher glycemic index A) releases carbohydrates into the bloodstream as glucose more rapidly B) induces a slower insulin response C) is less likely to lead to reactive hypoglycemia D) is less likely to lead to metabolic syndrome E) leads to lower levels of circulating insulin	Obesity**. 07-206.** Nutrition. The higher the glycemic index of a food, the more rapidly its carbohydrates are released into the bloodstream as glucose. **ANS=A.** Foods with a high glycemic index induce a more rapid insulin response, are more likely to lead to reactive hypoglycemia and a metabolic syndrome, and lead to higher levels of circulating insulin.
09-163. +Non+Cca. Overweight and obesity in children should be determined by which one of the following? A) Body weight B) BMI percentile for age and gender C) Individual BMI D) Abdominal girth E) Percentage of body fat	Obesity**. 09-163. ANS=B.** In children, overweight and obesity is determined by the BMI percentile for age and gender. In adults, BMI, body fat percentage, and abdominal girth are used to determine a patient's classification (SOR B).
07-066. +Psy+Mhe. Which one of the following is true concerning the treatment of patients with obsessive-compulsive disorder (OCD)? A) Behavioral therapy fails to improve OCD B) SSRIs are ineffective for OCD in children C) Tricyclic antidepressants are more effective than SSRIs for treating OCD D) Discontinuing SSRIs is associated with a high rate of relapse	Obsessive-compulsive disorder. **07-066.** (OCD)**. ANS=D.** Stopping SSRIs causes a high rate of relapse of obsessive-compulsive symptoms. Obsessive-compulsive patients are usually very aware that their behavior is illogical, and behavioral therapy is very effective in treating obsessions. SSRIs are effective in both adults and children, and are more effective than tricyclic antidepressants for treating obsessive-compulsive disorder.
09-215. +Psy+Mhe. Which one of the following is recommended for the treatment of patients with obsessive compulsive disorder? A) Cognitive-behavioral therapy B) Psychoanalytic therapy C) Family therapy D) Psychodynamic psychotherapy E) Motivational interviewing	Obsessive-compulsive disorder. **09-215. ANS=A.** Cognitive-behavioral therapy is the recommended treatment for obsessive-compulsive disorder (OCD). Psychoanalytic therapy has not been shown to help treat OCD. Family therapy can help reduce family tensions that result from the disease. Psychodynamic psychotherapy and motivational interviewing may help patients overcome their resistance to treatment.
07-080. +Res+Com. For adults with obstructive sleep apnea, which one of the following is the most effective treatment? A) Modafinil (Provigil) B) Weight reduction to achieve a body mass index (BMI) <30 kg/m2 C) Mandible-positioning oral appliances D) Continuous positive airway pressure (CPAP) E) Uvulopalatal surgery	Obstructive sleep apnea. **07-080.** Continuous positive airway pressure (CPAP) is the most effective treatment for obstructive sleep apnea in adults. Weight reduction is certainly beneficial in obese patients, but may not significantly decrease apneic episodes. **ANS=D.** Results with devices that move the tongue or mandible forward are variable and inconsistent. While modafinil has an indication for treating sleep apnea, its efficacy is inconsistent. Uvulopalatal surgery often reduces snoring but may not reduce the frequency of apneic episodes during sleep.
08-198. Rep+Adm. Patients with obstructive sleep apnea have an increased risk for A) chronic renal failure B) hypertension C) hypokalemia D) hypothyroidism E) sepsis	Obstructive sleep apnea. **08-198.** hypopnea syndrome is defined as the presence of at least five obstructive events per hour with associated daytime sleepiness. **ANS=B.** It is present in 2%–4% of the population. The prevalence in men is almost three times that seen in premenopausal women and twice that of postmenopausal women. Other factors associated with an increased prevalence are obesity, older age, and systemic hypertension.

09-085. +Res+Adm. The most common presenting symptom of obstructive sleep apnea is A) excessive daytime sleepiness B) snoring C) morning headache D) gastroesophageal reflux E) enuresis	Obstructive sleep apnea. **09-085. ANS=A.** The most common presenting symptom of obstructive sleep apnea is excessive daytime sleepiness (SOR A). Other symptoms include snoring, unrefreshing or restless sleep, witnessed apneas and nocturnal choking, morning headache, nocturia or enuresis, gastroesophageal reflux, and reduced libido.
09-132. +Res+Adm. A 55-year-old obese male with hypertension and daytime somnolence is found to have severe obstructive sleep apnea, with an apnea-hypopnea index of 32 on an overnight polysomnogram. Which one of the following is considered to be first-line therapy for this patient's condition? A) Continuous positive airway pressure (CPAP) B) An oral dental appliance C) Uvulopalatopharyngoplasty D) Sleep positioning therapy E) Tracheostomy	Obstructive sleep apnea**. 09-132. ANS=A.** Patients with severe sleep apnea (apnea-hypopnea index >29) and concomitant cardiovascular disease benefit the most from treatment for obstructive sleep apnea. Because it is relatively easy to implement and has proven efficacy, continuous positive airway pressure (CPAP) is considered first-line therapy for severe apnea.
09-208. +Ref+Cfp**.**A 19-year-old college freshman consults you at the request of her cross-country coach because she has not had a period in 2 of the last 3 months. She notes that her current training regimen is much more intense than in high school last year. She has an appropriate body image and denies caloric restriction. A pregnancy test at the student health center was negative. On examination she is lean and highly trained. Her examination is otherwise normal. Which one of the following would be the most appropriate recommendation for this patient? A) Estrogen supplementation B) Cyclic oral contraceptive pills C) Increased caloric intake D) Bisphosphonate therapy E) Discontinuation of elite-level athletics	Oligomenorrhea. **09-208. E**xercise-related. **ANS=C.** This patient has exercise-related oligomenorrhea, but does not have the eating disorder that characterizes the female athlete triad. Menstrual problems in athletes do correlate with bone density loss and impaired recovery from exercise. Additionally, menstrual irregularity of varying severity is extremely common in female distance runners, perhaps affecting as many as 60%. Hormonal manipulation has not been shown to affect bone density, though it may produce withdrawal bleeding. Bisphosphonate therapy has been shown to be ineffective, and is not recommended in women of child-bearing age. The main issue in well-nourished female athletes seems to be that energy intake is not increased to match energy expenditures at high levels of training. Unlike those with the female athlete triad, there is little evidence that athletes without eating disorders suffer substantial harm from exercise-induced menstrual problems. Ending an athletic career for this reason alone is not justified.
07-095. +Car+Adm. A mildly hypertensive 54-year-old male with type 2 diabetes asks about the benefit of adding fish oil capsules to his daily medication regimen of atorvastatin (Lipitor), metformin (Glucophage), and aspirin. You advise that fish oil supplements have been shown to A) increase the risk of rhabdomyolysis B) lower triglycerides C) decrease cardiovascular risks in the general population D) have antiarrhythmic properties E) improve glycemic control	Omega-3. **07-095.** Omega-3 polyunsaturated fatty acids found in fish oil have been **shown to lower plasma triglycerides and reduce the risk of stroke after a myocardial infarction. ANS=B. Unlike niacin and gemfibrozil, they do not increase the risk of rhabdomyolysis in statin patients.** However, they **may worsen glycemic control in diabetics** and have a proarrhythmic effect in coronary artery disease patients. There is no evidence that fish oil supplements prevent coronary disease in the general population.
08-223. +Car+Adm. Of the following dietary factors recommended for the prevention and treatment of cardiovascular disease, which one has been shown to decrease the rate of sudden death? A) Increased intake of plant protein B) Increased intake of omega-3 fats C) Increased intake of dietary fiber and whole grains D) Increased intake of monounsaturated oils E) Moderate alcohol consumption (1 or 2 standard drinks per day)	Omega-3. **08-223.** Omega-3 fats contribute to the production of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which inhibit the inflammatory immune response and platelet aggregation, are mild vasodilators, and may have antiarrhythmic properties. **ANS=B. The American Heart Association guidelines state that omega-3 supplements may be recommended to patients with preexisting disease, a high risk of disease, or high triglyceride levels, as well as to patients who do not like or are allergic to fish.** The Italian GISSI study found that the use of 850 mg of EPA and DHA daily resulted in **decreased rates of mortality, nonfatal myocardial infarction, and stroke, with particular decreases in the rate of sudden death.**
09-103. +Int+Adm. A 69-year-old female sees you for an annual examination. She asks you to look at her toes, and you note a fungal infection in five toenails. She says the condition is painful and limits her ability to complete her morning walks. She asks for treatment that will allow her to resume her daily walks as soon as possible. Her only other medical problem is allergic rhinitis which is well controlled. Which one of the following would be the most appropriate treatment for this patient? A) Oral griseofulvin ultramicrosize (Gris-PEG) daily for 12 weeks B) Oral terbinafine (Lamisil) daily for 12 weeks C) Topical terbinafine (Lamisil AT) daily for 12 weeks D) Topical ciclopirox (Penlac Nail Lacquer) daily for 12 weeks E) Toenail removal	Onychomycosis. **09-103.** Fungal infection toenail. **ANS=B. Continuous therapy with oral terbinafine for 12 weeks has the highest cure rate and best long-term resolution** rate of the therapies listed. Other agents and pulsed dosing regimens have lower cure rates. Topical creams are not appropriate for onychomycosis because the infection resides in the cell of the toenail. Antifungal nail lacquers have a lower cure rate than systemic therapy and should be used only when oral agents would not be safe. Toenail removal is reserved for patients with an isolated infected nail or in cases involving a dermatophytoma.
08-222. +Int+Cca. A 4-year-old white male is brought to your office in late August. His mother tells you that over the past few days he has developed a rash on his hands and "sores" in his mouth. On examination you note a vesicular exanthem on his hands, with lesions ranging from 3 to 6 mm in diameter. The oral lesions are shallow, whitish, 4- to 8-mm ulcerations distributed randomly over the hard palate, buccal mucosa, gingiva, tongue, lips, and pharynx. Except for a temperature of 37.4°C (99.3°F), the remainder of the examination is normal. The most likely diagnosis is A) herpangina B) hand, foot, and mouth disease C) aphthous stomatitis D) herpetic gingivostomatitis E) streptococcal pharyngitis	Oral ulcerations. **08-222.** Hand, foot, and mouth disease is a **mild infection occurring in young children, and is caused by coxsackievirus A16, or occasionally by other strains of coxsackie- or enterovirus. ANS=B. In addition to the oral lesions, vesicular lesions may occur on the feet and nonvesicular lesions may occur on the buttocks.** A low-grade fever may also develop. **Herpangina is also caused by coxsackieviruses, but it is a more severe illness characterized by severe sore throat and vesiculo-ulcerative lesions limited to the tonsillar pillars, soft palate, and uvula, and occasionally the posterior oropharynx. Temperatures can range to as high as 41°C (106°F).** The etiology of **aphthous stomatitis is multifactorial, and it may be due to a number of conditions. Systemic signs, such as fever, are generally absent. Lesions are randomly distributed**. ***Herpetic gingivostomatitis also causes randomly distributed oral ulcers, but it is a more severe illness, regularly accompanied by a higher fever, and is extremely painful.*** Streptococcal pharyngitis is rarely accompanied by ulceration except in agranulocytic patients.
09-060. +Ref+Cfp. A 27-year-old Korean female consults you regarding several painful ulcers she has developed in the vaginal area. Your examination reveals multiple 0.5-cm to 1.5-cm oval ulcers with sharply defined borders and a yellowish-white membrane. She denies recent sexual activity. Except for recurring	Oral ulcerations. **09-060.** Behçet's syndrome vs. Reiter's. **ANS=B**. The original description of **Behçet's syndrome** included **recurring genital and oral ulcerations and relapsing uveitis**. It is **more common in Japan, Korea, and the Eastern Mediterranean area, and affects primarily young adults**. The cause is

aphthous ulcers of her mouth, her past history is unremarkable. You obtain blood for a CBC and serology. A Tzanck smear and culture of her ulcer is negative for herpes simplex virus. Two days later she returns to discuss her laboratory findings. She draws your attention to a pustule with an erythematous margin at the site where the venipuncture was done. At this time the most likely diagnosis is A) Reiter's syndrome B) Behçet's syndrome C) syphilis D) mucocutaneous lymph node syndrome (Kawasaki disease)
E) AIDS



Iridocyclitis is a term used to denote inflammation in two parts ofthe uveal tract of the eye; the iris and the ciliary body. It derives its name from combining iritis (inflammation of the iris) and cyclitis (inflammation of the ciliary body). Iridocyclitis may also be referred to as anterior uveitis, or a form of intermediate uveitis, depending upon the classification system employed by the physician.Chronic, nongranulomatous Iridocyclitis is an important complication of juvenile rheumatoid arthritis.

unknown. **Two-thirds of patients will develop ocular involvement that may progress to blindness. Patients may develop arthritis, vasculitis, intestinal manifestations, or neurologic manifestations.** This disease is **also associated with cutaneous hypersensitivity; 60%–70% of patients will develop a sterile pustule with an erythematous margin within 48 hours of an aseptic needle prick.** **Reiter's syndrome** (the **association of urethritis, iridocyclitis-inflammation of both iris and ciliary body-, mucocutaneous lesions, and arthritis, sometimes with diarrhea**; one or more of these conditions may recur at intervals of months or years, but the arthritis may be persistent) **is not associated with genital ulcers.** The ulcers of syphilis are characteristically painless. Mucocutaneous lymph node syndrome (Kawasaki disease) primarily affects children under 6 years of age. While AIDS causes distinctive skin lesions, genital ulcers are not a common manifestation of this disease.

http://www.uveitis.org/patient/glossary/t_z.html
Uveitis is inflammation inside the eye, specifically affecting one or more of the three parts of the eye that make up the uvea: the iris (the colored part of the eye), the ciliary body (behind the iris, responsible for manufacturing the fluid inside the eye) and the choroid (the vascular lining tissue underneath the retina). The structures of the uvea, marked here in red, are collectively known as the uveal tract. Uveitis is a serious ocular condition. It is the third leading cause of blindness worldwide, accounting in the United States for 10-15% of all blindness. Untreated or under-treated uveitis, or repeated episodes of inflammation within the eye, can lead to scarring and blinding consequences. Uveitis is a treatable condition.

10-022. +Res+Cca.**?** A 4-year-old white male is brought to your office because he has had a low-grade fever and decreased oral intake over the past few days. On examination you note shallow oral ulcerations confined to the posterior pharynx. Which one of the following is the most likely diagnosis?
A) Herpangina
B) Herpes
C) Mononucleosis
D) Roseola infantum
E) Rubella

Oral ulcerations. **10-022.** Herpangina is a febrile disease caused by coxsackieviruses and echoviruses. Vesicles and subsequent ulcers develop in the posterior pharyngeal area (SOR C). **ANS=A.** Herpes infection causes a gingivostomatitis that involves the anterior mouth. Mononucleosis may be associated with petechiae of the soft palate, but does not usually cause pharyngeal lesions. The exanthem in roseola usually coincides with defervescence. Mucosal involvement is not noted. Rubella may cause an enanthem of pinpoint petechiae involving the soft palate (Forschheimer spots), but not the pharynx.

07-008. +Mus+Adm. Which one of the following is characteristic of osteoarthritis of the knee? A) Greater frequency in men than in women B) Increased pain with rest C) A direct correlation between radiographic changes and pain severity D) Reduction of pain with repair of associated meniscal tears E) Reduction of pain with muscle strengthening

Osteoarthritis of the knee. **07-008.** Osteoarthritis of the knee is more common in women than in men. **ANS=E.** Rest improves the pain of osteoarthritis, and increasing muscle strength improves joint stability and reduces pain. Meniscal tears are extremely common in advanced osteoarthritis, but repairing them fails to improve the course of the disease. Radiographic changes correlate poorly with pain severity in osteoarthritis.

08-071. +Mus+Adm. A 55-year-old African-American male with osteoarthritis of the knees asks for advice on improving the function of his knees and controlling arthritis pain. Which one of the following would be appropriate advice?
A) Topical capsaicin (Zostrix) applied twice daily will improve both pain and function
B) Glucosamine will improve both pain and function
C) A therapeutic exercise program will improve both pain and function
D) An intra-articular corticosteroid injection will provide at least 6 months of pain relief
E) NSAIDs will slow the progression of the disease

Osteoarthritis of the knee. **08-071.** A therapeutic exercise program will reduce both pain and disability in patients with osteoarthritis of the knee (SOR A). **ANS=C.** There is no evidence to support the use of capsaicin cream, but NSAIDs will reduce pain and there are proven therapies that will improve function of the patient's knee. While intra-articular corticosteroids are effective in relieving pain in the short term (up to 4 weeks), there is no evidence for long-term efficacy. There is not good evidence to support the use of glucosamine for treating osteoarthritis of the knee. One systematic review found it no more effective than placebo.

09-029. +Mus+Adm. Which one of the following dietary supplements has the best evidence of efficacy in the treatment of osteoarthritis of the knee? A) Methylsulfonylmethane (MSM) B) Glucosamine sulfate C) *Harpagophytum procumbens* (devil's claw) D) *Curcuma longa* (turmeric) E) *Zingiber officinale* (ginger)

Osteoarthritis of the knee. **09-029.** Glucosamine sulfate may be used to reduce symptoms and possibly slow disease progression in patients with osteoarthritis of the knee (SOR B). Methylsulfonylmethane, devil's claw, turmeric, and ginger are not recommended because of insufficient evidence of their effectiveness.

10-036. +Mus+Adm.* A 62-year-old diabetic with stage 2 renal dysfunction is evaluated for knee pain that has mildly interfered with his usual activities over the past 3 months. On examination he is mildly tender over the medial joint line. A knee radiograph shows moderate medial joint space narrowing. In addition to low-impact exercise, which one of the following would you recommend initially?
A) Intra-articular hyaluronic acid
B) Intra-articular corticosteroids
C) Celecoxib (Celebrex)
D) Naproxen
E) Acetaminophen

Osteoarthritis of the knee**. 10-036.** Intra-articular injections should not be considered first-line treatment for symptomatic osteoarthritis of the knee. They are recommended for short-term pain control, with the evidence for hyaluronic acid being somewhat weak. Renal dysfunction is a contraindication to the use of NSAIDs. Acetaminophen is the first-line treatment in this case. **ANS=E.**

07-185. +Mus+Cel. A hospitalized 75-year-old white female requests treatment

Osteoarthritis**. 07-185. ANS=A.** The **main factor limiting the use of NSAIDs is**

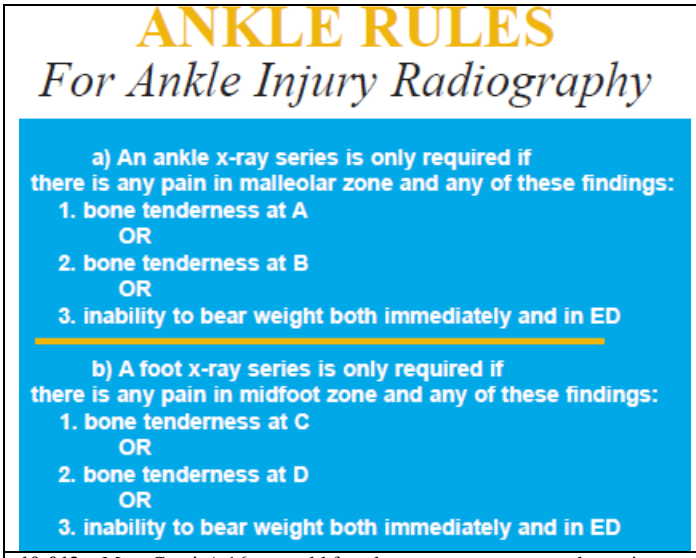
for joint pain from osteoarthritis. She currently takes aspirin, 81 mg daily, and has already tried maximum doses of acetaminophen and over-the-counter topical medications without relief. She has no history of peptic ulcer disease, gastroesophageal reflux disease, or dyspepsia. You review with her the benefits and risks of NSAIDs. Which one of the following is true regarding the potential for gastrointestinal (GI) complications? A) NSAIDs can increase the risk of GI problems distal to the duodenum, as well as proximal to the duodenum B) Most individuals who develop gastric ulcers while using NSAIDs have GI symptoms C) The main mechanism by which NSAIDs induce GI complications is through a direct physical irritating effect of the pill on the gastric mucosa as it is absorbed D) Low-dose enteric-coated aspirin (81 mg daily) does not increase the risk of GI complications if other NSAIDs are not used concomitantly E) Most individuals who develop gastric ulcers while using NSAIDs have a positive test for *Helicobacter pylori*	**gastrointestinal (GI) toxicity**. Endoscopic studies have shown that patients who regularly take NSAIDs have an ulcer prevalence of 15%–30%. NSAIDs also may cause an increase in clinical events beyond the duodenum. In one study, 13% of GI hospitalizations in patients with rheumatoid arthritis taking NSAIDs were for lower GI events and 32% of GI hospitalizations in patients with osteoarthritis were for lower GI events. Most NSAID users with GI complications have no antecedent symptoms. Any dose of aspirin has the potential to cause upper GI events, including enteric-coated or buffered aspirin. The use of enteric-coated or buffered aspirin does not decrease the risk of major upper GI bleeding compared with plain aspirin at dosages of □325 mg daily. The primary mechanism by which aspirin and other NSAIDs induce GI complications is systemic rather than topical. The weight of current evidence does not suggest that *Helicobacter pylori* infection potentiates the risk of ulcer formation in NSAID users. Some data even suggests that *H. pylori* may protect against gastric ulcer disease. Certainly, both NSAID use and *H. pylori* are independent risk factors for ulcer disease. *H. pylori* may potentiate the effect of low-dose aspirin with respect to ulcer bleeding.
07-195. +Mus+Cel. A 65-year-old female presents with a complaint of slowly increasing discomfort in her knees of 3 years' duration. An examination and radiograph are consistent with noninflammatory osteoarthritis. She says that the pain is well-controlled with acetaminophen, but she wants to know what can be done to prevent further damage to the joint. You recommend A) referral to a rheumatologist for disease-modifying agents such as methotrexate B) hyaluranon injections to preserve cartilage C) corticosteroid injections D) symptomatic measures only	Osteoarthritis**. 07-195.** Osteoarthritis is a common finding in older people; some studies show that 25% of patients over age 65 have osteoarthritic changes. **ANS=D.** Unfortunately, **no pharmacologic treatments have been found to prevent the progression of joint destruction.** Maintaining ideal weight and avoiding excessive use of the knees, including deep knee bends, running, and stair climbing, does lessen destructive forces on the joint. **A reasonable walking program can improve both pain and joint function**. Acetaminophen is the first choice for joint pain in someone with noninflammatory osteoarthritis**. NSAIDs provide better pain relief but can cause renal damage, fluid retention, and GI bleeding, and are therefore reserved as a second-line treatment**. Narcotics usually are reserved for short-term use during flares of arthritis. **Studies show that injections of corticosteroids or hyaluranons improve symptoms for some, but have not been shown to lessen joint destruction**. **Disease-modifying agents, such as methotrexate, can help inflammatory arthritic joints, as in psoriatic arthritis and rheumatoid arthritis, but have not been shown to be of benefit in osteoarthritis.**
08-054. +Mus+Cel. A 75-year-old white female presents with severe pain of the carpometacarpal joint at the base of her thumb. Examination of her hands also reveals hypertrophic changes of the distal interphalangeal and proximal interphalangeal joints of her fingers. These findings are most consistent with A) rheumatoid arthritis B) gout C) systemic lupus erythematosus D) scleroderma E) osteoarthritis	Osteoarthritis**. 08-054.** Osteoarthritis causes changes predominantly in the proximal interphalangeal (PIP) and distal interphalangeal (DIP) joints of the hands, and the carpometacarpal joints of the thumbs. **ANS=E.** While rheumatoid arthritis commonly causes subluxations in the metacarpophalangeal joints, this patient's subluxation is most likely due to osteoarthritis. The other choices are less likely to cause this problem.
08-197. +Mus+Adm. Which one of the following is a risk factor for osteoarthritis of the hip? A) Low bone mass B) Young age C) Participation in swimming D) Hyperthyroidism E) Obesity	Osteoarthritis**. 08-197. H**ip. **ANS=E.** Risk factors for osteoarthritis of the hip include obesity, high bone mass, old age, participation in weight-bearing sports, and hypothyroidism.
07-060. +Mus+Cel. A 68-year-old white female has a bone mineral density that is 2.7 standard deviations below the reference mean for healthy, young white women. You prescribe alendronate (Fosamax), 70 mg orally once a week, and counsel the patient that the medication should be taken A) on an empty stomach B) at bedtime C) with her other medications D) with no more than 4 oz of water	Osteoporosis. **07-060. A**lendronate**. ANS=A.** Absorption of alendronate can be reduced by food and certain minerals. It should be taken with 6–8 oz of water at least 30 minutes before the first food, drink (other than water), or medication of the day. Furthermore, because of an increased risk of gastroesophageal irritation, the patient should remain upright for at least 30 minutes after taking alendronate.
07-216. +Mus+Cel. A 73-year-old female who is a patient in the skilled-care wing of an extended-care facility is nearly ready for discharge. Her extended rehabilitation stay was a result of surgery for a hip fracture, so she asks what she can do to prevent further fractures. A dual-energy x-ray absorptiometry (DEXA) scan reveals her T score to be –1.4 in both the hip and the spine. Which one of the following statements is true regarding treatment of this patient's condition? A) No treatment is indicated B) Raloxifene (Evista) can help prevent further hip fractures C) Calcitonin is the most effective drug available for the treatment of osteoporosis D) Bisphosphonates can reduce fracture risk even if bone density is not substantially increased	Osteoporosis**. 07-216. ANS=D.** Anyone with established disease, such as osteoporotic hip fracture, is a candidate for osteoporosis treatment, regardless of their T score. **Raloxifene is effective for prevention of vertebral fractures in patients with osteoporosis, but not for other fractures**. Other agents are more effective than calcitonin for the treatment of osteoporosis. **Increases in bone mineral density during treatment with bisphosphonates contribute only a small part to fracture prevention**. Epocrates: **Raloxifene:** estrogen receptor modulator: selectively binds to estrogen receptors, inhibiting bone resorption and turnover. **Subclass:** Hormonal Oncologics 6: Other.
08-093. +Mus+Adm. Osteoporotic bone loss can be caused or accelerated by prolonged use of which one of the following medications? A) Hydrochlorothiazide B) Phenytoin C) Raloxifene (Evista) D) Diazepam (Valium) E) Fluoxetine (Prozac)	Osteoporosis. **08-093. ANS=B.** Secondary osteoporosis can result from a variety of endocrine, nutritional, or genetic disorders, as well as from prolonged use of certain medications. Anticonvulsants such as phenytoin increase the hepatic metabolism of vitamin D, thereby reducing intestinal calcium absorption. Other medications that adversely affect bone mineral density include glucocorticoids, cyclosporine, phenobarbital, and heparin. Thiazide diuretics reduce urinary calcium loss and are believed to preserve bone density with long-term use. Benzodiazepines and SSRIs have not been associated with increases in bone loss or in hip fractures. **Raloxifene, a selective estrogen receptor modulator, is indicated for the prevention and treatment of osteoporosis in postmenopausal women.**

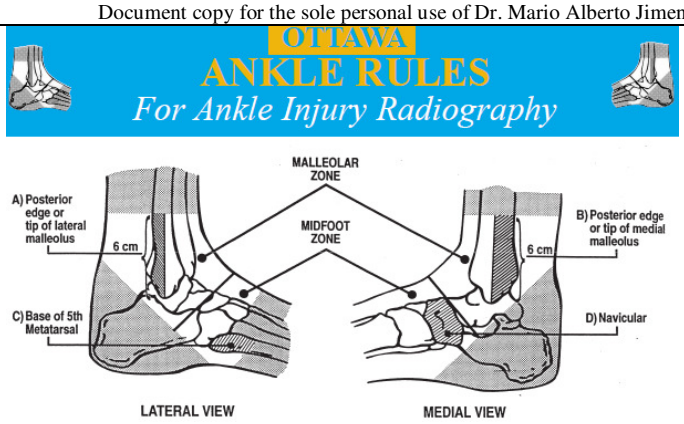
08-171. +Mus+Adm. A 70-year-old female consults you about osteoporosis treatment. Two years ago her T score was –2.6, and she began taking risedronate (Actonel), 35 mg/week. Her BMI is 24 kg/m2, she takes appropriate doses of calcium and vitamin D, and she takes walks almost every day. Her current T score is –2.5, and she is concerned about the minimal change in spite of therapy. She has never had a fracture, but asks if more could be done to reduce her fracture risk. Which one of the following would be the most appropriate recommendation? A) Continue current treatment B) Stop risedronate and start alendronate (Fosamax) C) Stop risedronate and start teriparatide (Forteo) D) Add raloxifene (Evista) E) Order a bone biopsy to evaluate bone architecture	Osteoporosis. **08-171.** treatment**. ANS=A.** There is not a linear correlation between bone mineral density and fracture risk. Bone architecture may be changed by bisphosphonate therapy, which may result in a decreased fracture risk. This patient has not had a fracture and is on adequate medical therapy that should be continued.
08-231. +End+Adm. In addition to calcium and vitamin D supplementation, patients who are beginning long-term treatment with prednisone (≥3 months at a dosage ≥5 mg/day) should also receive A) bisphosphonate therapy B) calcitonin C) estrogen replacement therapy D) recombinant human parathyroid hormone E) raloxifene (Evista)	Osteoporosis. **08-231.** glucocorticoid-induced. The American College of Rheumatology recommends that patients who are beginning long-term treatment with prednisone (≥3 months at a dosage ≥5 mg/day), or an equivalent, receive bisphosphonate therapy in addition to calcium and vitamin D supplementation, regardless of their T score. **ANS=A.** The other treatments are not recommended for prevention of glucocorticoid-induced osteoporosis.
09-034. +Mus+Adm. In which one of the following patients can a diagnosis of osteoporosis be made? A) A 58-year-old female who fractured her wrist when she slipped and fell on her outstretched hand onto a carpeted floor B) A 62-year-old female who sustained a pelvic fracture in a motor vehicle accident C) A 52-year-old female with a T-score of +2.5 on bone mineral density (BMD) testing of her hip D) A 67-year-old female with a T-score of –1.7 on BMD testing of her spine E) A 72-year-old female with a T-score of –2.0 on BMD testing of her spine	Osteoporosis. **09-034. Defined as a fragility or low-impact fracture, or as a spine or hip bone mineral density (BMD) ≥2.5 standard deviations below the mean for young, healthy women.** A **fracture of the radius caused by a fall from a standing position would be considered a low-impact fracture.** A fracture resulting from a motor vehicle accident would be considered a high-impact fracture, which is not diagnostic for osteoporosis. **A T-score of –2.5 or less is considered osteoporosis, a T-score between –1.0 and –2.5 is considered osteopenia, and a T-score of –1.0 or higher is considered normal.**
09-138. +Mus+Adm. Secondary causes of osteoporosis in males include which one of the following? A) Weekly consumption of 3–6 alcoholic drinks B) Male hormone supplementation C) Vitamin D excess D) Obesity E) Corticosteroid use	Osteoporosis. **09-138.** in men**. ANS=E.** Corticosteroids are among the common secondary causes of osteoporosis in men. Other causes include excessive alcohol use, hypogonadism, vitamin D deficiency, and decreased body mass index.
09-172. +Mus+Adm. Which one of the following has the best evidence of effectiveness for preventing fractures in postmenopausal women with osteoporosis? A) Home-hazard assessment B) Daily supplementation with vitamin D C) Treatment with calcitonin D) Treatment with alendronate (Fosamax)	Osteoporosis**. 09-172. ANS=D.** Of the options listed, treatment with bisphosphonates to prevent osteoporotic hip and vertebral fractures is the only one supported by consistent patient-oriented, high-quality clinical evidence (SOR A). While each of the other recommendations has merit, the overall level of evidence for effectiveness is less compelling for these treatments than for treatment with bisphosphonates (SOR B).
09-212. +Mus+Adm. The most effective daily doses of vitamin D and calcium for hip fracture prevention in postmenopausal women are A) 800 IU vitamin D and 500 mg calcium B) 400 IU vitamin D and 500 mg calcium C) 400 IU vitamin D and 1000 mg calcium D) 800 IU vitamin D and 1200 mg calcium	Osteoporosis. **09-212. H**ip fracture prevention. **ANS=D.** The most effective daily dose of vitamin D for hip fracture prevention in postmenopausal women is 800 IU, and the recommended daily dose of calcium is 1200 mg.
10-231. +Mus+Adm. A 60-year-old Chinese female asks you about being tested for osteoporosis. She is postmenopausal and has never used hormone therapy. She does not consume dairy products because she has lactose intolerance. She is on no medications, is otherwise healthy, and has no history of falls or fractures. Her mother had osteoporosis and vertebral compression fractures. Her BMI is 20 kg/m2. Which one of the following tests would be best to determine whether this patient has osteoporosis? A) A central DXA scan of the lumbar spine and hips B) A forearm DXA scan C) Quantitative CT of the lumbar spine D) Quantitative calcaneal ultrasonography E) Measurement of biochemical markers of bone turnover in the urine	Osteoporosis**. 10-231. R**isk factors. **ANS=A.** This patient has several risk factors for osteoporosis: Asian ethnicity, low body weight, positive family history, postmenopausal status with no history of hormone replacement, and low calcium intake. The best diagnostic test for osteoporosis is a central DXA scan of the hip, femoral neck, and lumbar spine. Quantitative CT is accurate, but cost and radiation exposure are issues. Peripheral DXA and calcaneal sonography results do not correlate well with central DXA. Measurement of biochemical markers is not recommended for the diagnosis of osteoporosis.
09-221. +Sen+Cca. On examination a 2-year-old child is found to have otalgia, a temperature of 39.0°C (102.2°F), and a bulging, red tympanic membrane. She weighs 17 kg (35 lb). Which one of the following would be the appropriate dosage of amoxicillin (Amoxil) for this child? A) 375 mg/day B) 500 mg/day C) 750 mg/day D) 1000 mg/day E) 1500 mg/day	Otitis media. **09-221. A**cute. **ANS=E.** For treating acute otitis media in this patient, the current recommended dosage of amoxicillin is 80–90 mg/kg/day.
10-089. +Sen+Cca.>L?* Which one of the following is the most common cause of recurrent and persistent acute otitis media in children? A) *Haemophilus influenzae* B) *Moraxella catarrhalis* C) Penicillin-resistant *Streptococcus pneumoniae* D) *Pseudomonas aeruginosa* E) *Staphylococcus aureus*	Otitis media**. 10-089. A**cute. **ANS=C.** *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Moraxella catarrhalis* are the most common bacterial isolates from the middle ear fluid of children with acute otitis media. **Penicillin-resistant *S. pneumoniae* is the most common cause of recurrent and persistent acute otitis media**.
10-123. +Sen+Cca. A 20-month-old male presents with a history of a fever up to 38.5°C (101.3°F), pulling at both ears, drainage from his right ear, and a poor appetite following several days of nasal congestion. This is his first episode of acute illness, and he has no history of drug allergies. The fever is confirmed on examination and the child is found to be fussy but can be distracted. He is eating adequately and shows no signs of dehydration. Positive findings include mild nasal congestion, a purulent discharge from the right auditory canal, and a red, bulging, immobile tympanic membrane in the left auditory canal. Which one of	Otitis media. **10-123. P**resumed tympanic membrane perforation **ANS=C.** This patient has acute bilateral otitis media, with presumed tympanic membrane perforation, and qualifies by any criterion for treatment with antibiotics. Amoxicillin, 80–90 mg/kg/day, should be the first-line antibiotic for most children with acute otitis media (SOR B). The other medications listed are either ineffective because of resistance (e.g., penicillin), are second-line treatments (e.g., amoxicillin/clavulanate), or should be used in patients with a penicillin allergy or in other special situations.

the following would be first-line treatment for this patient? A) Ceftriaxone (Rocephin) B) Amoxicillin/clavulanate (Augmentin) C) Amoxicillin D) Azithromycin (Zithromax) E) Penicillin VK	
07-156. +Pbc+Euc. Activated charcoal is ineffective for the treatment of acute ingestions of which one of the following? A) Acetaminophen B) Enteric-coated aspirin C) Ferrous sulfate D) Amitriptyline E) Digoxin	Overdose. **07-156.** charcoal. **ANS=C.** Activated charcoal is widely used for gastrointestinal decontamination following drug overdose. There is no evidence to support or exclude its use more than 1 hour after the ingestion, however, and potential complications such as aspiration should be weighed against benefits. It is given orally or via nasogastric tube at a recommended dose of 1 g/kg body weight. Charcoal absorbs >90% of most toxins in vitro if the amount used is ten times the amount of the toxin. The charcoal-toxin complex is later evacuated in the stool. However, **charged (ionized) chemicals and dissociated salts such as iron, lithium, fluoride, cyanide, mineral acids, alkalis, and some other inorganic compounds are poorly absorbed by charcoal**. Even multiple-dose therapy is not effective in the treatment of poisoning due to these agents. **For toxic iron ingestions useful treatments include gastric evacuation with ipecac or lavage, whole bowel irrigation with polyethylene glycol, and chelation with deferoxamine.**
10-163. +Non+Euc.>L* A 3-year-old male is brought to the emergency department by his parents, who report seeing him swallow a handful of adult ibuprofen tablets 20 minutes ago. Which one of the following would be the most appropriate initial management of this patient? A) Oral ipecac B) Oral activated charcoal C) Gastric lavage D) Whole-bowel irrigation E) Close observation	**Overdose. 10-163.** charcoal. **ANS=B.** A single dose of **activated charcoal is the decontamination treatment of choice for most medication ingestions.** It **should be used within 1 hour of ingestion** of a potentially toxic amount of medication (SOR C). Gastric lavage, cathartics, or whole bowel irrigation is best for ingestion of medications that are poorly absorbed by activated charcoal (iron, lithium) or medications in sustained-release or enteric-coated formulations. Ipecac has no role in home use or in the health care setting (SOR C).
09-042. +Gas+Cel. An 86-year-old mildly demented male nursing-home resident rarely leaves the facility. He has frequent fecal incontinence that is disturbing to both him and his family. He has diet-controlled diabetes mellitus and hypertension, and a history of transurethral resection of the prostate (TURP) for benign prostatic hypertrophy. An examination is remarkable only for an empty rectum and no focal neurologic findings. Which one of the following is the most likely cause of this patient's fecal incontinence? A) Decreased rectal sensation secondary to diabetes mellitus B) Decreased rectal storage capacity C) Internal sphincter weakness D) Puborectalis weakness E) Overflow	Overflow incontinence (rectal). **09-042.** Overflow incontinence (rectal) is common in the institutionalized elderly, and is often due to constipating medications. Reduced storage capacity is usually seen with inflammatory bowel disease. Mild diabetes mellitus does not cause decreased rectal sensation, and puborectalis and internal sphincter weakness are uncommon in males, as they usually result from vaginal delivery.
09-198. +Car+Adm. A 58-year-old male complains of leg claudication. Subsequent tests reveal that he has significant bilateral peripheral arterial disease. His current medications include atenolol (Tenormin), 50 mg/day, and aspirin, 325 mg/day. His blood pressure is 128/68 mm Hg, and his pulse rate is 64 beats/min. His LDL-cholesterol level is 123 mg/dL. The addition of which one of the following could reduce this patient's symptoms? A) Epoetin alfa (Epogen) B) Nifedipine (Procardia) C) Simvastatin (Zocor) D) Testosterone supplementation E) Warfarin (Coumadin) titrated to an INR of 2.0–3.0	PAD (Peripheral arterial disease). **09-198.** Peripheral arterial disease (PAD) is a common malady that has several proven treatments. **ANS=C**. The outcomes of these treatments can be separated into two primary categories: reducing PAD symptoms and preventing death due to systemic cardiovascular events (CVEs), especially myocardial infarction. Routine exercise up to near-maximal pain on a regular basis has been shown to be one of the most effective treatments for symptoms of PAD. Smoking cessation and aspirin are also standard recommendations, and can both prevent CVEs and slow the rate of progression of PAD symptoms. Statin drugs (specifically simvastatin and atorvastatin) have been shown to be beneficial for treatment of PAD symptoms and prevention of CVEs through the reduction of cholesterol, but they also appear to have other properties that help reduce leg pain in patients with PAD. Although lowering abnormally high blood pressure is recommended in PAD patients, only ACE inhibitors have been shown to reduce symptoms of PAD directly. Furthermore, the combination of atenolol and nifedipine has actually been shown to worsen symptoms of PAD. The addition of warfarin to aspirin has no additional benefit in either reduction of PAD symptoms or prevention of CVEs, but it may have a role in preventing clots in patients who have undergone revascularization.
10-117. +Mus+Adm. Which one of the following is true concerning Paget's disease of bone? A) It is a precursor of multiple myeloma B) Both bone formation and bone resorption are increased C) The treatment of choice for symptomatic disease is a calcium channel blocker D) Pagetic bone pain is difficult to relieve and resistant to medical treatment E) Extracellular calcium homeostasis is typically abnormal	Paget's disease. **10-117.** Paget's disease of bone is a focal disorder of skeletal metabolism in which all elements of skeletal remodeling (resorption, formation, and mineralization) are increased. **ANS=B.** There is no known relationship between Paget's disease and multiple myeloma, although most cases of sarcoma in patients over 50 arise in pagetic bone. The preferred treatment for nearly all patients with symptomatic disease is one of the newer bisphosphonates. Treatment of bone pain resulting from Paget's disease is generally very satisfactory, and in fact, relief may continue for many months or years after treatment is stopped, lending support for intermittent symptomatic therapy. Finally, despite the massive bone turnover, extracellular calcium homeostasis is almost invariably normal.
07-220. +Neu+Adm. Which one of the following would be appropriate for pain control in a critically ill patient in the intensive-care unit? A) Meperidine (Demerol) B) Ketorolac (Toradol) C) Butorphanol (Stadol) D) Hydromorphone (Dilaudid) E) Methadone (Dolophine)	Pain control. **07-220.** In ICU. **ANS=D.** **Hydromorphone, morphine sulfate, and fentanyl are the three most commonly used opioid analgesics for pain control in the intensive-care unit (ICU).** The other drugs listed are considered inappropriate for analgesia in the ICU. **Meperidine is not recommended because its analgesia is not superior to that of morphine. Also, its metabolite normeperidine is eliminated through the kidneys and has neurotoxic effects, including seizures and delirium.** NSAIDs such as ketorolac are not recommended, because they are not superior to opiates. In addition, they cause platelet inhibition and have an antiprostaglandin effect that increases the risk of

	stress ulcers and renal injury. Opiate agonist-antagonists such as butorphanol may precipitate withdrawal in chronic opiate users or in ICU patients who have received opiates for a prolonged period of time. They also may reverse opiate analgesic effects. Methadone has an extended duration of activity that increases the risk of accumulation and adverse effects with repeated dosing.
08-119. +Pbc+Adm. Which one of the following is true regarding the use of opiates in terminally ill patients? A) They are frequently addictive B) They are indicated for relieving dyspnea C) A medication "contract" is required by law D) Respiratory depression is the first sign of excessive dosage E) Gastrointestinal hypermotility is a common side effect	Pain control. **08-119.** Terminally ill patients. **ANS=B.** In terminally ill patients, the most common physical symptoms are pain, fatigue, and dyspnea. Opiates are useful for controlling pain and relieving dyspnea as well. Even small doses of a weaker opiate can reduce the sensation of shortness of breath in cancer patients and in those with heart failure or chronic obstructive lung disease. Addiction is rare in terminally ill patients who are being treated with opiates for pain and/or dyspnea. A medication contract between physician and patient is not required by law and generally is not necessary in this situation, unless diversion of the medication from the patient by the caregivers is suspected. Constipation due to decreased gastrointestinal motility is a very common, if not universal, side effect. Respiratory depression is a late, not early, sign of excessive opiate dosage. Another sign of opiate excess, pinpoint pupils, occurs before respiratory depression and is therefore a useful parameter for monitoring these patients.
09-037. +Res+Cel. You are caring for a 70-year-old male with widespread metastatic prostate cancer. Surgery, radiation, and hormonal therapy have failed to stop the cancer, and the goal of his care is now symptom relief. He is being cared for through a local hospice. Over the past few days he has been experiencing respiratory distress. His oxygen saturation is 94% on room air and his lungs are clear to auscultation. His respiratory rate is 16/min. Which one of the following would be best at this point? A) Morphine B) Oxygen C) Albuterol (Proventil, Ventolin) D) Haloperidol	Pain control. **09-037.** Terminally ill patients. Dyspnea is a frequent and distressing symptom in terminally ill patients. In the absence of hypoxia, oxygen is not likely to be helpful. Opiates are the mainstay of symptomatic treatment. **Ans=A.**
08-086. +Gas+Csp. An obviously intoxicated 50-year-old white male is brought to the emergency department after the car he was driving hit a telephone pole. He has a fracture of the femur, and is confused and uncooperative. His pulse rate is 120 beats/min, his blood pressure is 80/40 mm Hg, and his skin is clammy. Initial physical examination of his abdomen does not indicate significant intra-abdominal injury. Which one of the following would be best for determining whether laparotomy is needed? A) CT of the abdomen B) MRI of the abdomen C) Upright and lateral decubitus radiographs of the abdomen D) Contrast duodenography E) Peritoneal lavage	Pain, abdominal. **08-086.** Physical examination of the abdomen is often unreliable for detecting significant intra-abdominal injury, especially in the head-injured or intoxicated patient. **ANS=E.** In a hemodynamically unstable patient with a high-risk mechanism of injury and altered mental status, peritoneal lavage is the quickest, most reliable modality to determine whether there is a concomitant intra-abdominal injury requiring laparotomy. CT of the abdomen and contrast duodenography may complement lavage in stable patients with negative or equivocal lavage results, but in an unstable or uncooperative patient these studies are too time-consuming or require ill-advised sedation. Ultrasonography may also complement lavage in selected patients, but its usefulness is limited in the acute situation. MRI is extremely accurate for the anatomic definition of structural injury, but logistics limit its practical application in acute abdominal trauma.
08-162. +Gas+Euc. A 42-year-old previously healthy white female presents to your office with her third episode of abdominal pain. This episode began 2 hours ago, and the pain is improving. She describes colicky right upper quadrant and epigastric pain. On examination you note mild right upper quadrant tenderness, with otherwise unremarkable findings. Renal function tests are normal. Which one of the following would be most appropriate at this point? A) KUB films B) Ultrasonography of the right upper quadrant C) Abdominal CT with intravenous contrast D) Abdominal CT with intravenous and oral contrast E) MRI of the abdomen	Pain, abdominal. **08-162.** right upper quadrant. **ANS=B.** Ultrasonography of the right upper quadrant is recommended as the initial imaging study for right upper quadrant pain (SOR C). KUB films can detect kidney stones but may miss gallstones. CT also may miss gallstones, and is more invasive than ultrasonography. Abdominal CT with intravenous contrast is the preferred test for right lower quadrant pain, and abdominal CT with intravenous and oral contrast is preferred for left lower quadrant pain. MRI is preferred for detecting tumors, and is inappropriate as the initial imaging study for right upper quadrant pain.
09-174. +Mus+Adm. A 39-year-old female presents with lower abdominal/pelvic pain. On examination, with the patient in a supine position, you palpate the tender area of her abdomen. When you have her raise both legs off the table while you palpate the abdomen, her pain intensifies. Which one of the following is the most likely diagnosis? A) Appendicitis B) A hematoma within the abdominal wall musculature C) Diverticulitis D) Pelvic inflammatory disease E) An ovarian cyst	Pain, abdominal. **09-174.** Carnett's sign. **ANS=B.** **Carnett's sign is the easing of the pain of abdominal palpation with tightening of the abdominal muscles**. If the cause is visceral, the taut abdominal muscles could guard the source of pain from the examining hand. In contrast**, intensification of pain with this maneuver points to a source of pain within the abdominal wall itself.**
10-029. +Psy+Cca. An 11-year-old female has been diagnosed with "functional abdominal pain" by a pediatric gastroenterologist. Her mother brings her to see you because of concerns that another diagnosis may have been overlooked despite a very thorough and completely normal evaluation for organic causes. Which one of the following would you recommend? A) A trial of inpatient hospital admission B) Increased testing and levels of referral until a true diagnosis is reached C) Removing the child from school and activities whenever symptoms occur D) Medications to eradicate symptoms E) Stress reduction and participation in usual activities as much as possible	Pain, abdominal. **10-029.** functional abdominal. **ANS=E.** The diagnosis of **functional abdominal pain is made when no structural, infectious, inflammatory, or biochemical cause for the pain can be found. It is the most common cause of recurrent abdominal pain in children 4–16 years of age**. The use of medications may be helpful in reducing (but rarely eradicating) functional symptoms, and remaining open to the possibility of a previously unrecognized organic disorder is appropriate. However, continuing to focus on organic causes, invasive tests, or physician visits can actually perpetuate a child's complaints and distress. It is estimated that approximately 30%–50% of children with functional abdominal pain will have resolution of their symptoms within 2 weeks of diagnosis. **Recommendations for managing this problem include focusing on participation in normal age-appropriate activities, reducing stress and addressing emotional distress, and teaching the family to cope with the symptoms in a way that prevents secondary gain on the part of the child.**
07-005. +Mus+Cca. A 15-year-old white male complains of bilateral foot pain. He does not recall any injury, and the pain improves with rest. Examination reveals tenderness over the lateral and anterior ankle, along with a rigid flatfoot, peroneal tighypertensioness, and pain on foot inversion. The most likely diagnosis is A) tarsal coalition B) stress fracture C) plantar fasciitis D) turf toe E) foot sprain	Pain, ankle. **07-005.** Tarsal coalition is the fusion of two or more of the tarsal bones. **ANS=A.** It is congenital, and 50% of the time is bilateral. It is asymptomatic until early adolescence. On clinical examination there is tenderness over the subtalar joint (lateral and anterior ankle), rigid flatfoot, limited subtalar motion, peroneal tighypertensioness, and pain on foot inversion. Treatment is conservative. A stress fracture would present with pain in the forefoot, warmth,

	mild swelling, and point tenderness over the affected metatarsals, most commonly the second or third. Radiographs are often negative initially, but a callus is usually evident by the third week of symptoms. Plantar fasciitis presents with pain in the heel or sole of the foot and is most painful with the first step after arising from bed or prolonged sitting. It may be associated with pes planus (flat foot), but in plantar fasciitis the flat foot is flexible, not rigid. Turf toe is inflammation of the first metatarsophalangeal joint due to acute and/or repetitive hyperextension injury resulting from sudden toe-off against an unyielding surface, such as artificial turf. The patient may present acutely with a tender, red, swollen first metatarsophalangeal joint, with pain on passive extension. Others may develop a chronic condition and present with hallux rigidus. Foot sprain is a nonspecific term for an acute ligamentous injury.
07-174. +Mus+Adm. A 16-year-old male comes to your office after suffering an eversion injury to his ankle while being tackled in a football game 3 days ago. He was not able to bear weight after the injury and now has tenderness at the distal tibiofibular joint with no swelling. Compression of the fibula against the tibia at the mid-calf elicits pain anterior to the lateral malleolus and proximal to the ankle joint. Stabilizing the leg and rotating the foot externally elicits pain at the same location. Radiographs are negative. Which one of the following would be most appropriate at this point? A) Application of an elastic wrap to the ankle for 2 weeks B) Therapeutic ultrasound C) Stress radiographs D) A CT scan E) Long-term semirigid support	Pain, ankle. **07-174. Ankle sprains.** Syndesmotic (high ankle) sprains account for as many as 11% of ankle sprains. **ANS=E**. The mechanism of injury is dorsiflexion and/or eversion of the ankle, most commonly in contact sports. The syndesmotic structures include the anterior, posterior, and transverse tibiofibular ligaments, as well as the interosseous membrane. These injuries can cause chronic ankle instability, resulting in recurrent sprains and hypertrophic ossification. The diagnosis can be made by several tests. **The squeeze test can be performed by compressing the fibula against the tibia at mid-calf. A positive test occurs when this elicits pain in the region of the anterior tibiofibular ligament**. A **positive external rotation stress test causes pain at the same site. It is performed by stabilizing the leg and externally rotating the foot**. The crossed-leg test can also detect this injury. The patient places the involved ankle on the opposite knee and pressure is applied to the medial side of the involved ankle, which causes pain at the syndesmosis. While ankle support is often useful for less serious sprains, a Cochrane review showed that semirigid supports are better than elastic bandages. Therapeutic ultrasound has not been shown to have any value for ankle sprains. The injury can be confirmed with an MRI. **Indications for referral to an orthopedic surgeon include fracture, dislocation or subluxation, syndesmotic injury, tendon rupture, and uncertain diagnosis.**
08-005. +Mus+Adm. An 18-year-old female basketball player comes to your office the day after sustaining an inversion injury to her ankle. She says she treated the injury overnight with rest, ice, compression, and elevation. You examine her and diagnose a moderate to severe lateral ankle sprain. In addition to rehabilitative exercises, you advise A) a short-term cast B) a posterior splint that allows no flexion or extension C) a semi-rigid stirrup brace (Air-Stirrup) D) an elastic bandage E) no external brace or support	Pain, ankle. **08-005.** Ankle sprains. **ANS=C. In acute ankle sprains, functional treatment with a semi-rigid brace (Aircast) or a soft lace-up brace is recommended over immobilization.** Casting or posterior splinting is no longer recommended. Elastic bandaging does not offer the same lateral and medial support. External ankle support has been shown to improve proprioception.
08-045. +Mus+Adm. A 56-year-old African-American male has pain and tingling in the medial aspect of his ankle and the plantar aspect of his foot. He jogs 3 miles daily and has no history of any injury. The symptoms are aggravated by activity, and sometimes keep him awake at night. The only findings on examination are paresthesias when a reflex hammer is used to tap just inferior to the medial malleolus. This patient probably has A) a stress fracture B) a herniated nucleus pulposus at L5 or S1 C) plantar fasciitis D) diabetic neuropathy E) tarsal tunnel syndrome	Pain, ankle. **08-045.** Tunnel syndrome, tarsal. **ANS=E.** Entrapment of the posterior tibial nerve or its branches as the nerve courses behind the medial malleolus results in a neuritis known as tarsal tunnel syndrome. Causes of compression within the tarsal tunnel include varices of the posterior tibial vein, tenosynovitis of the flexor tendon, structural alteration of the tunnel secondary to trauma, and direct compression of the nerve. Pronation of the foot causes pain and paresthesias in the medial aspect of the ankle and heel, and sometimes the plantar surface of the foot. The usual site for a stress fracture is the shaft of the second, third, or fourth metatarsals. A herniated nucleus pulposus would produce reflex and sensory changes. Plantar fasciitis is the most common cause of heel pain in runners and often presents with pain at the beginning of the workout. The pain decreases during running only to recur afterward. Diabetic neuropathy is usually bilateral and often produces paresthesias and burning at night, with absent or decreased deep tendon reflexes.
09-126. +Mus+Euc. A 41-year-old male trips on a curb while running, sustaining an inversion ankle injury. According to the Ottawa ankle rules, which one of the following would be an indication for radiographic evaluation? A) Tenderness at the anterior talofibular ligament B) Point tenderness over the cuboid C) Inability to take four steps either immediately after the injury or while in your office D) Bony tenderness at the anterior aspect of the distal tibia E) Point tenderness over the base of the fourth metatarsal	Pain, ankle. **09-126. Ottawa ankle rules** have been designed and validated to reduce unnecessary radiographs. **ANS=C. Radiographs should be obtained for all patients with an acute ankle injury who meet any of the following criteria: inability to take four steps, either immediately after the injury or when being evaluated; localized tenderness of the navicular bone or the base of the fifth metatarsal; or localized tenderness at the posterior edge or tip of either malleolus.**





10-012. +Mus+Cca.* A 16-year-old female cross-country runner has pain around both ankles. On examination, pain is elicited on foot inversion and there is decreased motion of the hind foot and peroneal tighypertensioness. A rigid flat foot also is observed. Which one of the following is the most likely diagnosis?
A) Non-ossification of the os trigonum
B) Sever's apophysitis
C) Plantar fasciitis
D) Navicular stress fracture
E) Tarsal coalition

Pain, ankle. **10-012.** Tarsal coalition is the fusion of two or more tarsal bones. **ANS=E.** It occurs in mid- to late adolescence and is bilateral in 50% of those affected. Pain occurs around the ankle, and there is decreased range of motion of the hindfoot and pain on foot inversion on examination. Os trigonum results from non-ossification of cartilage. It usually is unilateral and causes palpable tenderness of the heel. Sever's apophysitis is inflammation of the calcaneal apophysis, and causes pain in the heel. Plantar fasciitis causes tenderness over the anteromedial heel. Navicular stress fractures are tender over the dorsomedial navicular.

10-040. +Mus+Adm.>L* A 45-year-old female presents to your office with a 1-month history of pain and swelling posterior to the medial malleolus. She does not recall any injury, but reports that the pain is worse with weight bearing and with inversion of the foot. Plantar flexion against resistance elicits pain, and the patient is unable to perform a single-leg heel raise. Which one of the following is true regarding this problem?
A) The patient most likely has a medial ankle sprain
B) NSAIDs will improve the long-term outcome
C) Injecting a corticosteroid into the tendon sheath of the involved tendon is recommended
D) A lateral heel wedge should be prescribed
E) Immobilization in a cast boot for 3 weeks is indicated

Pain, ankle. **10-040.** tendinopathy of the posterior tibial tendon. The diagnosis of tendinopathy of the posterior tibial tendon is important, in that the tendon's function is to perform plantar flexion of the foot, invert the foot, and stabilize the medial longitudinal arch. An injury can, over time, elongate the midfoot and hindfoot ligaments, causing a painful flatfoot deformity. **ANS=E.** The patient usually recalls no trauma, although the injury may occur from twisting the foot by stepping in a hole. This is most commonly seen in women over the age of 40. Without proper treatment, progressive degeneration of the tendon can occur, ultimately leading to tendon rupture. Pain and swelling of the tendon is often noted, and is misdiagnosed as a medial ankle sprain. With the patient standing on tiptoe, the heel should deviate in a varus alignment, but this does not occur on the involved side. A single-leg toe raise should reproduce the pain, and if the process has progressed, this maneuver indicates progression of the problem. While treatment with acetaminophen or NSAIDs provides short-term pain relief, neither affects long-term outcome. Corticosteroid injection into the synovial sheath of the posterior tibial tendon is associated with a high rate of tendon rupture and is not recommended. The best initial treatment is immobilization in a cast boot or short leg cast for 2–3 weeks.

10-138. +Mus+Euc.>L A patient is sent to you by his employer after falling down some steps and twisting his ankle and foot. Which one of the following would be the most appropriate reason to obtain foot or ankle radiographs?
A) Notable swelling and discoloration over the anterior talofibular ligament
B) A complaint of marked pain with weight bearing as he walks into the examining room
C) Pain in the maleolar zone and bone tenderness of the posterior medial malleolus
D) The absence of passive plantar foot flexion when the calf is squeezed (Thompson test)

Pain, ankle. **10-138.** Ottawa ankle and foot rules are prospectively validated decision rules that help clinicians decrease the use of radiographs for foot and ankle injuries without increasing the rate of missed fracture. **ANS=C.** The rules apply in the case of blunt trauma, including twisting injuries, falls, and direct blows. According to these guidelines, an ankle radiograph series is required only if there is pain in the malleolar zone and bone tenderness of either the distal 6 cm of the posterior edge or the tip of either the lateral malleolus or the medial malleolus. Inability to bear weight for four steps, both immediately after the injury and in the emergency department, is also an indication for ankle radiographs. Foot radiographs are required only if there is pain in the midfoot zone and bone tenderness at the base of the 5th metatarsal or the navicular, or if the patient is unable to bear weight both immediately after the injury and in the emergency department. A positive Thompson sign, seen with Achilles tendon rupture, is the absence of passive plantar foot flexion when the calf is squeezed.

07-127. +Mus+Adm. A 72-year-old white female is experiencing pain due to a vertebral compression fracture. Pain control with opioid analgesics and calcitonin therapy is not adequate. Which one of the following would make vertebroplasty an appropriate option?
A) Fracture duration <6 months B) Degree of vertebral collapse 80% C) Radiologic evidence of destruction of the posterior vertebral wall D) New-onset bladder dysfunction thought to have a neurologic etiology E) New-onset bilateral lower-extremity paresis

Pain, back. **07-127.** **Vertebroplasty** is a reasonable therapeutic consideration for vertebral compression fractures if pain is not adequately controlled with analgesics and conservative therapy. **ANS=A** Some studies indicate a **better response with less chronic fractures.** **Treatment of fractures less than 6 months old is acceptable**. More prolonged conservative therapy with an inadequate response is not appropriate. **Neurologic dysfunction, including bladder dysfunction, paralysis, and sensory deficits, is a relative contraindication to vertebroplasty**. Spinal cord compression requires other treatment, and high degrees of compression (>67%) are not amenable to this therapy. **Destruction of the posterior wall is a contraindication to this therapy because the injected polymethyl methacrylate should not directly contact the spinal cord. Coagulopathies and infectious processes are also**

	contraindications.
07-138. +Mus+Cca+Adm. A high-school gymnast presents to your office with a history of back pain for the past 3–4 weeks. She reports that symptoms are worse with any hyperextension activity. Examination demonstrates a hyperlordotic posture with mild tenderness in the lower lumbar spine. Radiographs demonstrate the classic "Scotty dog with a collar" appearance of spondylolysis. Which one of the following statements about this diagnosis is true? A) Most athletes can resume full activity in 4–6 weeks B) Spondylolisthesis >25% requires referral to a spine surgeon C) Inadequate treatment can lead to complete fracture and spondylolisthesis with prolonged disability D) Adolescents should be followed with serial CT every 6 months until they reach skeletal maturity	Pain, back. **07-138. S**pondylolysis**. ANS=C.** Complete fracture and spondylolisthesis with prolonged disability may occur if spondylolysis is not diagnosed early and treated appropriately. Most athletes respond to conservative management and return to full activity approximately 6 months after diagnosis. Treatment for low-grade spondylolisthesis (up to 50% slippage) is similar to treatment for spondylolysis. Patients should be followed with serial radiographs at 6-month intervals until they reach skeletal maturity. Patients with a high-grade slippage (>50%) may need to be comanaged by an orthopedic or spine surgeon to guide treatment and assist in return-to-play decisions.
07-150. +Mus+Adm. Adult ankylosing spondylitis A) commonly begins after age 45 B) is more common in women than in men C) is most commonly initially manifested in knees and hands D) typically causes early morning pain and stiffness that improves with activity	Pain, back. **07-150.** Ankylosing spondylitis. **ANS=D.** Symptoms of ankylosing spondylitis usually begin in late adolescence or early adulthood. Only about 5% of cases begin after age 40. Back complaints are the initial complaint in 75% of patients with adult-onset ankylosing spondylitis. This disease is three to five times more common in men than in women. **Backache and stiffness tend to be present after periods of inactivity and tend to improve with activity.**
08-107. +Mus+Euc. A 36-year-old male presents with pain over the lumbar paraspinal muscles. He says the pain began suddenly while he was shoveling snow. Which one of the following is true regarding this patient's injury? A) Systemic corticosteroids speed recovery B) Exercises specific to low back injuries speed recovery C) Opioids have significant advantages for symptom relief when compared with NSAIDs or acetaminophen D) Continued activity rather than bed rest helps speed recovery E) Trigger-point injections are superior to placebo in relieving acute back pain	Pain, back. **08-107.** low back. **ANS=D.** Multiple studies have demonstrated that bed rest is detrimental to recovery from low back pain. Patients should be encouraged to remain as active as possible. Exercises designed specifically for the treatment of low back pain have not been shown to be helpful. Neither opioids nor trigger-point injections have shown superiority over placebo, NSAIDs, or acetaminophen in relieving acute back pain. There is no good evidence to suggest that systemic corticosteroids are effective for low back pain with or without sciatica.
09-053. +Mus+Adm. A 28-year-old male is seen for follow-up of acute low back pain. He has a past history of substance abuse. Ibuprofen and acetaminophen have helped some, but he is experiencing muscle spasms. It is best to avoid which one of the following when treating this patient's problem? A) Chlorzoxazone (Parafon Forte DSC) B) Metaxalone (Skelaxin) C) Cyclobenzaprine (Flexeril) D) Methocarbamol (Robaxin) E) Carisoprodol (Soma)	Pain, back. **09-053.** low back. Controlled substance, Carisoprodol. **ANS=E.** There is limited data regarding the effectiveness of muscle relaxants in musculoskeletal conditions, but strong evidence regarding their toxicity. Because the evidence for comparable effectiveness is weak, drug selection should be based on patient preference, side-effect profile, drug interactions, and abuse potential. **Carisoprodol is metabolized to meprobamate, which is a class III controlled substance. It has been shown to produce both physical and psychologic dependence.**
09-225. +Mus+Mac. During a routine prenatal visit, a patient at 28 weeks gestation describes a worsening pain in her lower back and pelvic area. She is averse to analgesics but is eager to try exercise to relieve the pain. Additional patient history and an examination confirm that the pain is not due to underlying medical problems. Which one of the following would be the most appropriate exercise prescription for this patient? A) Isometric exercise B) Concentric exercise C) Core stability exercise D) Closed kinetic chain exercise E) Isotonic exercise	Pain, back. **09-225.** low back. Low back pain and pelvic pain are commonly encountered in pregnancy, a time when medication or physical modality use may prove undesirable or difficult. **ANS=C.** A properly prescribed exercise program is a generally safe and effective method to treat this pain. The most appropriate exercises for pregnancy related pelvic pain and low back pain target the low back, trunk, and abdominal muscles to increase core stability. Examples of such exercises include Pilates, back extension exercises, and abdominal crunches. Isometric and isotonic exercises work muscle groups against either an external force or opposing muscle groups, and are best suited for the development of muscle tone, strength, and conditioning in the extremities. Likewise, concentric and closed kinetic chain exercises involve working muscles against resistance, and are best suited for rehabilitating and strengthening the extremities.
10-075. +Mus+Adm.>L* A 45-year-old male presents with a 4-month history of low back pain that he says is not alleviated with either ibuprofen or acetaminophen. On examination he has no evidence of weakness or focal tenderness. Laboratory studies, including a CBC, erythrocyte sedimentation rate, C-reactive protein, and complete metabolic profile, are all normal. MRI of the lumbosacral region shows mild bulging of the L4-L5 disc without impingement on the thecal sac. Which one of the following has been shown to be beneficial in this situation? A) Traction B) Ultrasound C) Epidural corticosteroid injection D) A back brace E) Acupuncture	Pain, back. **10-075. Chronic. ANS=E.** Most chronic back pain (up to 70%) is nonspecific or idiopathic in origin. Treatment options that have the best evidence for effectiveness include analgesics (acetaminophen, tramadol, NSAIDs), multidisciplinary rehabilitation, and acupuncture (all SOR A). Other treatments likely to be beneficial include herbal medications, tricyclics, antidepressants, exercise therapy, behavior therapy, massage, spinal therapy, opioids, and short-term muscle relaxants (all SOR B). There is conflicting data regarding the effectiveness of back school, low-level laser therapy, lumbar supports, viniyoga, antiepileptic medications, prolotherapy, short-wave diathermy, traction, transcutaneous electrical nerve stimulation, ultrasound, and epidural corticosteroid injections (all SOR C).
10-114. +Psy+Mhe.>L?* A 45-year-old male with chronic nonmalignant back pain is on a chronic narcotic regimen. Which one of the following behaviors is LEAST likely to be associated with pseudoaddiction, as opposed to true addiction? A) Requesting a specific drug B) Aggressive complaining about needing more medication C) Hoarding drugs during periods of reduced symptoms D) Requesting medication exactly at prescribed times when hospitalized E) Concurrent abuse of alcohol or illicit drugs	Pain, back. **10-114.** chronic nonmalignant. **ANS=E.** The use of narcotics for chronic nonmalignant pain is becoming more commonplace. Guidelines have been developed to help direct the use of these medications when clinically appropriate. However, even when given appropriately, the use of opioid medications for pain relief can cause both the physician and the patient to be concerned about the possibility of addiction. Addiction is a neurobiologic, multifactorial disease characterized by impaired control, compulsive drug use, and continued use despite harm. *Pseudoaddiction* is a term used to describe patient behaviors that may occur when pain is undertreated. Patients with unrelieved pain may become focused on obtaining specific medications, seem to watch the clock, or engage in other behaviors that appear to be due to inappropriate drug seeking. Pseudoaddiction can be distinguished from true addiction because the behaviors will resolve when the pain is effectively treated. The concurrent use of alcohol and/or illicit drugs complicates the management of chronic pain in patients. If these are known problems, patients should be referred for psychiatric or pain

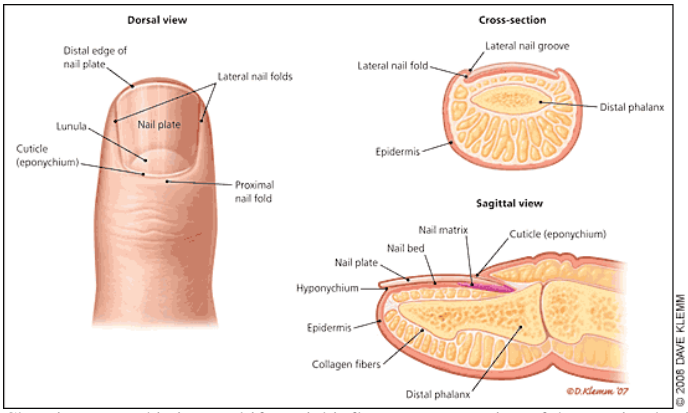
	specialty evaluation before the decision is made to use opioids. Agreements for use of chronic opioids should include the expectation that alcohol and illicit drugs will not be used concurrently, and doing so suggests addiction rather than pseudoaddiction.
10-208. +Mus+Adm. A 35-year-old male presents with a 4-month history of pain in the lower lumbar region without radiation. He works in retail sales, and the pain and stiffness prevent him from working. He estimates the pain to be 7 on a 10-point scale. He has been under the care of a chiropractor and has experienced some relief with spinal manipulation. His history is negative for red flags indicating a serious cause for his pain. The only positive findings on a physical examination are diffuse mild tenderness over the lumbar region and mild limitation of lumbar mobility on forward and lateral flexion/extension maneuvers. Appropriate laboratory tests and imaging studies are all within normal limits. In addition to appropriate analgesics, which one of the following modalities has the best evidence of long-term benefit in this situation? A) Transdermal electric nerve stimulation (TENS) B) Epidural corticosteroid injections C) SSRIs D) Multidisciplinary rehabilitation	Pain, back. **10-208.** chronic. **ANS=D.** This patient has nonspecific chronic back pain, most likely a lumbar strain or sprain. In addition to analgesics (e.g., acetaminophen or NSAIDs) (SOR A) and spinal manipulation (SOR B), a multidisciplinary rehabilitation program is the best choice for management (SOR A). This program includes a physician and at least one additional intervention (psychological, social, or vocational). Such programs alleviate subjective disability, reduce pain, return the person to work earlier, and reduce the amount of sick time taken in the first year by 7 days. Benefits persist for up to 5 years. Back school, TENS, and SSRIs have been found to have negative or conflicting evidence of effectiveness (SOR C). There is no evidence to support the use of epidural corticosteroid injections in patients without radicular signs or symptoms (SOR C).
07-086. +Mus+Cca. A 6-year-old female is brought to your office for recurring limb pain. For the past 2 weeks she has complained of cramping pain in her thighs and calves, which has caused her to awaken at times. Massage and occasional acetaminophen help. In the morning the symptoms are gone and daily activity is unimpaired. Her physical examination is normal. On examination she has no inflammatory signs and no joint or muscle tenderness. Which one of the following would be most appropriate at this point? A) Radiographs of the hips and knees B) An erythrocyte sedimentation rate C) A CBC D) Antinuclear antibody (ANA) testing E) No further testing	Pain, benign nocturnal. **07-086. ANS=E.** This patient is experiencing benign nocturnal pains of childhood, formerly called "growing pains." These are cramping pains of the thigh, shin, and calf, and affect approximately 35% of children 4–6 years of age. The pain typically occurs in the evening or at night, may awaken the child from sleep, and disappears by morning. This classic presentation in the absence of other inflammatory or chronic signs and symptoms should reinforce the benign nature of this condition. Physical findings are normal, so in the absence of worrisome complaints or anatomic abnormalities no further diagnostic testing is required. Parents should be reassured that there are no long-term sequelae. **If activity is impaired, the physical examination is abnormal, or any constitutional or systemic complaints are present, then further evaluation with additional testing is indicated, and may include an erythrocyte sedimentation rate, CBC, antinuclear antibody, or radiographs of affected bones or joints.**
07-027. +Car+Adm. A 44-year-old female comes to your office with chest pain of several days' duration. She describes the pain as sharp and stabbing, and indicates that it is located at the left sternal border; it is increased by coughing and palpation. There is no family history of heart disease, nor is there a personal history of diabetes, hypertension, smoking, or hyperlipidemia. A physical examination, an EKG, and chest radiographs are all normal. Further diagnostic studies should include A) a treadmill exercise test with EKG and blood pressure monitoring B) a stress echocardiogram C) stress myocardial perfusion imaging D) referral for cardiac catheterization E) no additional tests	Pain, chest. **07-027. ANS=E.** This patient exhibits atypical (noncardiac) chest pain and has no risk factors for coronary artery disease (CAD). Since the likelihood of coronary disease is very low, stress testing is not indicated. For patients with typical chest pain and risk factors, the probability of CAD is high and it is usually best to proceed directly to cardiac catheterization. In individuals with an intermediate probability of CAD who are able to exercise, the choice is treadmill testing if they have an interpretable EKG, no evidence of left ventricular dysfunction, and no history of previous coronary artery bypass surgery. If the baseline EKG is not interpretable (due to left bundle branch block, early repolarization, left ventricular hypertrophy, or digoxin use) then an exercise test with imaging (nuclear or echocardiographic) is indicated. Those unable to exercise can have pharmacologic stress testing with imaging.
07-192. +Mus+Adm. Chest pain associated with cocaine use A) should be treated with B-blockers B) has an onset that has a consistent relationship with time of use C) is associated with characteristic EKG changes D) is mainly vasospastic in origin	Pain, chest. **07-192.** cocaine use**. ANS=D.** While chest pain related to cocaine use and withdrawal may be due to atherosclerosis, the main mechanism is believed to be a dopamine-depleted state, resulting in coronary vasospasm. This vasospasm can occur at even low doses. Coronary artery vasospasm is exacerbated by B-blockade, and is likely mediated through A-adrenergic receptors. Therefore, B-blockers are contraindicated for patients with chest pain associated with cocaine use, because of concerns about unopposed A-adrenergic stimulation worsening coronary and peripheral vasoconstriction, and hypertension. The temporal relationship of cocaine use to the onset of chest pain is highly variable, which may indicate a chronic abnormality predisposing to myocardial ischemia. The EKG abnormalities are variable. A significant number of patients with cocaine-associated chest pain have evidence of persistent ST-segment elevation rather than the transient changes typical of coronary artery spasm.
08-156. +Non+Euc. A 42-year-old female presents with a 2-day history of chest pain. She describes the pain as sharp, located in the right upper chest, and worsened by deep breathing or coughing. She also complains of shortness of breath. She was previously healthy and has no recent history of travel. Her vital signs are normal. A pleural friction rub is noted on auscultation of the lungs. The remainder of the examination is normal. An EKG, cardiac enzymes, oxygen saturation, and a D-dimer level are all normal. Which one of the following would be most appropriate at this point? A) No further testing B) A chest radiograph C) An antinuclear antibody test D) Echocardiography E) Pulmonary angiography	Pain, chest. **08-156.** Pleurisy**. ANS=B.** This patient has pleurisy. Patients presenting with **pleuritic chest pain may have life-threatening disorders, and pulmonary embolism, acute myocardial infarction, and pneumothorax should be excluded**. While 5%–20% of patients with pulmonary embolism present with pleuritic chest pain, this patient has no risks for pulmonary embolism and the normal D-dimer level obviates the need for further evaluation. Moderate-to high-risk patients may need a helical CT scan or other diagnostic testing. **An EKG and chest radiograph are recommended in the evaluation of acute/subacute pleuritic chest pain.** The **chest radiograph will exclude pneumothorax, pleural effusion, or pneumonia.** An **echocardiogram would not be indicated if the cardiac examination and EKG are normal.** An antinuclear antibody level could be considered in recurrent pleurisy or if other symptoms or signs of lupus were present, but it would not be indicated in this patient. **Most cases of acute pleurisy are viral and should be treated with NSAIDs** unless the workup indicates another problem.
09-072. +Car+Adm. A 50-year-old male presents with a 1-day history of fever and chest pain. The chest pain is worse when he is in a supine position and with	Pain, chest. **09-072.** Pericarditis, acute. **ANS=A.** This patient demonstrates classic clinical features of acute pericarditis. Although the EKG findings appear specific

deep inspiration, and improves when he leans forward. He has no shortness of breath and has never had this problem before. His vital signs are normal except for a temperature of 37.8°C (100.0°F). He has no other medical problems or allergies, and takes no medications. An EKG reveals widespread ST-segment elevation, upright T waves, and PR-segment depression. His troponin level is normal. An echocardiogram is pending. Which one of the following would be the most appropriate treatment for this patient? A) Aspirin B) Prednisone C) Heparin D) Enoxaparin (Lovenox)	for the early stages of pericarditis, myocardial infarction would also be included in the differential diagnosis. However, unlike with acute pericarditis, the EKG in myocardial infarction typically demonstrates ST elevation that is localized and convex, often has Q waves, and rarely shows PR-segment depression. A friction rub can be heard in up to 85% of patients with acute pericarditis. An echocardiogram is often performed to determine the type and amount of effusion. **Conventional therapy for acute pericarditis includes NSAIDs**, such as aspirin and ibuprofen. **Recent studies demonstrate that adding colchicine to aspirin may be beneficial in reducing the persistence and recurrence of symptoms.**
09-106. +Res+Euc. A 40-year-old white female presents with pain on inspiration and dyspnea since this morning. She has no chronic medical problems, takes no medications, has not traveled, and has no history of trauma. On examination the patient is afebrile, has a heart rate of 90 beats/min and a respiratory rate of 20/min, and her lungs are clear to auscultation. The pain is worse in the supine position. Which one of the following would you do initially? A) Order a CBC with differential B) Order a chest film and EKG C) Prescribe ibuprofen D) Prescribe omeprazole (Prilosec) E) Prescribe a bronchodilator	Pain, chest. **09-106. P**leuritic and dyspnea. **ANS=B.** This patient has pleuritic chest pain, and the fact that it is worse when supine and is accompanied by dyspnea creates additional concern. **Supine pain could be due to pericarditis, which may be evident on an EKG**. Dyspnea increases suspicion for pneumonia, pulmonary embolism, pneumothorax, and myocardial infarction, and a chest film and EKG are recommended to evaluate these possibilities. The lack of any significant medical history does not rule out any of these problems. Once these problems have been ruled out, a diagnosis of pleurisy would be reasonable and can be treated with an NSAID. A CBC would only indicate the possibility that infection or anemia is the cause of the problem. Omeprazole or a bronchodilator would be inappropriate treatment, as asthma and reflux are not likely in this patient.
09-146. +Car+Euc. A 52-year-old female presents to the emergency department with a complaint of chest pain. The symptoms began 2 hours ago while she was shopping. She describes the pain as a tighypertensioness on the left side of her chest that radiates to her left shoulder. She has some shortness of breath with the pain, but no nausea or diaphoresis. Her past medical history is significant for panic disorder. Her vital signs and a physical examination are within normal limits. Which one of the following would be the most appropriate next step in the management of this patient? A) Admit to a monitored bed for further evaluation B) Obtain a CBC, a blood chemistry profile, liver function tests, and an EKG C) Administer a short-acting benzodiazepine and observe for 60 minutes D) Consult with a cardiologist for immediate heart catheterization E) Obtain a troponin I measurement and an EKG	Pain, chest. **09-146.** acute coronary syndrome. **ANS=E.** This patient has symptoms that suggest acute coronary syndrome, which includes chest pain with activity that radiates to the shoulder. An EKG is essential early in the evaluation of a patient with chest pain, and the initial evaluation should also include a troponin I measurement. The patient should neither be admitted nor given a benzodiazepine until the EKG is performed. The diagnosis of acute coronary syndrome should be established prior to heart catheterization. Other laboratory tests may be appropriate, but they are not the most important initial tests.
09-177. +Car+Adm. A 63-year-old female with type 2 diabetes mellitus presents to the emergency department with unstable angina. Her blood pressure is 150/90 mm Hg, her pulse rate is 70 beats/min, and her lungs are clear to auscultation. The patient expresses a preference for conservative (i.e., noninvasive) therapy. In addition to aspirin, which one of the following agents should be administered at this time? A) Clopidogrel (Plavix) orally B) Indomethacin (Indocin) orally C) Nifedipine (Procardia) immediate-release, orally D) Abciximab (ReoPro) intravenously E) Enalaprilat intravenously	Pain, chest. **09-177.** Unstable angina/NSTEMI, clopidogrel. **ANS=A** An oral loading dose of clopidogrel should be administered as soon as possible in patients with unstable angina/NSTEMI who are to be treated conservatively. The standard dosage should then be prescribed, to be taken daily for at least 1 month along with aspirin (SOR B). Immediate-release calcium channel antagonists such as nifedipine are not indicated. If b-blockers are contraindicated, verapamil or diltiazem would be the preferred agents. Intravenous ACE inhibitors may induce shock and should be avoided in the first 24 hours. Abciximab is used for patients who will undergo rapid catheterization with a significant chance of acute coronary intervention. NSAIDs are contraindicated because they may weaken areas of damaged myocardium and increase the risk of rupture, and may also increase the risk of infarction or extension. They have been used in the past for treatment of associated pericarditis, which most frequently develops a few days after presentation, but are now avoided.
09-200. +Car+Euc. A 35-year-old white male presents to the emergency department with chest pain of 30 minutes duration. He describes the pain as feeling like pressure on his chest, and says it radiates into his left arm. It is accompanied by dyspnea, diaphoresis, anxiety, and palpitations. His past medical history is unremarkable and he has no family history of premature heart disease. He smokes 2 packs of cigarettes per day and admits to intranasal cocaine use 2 hours ago. Vital signs include a blood pressure of 180/110 mm Hg, a pulse rate of 110 beats/min, a respiratory rate of 24/min, and a temperature of 37.2°C (99.0°F). Other than the anxiety and diaphoresis, the general examination is unremarkable. An EKG shows sinus tachycardia with an early repolarization pattern. Aspirin and nitroglycerin have been administered, as well as oxygen via nasal cannula. Which one of the following would be most appropriate at this point? A) Nifedipine (Procardia) B) Enalaprilat intravenously C) Lorazepam (Ativan) intravenously D) Metoprolol (Toprol) intravenously E) Thrombolytic therapy	Pain, chest. **09-200.** cocaine. **ANS=C.** Treatment of cocaine-associated chest pain is similar to that of acute coronary syndrome, unstable angina, or acute myocardial infarction, but there are exceptions. The hypertension, tachycardia, and chest pain will often respond to intravenous benzodiazepines as early management. While B-blockers are recommended for acute myocardial infarction, they can exacerbate coronary artery spasm in cocaineassociated chest pain. Fibrinolytic therapy should be given only to patients who clearly have an STsegment elevation myocardial infarction and cannot receive immediate direct percutaneous coronary intervention. Calcium channel blocker use in the setting of cocaine-induced ischemia has not been studied, but may be considered if there is no response to benzodiazepines and nitroglycerin. There are no recommendations regarding the use of ACE inhibitors, but these agents would not address the tachycardia.
09-207. +Car+Euc. A 54-year-old male presents to the emergency department with an acute onset of chest pain. His cardiac risk factors include hypertension, hyperlipidemia, and a positive family history. His temperature is 37.0°C (98.6°F), pulse rate 80 beats/min, blood pressure 155/86 mm Hg, and respiratory rate 22/min. His oxygen saturation is 95% on room air. An EKG shows rare unifocal PVCs and nonspecific ST-T–wave changes. Initial cardiac markers are negative. Which one of the following would be most appropriate at this point? A) Helical (spiral) CT of the chest B) Echocardiography C) PA and lateral chest films D) A ventilation-perfusion scan E) Magnetic resonance angiography	Pain, chest**. 09-207. ANS=C. PA and lateral chest radiographs are still valuable in the early evaluation of patients with chest pain**. While they do not confirm or rule out the presence of myocardial ischemia, other causes of chest pain may be evident, such as pneumothorax, pneumonia, or heart failure. The chest film may also provide clues about other possible diagnoses, such as pulmonary embolism, aortic disease, or neoplasia. The other tests listed often have a role in the evaluation of chest pain, but none has supplanted **the plain chest film as the best initial imaging study**.
07-122. +Mus+Cca. Little League elbow refers to a problem located over the A) medial epicondyle B) lateral epicondyle C) olecranon D) capitellum E) ulnar groove	Pain, elbow. **07-122.** Little League elbow is an apophysitis of the medial epicondyle of the elbow. **ANS=A**. It occurs in throwing athletes between 9 and 12 years of age, and causes elbow pain during throwing. It may also affect velocity and control. It may cause pain and swelling in the arm and/or elbow, but the diagnosis should be considered in throwing athletes with elbow pain even if

	symptoms are minimal.
07-096. +Mus+Adm. A healthy 25-year-old female runner presents with a complaint of right **heel pain** for 2 months. The **pain is most pronounced with the first steps of the day** or **after periods of rest**, and is **located around the medial calcaneal tuberosity**. Which one of the following is NOT recommended for acute treatment? A) Extracorporeal shock wave therapy B) Prefabricated insoles (heel pad) C) Night splints D) Corticosteroid iontophoresis E) NSAIDs	Pain, heel. **07-096.** Plantar fasciitis**. ANS=A.** These findings are classic for plantar fasciitis. Treatments in the acute phase include insoles, night splints, corticosteroid iontophoresis, and NSAIDs. Based on current evidence, extracorporeal shock wave therapy is recommended only after 12 months of symptoms.
08-012. +Mus+Adm. A 55-year-old male presents for an evaluation of heel pain. He has a relatively sedentary office job, but exercises daily by jogging 3 miles. He has pain in the right heel at the medial aspect of the calcaneus and is tender on examination. The pain is worse with the first few steps of the morning. Which one of the following would be the most appropriate initial treatment for this patient? A) Corticosteroid injection B) Extracorporeal shockwave therapy C) Surgical referral for bone spur removal D) Non–weight bearing for 1 month E) Stretching exercises for the Achilles tendon	Pain, heel. **08-012.** Plantar fasciitis is an overuse injury due to microtrauma of the plantar fascia where it attaches at the medial calcaneal tubercle. **ANS=E.** The patient experiences heel or arch pain, which often is worse upon arising and taking the first few steps of the morning. Examination reveals tenderness at the site and pain with dorsiflexion of the toes. Stress fractures often cause pain at rest that intensifies with weight bearing. Treatment strategies include relative rest, ice, NSAIDs, and prefabricated shoe inserts that provide arch support, as well as heel cord and plantar fascia stretching. Currently, there is evidence against the use of extracorporeal shockwave therapy. If conservative therapy fails, a corticosteroid injection may be useful. Surgery is reserved for patients refractory to 6–12 months of uninterrupted conservative therapy.
10-059. +Mus+Adm.**?*** A 35-year-old male amateur rugby player seeks your advice because right hip pain of several months' duration has progressed to the point of interfering with his athletic performance. The pain is accentuated when he transitions from a seated to a standing position, and especially when he pivots on the hip while running, but he cannot recall any significant trauma to the area and finds no relief with over-the-counter analgesics. On examination his gait is stable. The affected hip appears normal and is neither tender to palpation nor excessively warm to touch. Although he has a full range of passive motion, obvious discomfort is evident with internal rotation of the flexed and adducted right hip. Which one of the following is most strongly suggested by this clinical picture? A) Osteoarthritis B) Avascular necrosis C) Bursitis D) Impingement E) Pathologic fracture	Pain, hip. **10-059.** Femoroacetabular impingement**. ANS=D.** Gradually worsening anterolateral hip joint pain that is sharply accentuated when pivoting laterally on the affected hip or moving from a seated to a standing position is consistent with femoroacetabular impingement. Reproduction of the pain on range-of-motion examination by manipulating the hip into a position of flexion, adduction, and internal rotation (FADIR test) is the most sensitive physical finding. Special radiographic imaging of the flexed and adducted hip can emphasize the anatomic abnormalities associated with impingement that may go unnoticed on standard radiographic series views. Although the pain associated with avascular necrosis is similarly insidious and heightened when bearing weight, tenderness is usually evident with hip motion in any direction. Osteoarthritis of the hip generally occurs in individuals of more advanced age than this patient, and the pain produced is typically localized to the groin area and can be elicited by flexion, abduction, and external rotation (FABER test) of the affected hip. Bursitis manifests as soreness after exercise and tenderness over the affected bursa.
07-030. +Mus+Adm. A 62-year-old white female presents to your office with moderately severe knee pain. She has a history of osteoarthritis and is not aware of any recent injury. The pain bothers her both during the day and at night. Examination reveals a moderately obese female with a normal knee examination except for tenderness in the medial tibial plateau region, approximately 3 cm (1½ in) below the medial joint line of the knee. The area of tenderness is about the size of a quarter. All ligaments of the knee are intact on examination. There is no knee effusion. A radiograph is negative except for minimal degenerative changes. Which one of the following should you suspect? A) De Quervain's tendinitis B) Prepatellar bursitis C) Bursitis of the medial collateral ligament D) Anserine bursitis E) Medial meniscus tear	Pain, knee. **07-030.** Anserine bursitis is characterized by pain, particularly at night, that occurs in the medial knee region over the upper tibia. **ANS=D.** It is located about 2–3 cm below the medial joint line. It can be bilateral. A diagnosis of anserine bursitis requires local tenderness confined to a quarter-sized area of the medial tibial plateau, approximately 3 cm below the medial joint line; a negative valgus stress maneuver, which indicates an intact medial collateral ligament; and a normal radiograph of the tibia indicating no underlying pathology. De Quervain's tendinitis is located in the wrist region, not the knee. Prepatellar bursitis is characterized by knee swelling and pain over the front of the knee. Bursitis that occurs adjacent to the medial collateral ligament typically presents with tenderness over the medial aspect of the knee. Medial joint line pain is characteristic of osteoarthritis, second and third degree medial collateral ligament injuries, medial meniscal tears, and fractures of the tibial plateau.
07-049. +Mus+Cca. A 14-year-old male who is active in sports most of the year presents with bilateral anterior knee pain that is worse in the right knee. An examination reveals tenderness and some swelling at the tibial tubercles. Which one of the following is true regarding this patient's condition? A) It is almost never seen in adults B) Treatment with a straight leg cylinder cast for 6 weeks is often needed C) Corticosteroid injection of the tibial tubercle is a safe and effective treatment D) Radiographs should always be ordered to rule out other conditions E) Bilateral symptoms are unusual	Pain, knee. **07-049.** Osgood-Schlatter disease is encountered in patients between 10 and 15 years of age. **ANS=A.** These patients are often active in sports that involve a lot of jumping. It is thought to be secondary to repetitive microtrauma and traction apophysitis of the tibial tuberosity. Bilateral symptoms are present in 20%–30% of patients. Radiographs may reveal abnormalities, but are rarely indicated in straightforward cases. This condition is usually self-limited, and most patients are able to return to full activity within 2–3 weeks. Treatment includes rest, ice, anti-inflammatory medications, a rehabilitation program, and an infrapatellar strap during activities. Casting and corticosteroid injections are not indicated.
07-229. +Mus+Adm. A 25-year-old runner complains of nonfocal knee pain. She does not remember any specific injury. You suspect patellofemoral pain syndrome. Which one of the following would be most consistent with this diagnosis? A) Pain with prolonged sitting B) Swelling C) Locking D) Giving way	Pain, knee. **07-229.** **Patellofemoral pain syndrome** causes nonfocal or anterior knee pain, and is often seen in runners. **ANS=A.** **Common symptoms include stiffness, pain with prolonged sitting, and pain with climbing or descending stairs.** Rarely is there swelling, locking, or giving way; these symptoms are more likely to be associated with more profound problems such as a ligament or cartilage tear.
08-081. +Mus+Adm. A 32-year-old female who is an avid runner presents with knee pain. You suspect patellofemoral pain syndrome. Which one of the following signs or symptoms would prompt an evaluation for an alternative diagnosis? A) Peripatellar pain while running B) Knee stiffness with sitting C) A "popping" sensation in the knee	Pain, knee. **08-081.** Patellofemoral pain syndrome is a clinical diagnosis and is the most common cause of knee pain in the outpatient setting. **ANS=D.** It is characterized by anterior knee pain, particularly with activities that overload the joint, such as stair climbing, running, and squatting. Patients complain of "popping," "catching," "stiffness," and "giving way." On examination there will be a positive "J" sign, with the patella moving from a medial to a lateral location

D) "Locking" of the joint E) A positive "J" sign (lateral tracking of the patella when moved from flexion to full extension)	when the knee is fully extended from the 90° position. This is caused by an imbalance in the medial and lateral forces acting on the patella. "Locking" is not characteristic of patellofemoral pain syndrome, so loose bodies or a meniscal tear should be considered if this is found.
09-158. +Mus+Adm. A 30-year-old male complains of the gradual onset of anterior right knee pain on climbing the stairs. On examination there is no effusion, but there is tenderness over the medial retinaculum. There is good ligament strength, and range of motion is normal. When the knee is extended from 90° flexion to full extension, the patella deviates laterally. Which one of the following would be the best initial treatment for this condition? A) Bracing B) Taping C) NSAIDs D) Arthroscopic surgery E) Physical therapy	Pain, knee. **09-158.** Patellofemoral stress syndrome**. ANS=E.** This patient has patellofemoral stress syndrome. It is often called runner's knee or anterior knee pain. The patellofemoral joint comprises the patella and femoral trochlea. The best initial treatment is physical therapy. Bracing, taping, and medications are unlikely to have better outcomes. Arthroscopic surgery is not indicated.
07-002. +Mus+Adm. Which one of the following studies is indicated for patients with restless legs syndrome (RLS)? A) Antinuclear antibody (ANA) testing B) A creatine phosphokinase level C) A CBC D) A serum ferritin level E) Electromyography	Pain, leg. **07-002.** Restless legs syndrome (RLS). **ANS=D.** A high prevalence of iron deficiency has been found among patients with restless legs syndrome (RLS), and treatment of the deficiency has been reported to improve or resolve symptoms. A low serum ferritin level (<50 mg/L) has been associated with greater severity of RLS and with a reduction in the quantity of sleep as determined by polysomnography. In patients with a serum ferritin level <18 mg/L, treatment with oral iron supplements resulted in improvements in the severity of the symptoms of RLS and, in some patients, complete resolution of symptoms. Because RLS may be a symptom of iron deficiency and because iron deficiency is frequently present in the absence of anemia, iron status (serum ferritin and iron saturation) should be assessed. No other laboratory tests are routinely indicated.
07-018. +Car+Adm. A 65-year-old white female presents with symptoms and signs of intermittent claudication. She has a history of increasing angina pectoris leading to coronary artery bypass surgery 3 years ago. She has generally done well since the surgery, and you have provided appropriate medical management for postoperative coronary artery disease. She has reduced her cigarette smoking, but still smokes and leads a sedentary lifestyle. In addition to emphasizing smoking cessation and recommending an exercise program, which one of the following would be most effective for managing this patient's intermittent claudication? A) Cilostazol (Pletal) B) Clopidogrel (Plavix) C) Pentoxifylline (Trental) D) Ginkgo biloba E) Aspirin	Pain, leg. **07-018.** Claudication**. ANS=A. Of the medications currently available for the treatment of intermittent claudication, cilostazol is the most effective.** A meta-analysis of eight randomized, placebo-controlled trials of cilostazol for moderate to severe claudication found that 100 mg of the drug twice daily increased maximal and pain-free walking distances by 50% and 67%, respectively. Clopidogrel may be marginally more effective than aspirin as an antiplatelet agent, but is more expensive. Neither pentoxifylline nor ginkgo biloba, a non–FDA-approved dietary supplement with antiplatelet, vasodilating, and antioxidant activity, has been shown to be more effective than placebo. At best, they would be a weak intervention for peripheral artery disease. **Hint: Cilo esta zolo (cilostazol), he claudicated (claudication).**
08-050. +Car+Adm. Which one of the following is most appropriate for the initial treatment of claudication? A) Regular exercise B) Chelation C) Vasodilating agents D) Warfarin (Coumadin)	Pain, leg. **08-050.** Claudication. **ANS=A.** Claudication is exercise-induced lower-extremity pain that is caused by ischemia and relieved by rest. It affects 10% of persons over 70 years of age. However, up to 90% of patients with peripheral vascular disease are asymptomatic. Initial treatment should consist of vigorous risk factor modification and exercise. Patients who follow an exercise regimen can increase their walking time by 150%. A supervised program may produce better results. Risk factors include diabetes mellitus, hypertension, smoking, and hyperlipidemia. Unconventional treatments such as chelation have not been shown to be effective. Vasodilating agents are of no benefit. There is no evidence that anticoagulants such as aspirin have a role in the treatment of claudication.
09-084. +Car+Adm. Which one of the following is a risk factor for intermittent claudication? A) Hyperthyroidism B) Hypercalcemia C) Diabetes mellitus D) Hypogonadism E) Elevated angiotensin-converting enzyme	Pain, leg. **09-084.** Claudication, intermittent. **ANS=C.** Diabetes mellitus and cigarette smoking are significant risk factors for intermittent claudication, as are hypertension and dyslipidemia. Hyperthyroidism, hypercalcemia, and hypogonadism are not closely associated with intermittent claudication. Elevation of angiotensin-converting enzyme occurs with sarcoidosis.
10-017. +Mus+Cel.**?*** A 70-year-old male complains of lower-extremity pain. Increased pain with which one of the following would be most consistent with lumbar spinal stenosis? A) Lumbar spine extension B) Lumbar spine flexion C) Internal hip rotation D) Pressure against the lateral hip and trochanter E) Walking uphill	Pain, leg. **10-017.** Lumbar spinal stenosis**. ANS=A.** Extension that increases lumbar lordosis decreases the cross-sectional area of the spinal canal, thereby compressing the spinal cord further. Walking downhill can cause this. Spinal flexion that decreases lordosis has the opposite effect, and will usually improve the pain, as will sitting. Pain with internal hip rotation is characteristic of hip arthritis and is often felt in the groin. Pain in the lateral hip is more typical of trochanteric bursitis. Increased pain walking uphill is more typical of vascular claudication.
10-044. +Neu+Adm.**?** A 43-year-old female complains of a several-month history of unpleasant sensations in her legs and an urge to move her legs. These symptoms only occur at night and improve when she gets up and stretches. The sensations often awaken her, and she feels very tired. She has no other medical problems and takes no medication. Laboratory tests reveal a serum calcium level of 8.9 mg/dL (N 8.5–10.5), a serum potassium level of 4.1 mmol/L (N 3.5–5.0), a serum ferritin level of 15 ng/mL (N 10–200), and a serum magnesium level of 1.5 mEq/L (N 1.4–2.0). Which one of the following may improve her symptoms? A) Iron supplementation B) Magnesium supplementation C) Antihistamines D) Stopping calcium supplementation E) Amitriptyline	Pain, leg. **10-044.** Restless legs syndrome**. ANS=A.** This patient has restless legs syndrome, which includes unpleasant sensations in the legs and can cause sleep disturbances. The symptoms are relieved by movement. Recommendations for treatment include lower-body resistance training and avoiding or changing medications that may exacerbate symptoms (e.g., antihistamines, caffeine, SSRIs, tricyclic antidepressants, etc.). It is also recommended that patients with a serum ferritin level below 50 ng/mL take an iron supplement (SOR C). Magnesium supplementation does not improve restless legs syndrome. Ropinirole may be used if nonpharmacologic therapies are ineffective.
08-117. +Int+Adm. A middle-aged hairdresser presents with a complaint of soreness of the proximal nail folds of several fingers on either hand, which has slowly worsened over the last 6 months. The nails appear thickened and distorted. Otherwise she is healthy and has no evidence of systemic disease.	Pain, nail. **08-117.** Paronychia**, chronic. ANS=C.** Chronic paronychia is a common condition in workers whose hands are exposed to chemical irritants or are wet for long periods of time. This patient is an otherwise healthy hairdresser, with frequent exposure to irritants. The patient should be advised to avoid

Which one of the following would be the most effective initial treatment?
A) Soaking in a dilute iodine solution twice daily to cleanse and sterilize the nail beds
B) Oral amoxicillin/clavulanate (Augmentin) for up to 4–6 weeks
C) Topical betamethasone dipropionate (Diprolene) applied twice daily to the nail folds for 3–4 weeks
D) Rheumatologic and autoimmune workups for HIV, hepatitis C, psoriasis, and rheumatoid arthritis



Chronic paronychia is a multifactorial inflammatory reaction of the proximal nail fold to irritants and allergens.12,19–21 This disorder can be the result of numerous conditions, such as dish washing, finger sucking, aggressively trimming the cuticles, and frequent contact with chemicals (e.g., mild alkalis, acids).

exposure to harsh chemicals and water. In addition, the use of strong topical corticosteroids over several weeks can greatly reduce the inflammation, allowing the nail folds to return to normal and helping the cuticles recover their natural barrier to infection. Soaking in iodine solution would kill bacteria, but would also perpetuate the chronic irritation. Because the condition is related to chemical and water irritation, a prolonged course of antibiotics should not be the first treatment step, and could have serious side effects. There is no need to explore less likely autoimmune causes for nail changes at this time.
http://www.aafp.org/afp/2008/0201/p339.html:

Chronic paronychia in a patient with hand dermatitis.
The presence or absence of *Candida* seems to be unrelated to the effectiveness of treatment. Given their lower risks and costs compared with systemic antifungals, topical steroids should be the first-line treatment for patients with chronic paronychia.21 Alternatively, topical treatment with a combination of steroid and antifungal agents may also be used in patients with simple chronic paronychia, although data showing the superiority of this treatment to steroid use alone are lacking.19 Intralesional corticosteroid administration (triamcinolone [Amcort]) may be used in refractory cases.8,19 Systemic corticosteroids may be used for treatment of inflammation and pain for a limited period in patients with severe paronychia involving several fingernails. If patients with chronic paronychia do not respond to topical therapy and avoidance of contact with water and irritants, a trial of systemic antifungals may be useful before attempting invasive approaches.

09-157. +Int+Adm. A 45-year-old female presents with a complaint of pain and swelling in her right index finger of 2 days' duration. She reports that 5 days ago she had artificial nails applied, which she removed yesterday due to the pain. She used hydrogen peroxide on the finger, but it did not help. She denies any systemic symptoms or fever. On examination there is erythema and swelling in the lateral nail fold of the right index finger, with purulent material noted. Which one of the following would be the most appropriate treatment for this patient?
A) Removal of the proximal nail fold
B) Topical corticosteroids
C) Topical antibiotics
D) Topical antifungals

Pain, nail. **09-157.** paronychia. **ANS=C.** This is a common presentation for acute paronychia, which typically is caused by local trauma to the nail fold or cuticle, with resulting inoculation and infection. Topical antibiotics, with or without topical corticosteroids, is one treatment option. Other options include warm compresses, oral antibiotics, and incision and drainage; however, incision and drainage is not always necessary. Removal of the proximal nail fold is used to treat chronic paronychia that is not responsive to other treatments. Topical corticosteroids can be used alone for chronic paronychia, but if used for acute paronychia, they should be combined with antibiotics since acute paronychia is typically caused by a bacterial infection. Topical antifungals are a treatment option for chronic paronychia, which can be associated with a fungal infection, but not for acute paronychia.

10-037. +Ref+Cfp. A 24-year-old female presents with pelvic pain. She says that the pain is present on most days, but is worse during her menses. Ibuprofen has helped in the past but is no longer effective. Her menses are normal and she has only one sexual partner. A physical examination is normal. Which one of the following should be the next step in the workup of this patient?
A) Transvaginal ultrasonography
B) CT of the abdomen and pelvis
C) MRI of the pelvis
D) A CA-125 level
E) Colonoscopy

Pain, pelvic. **10-037.** chronic. **ANS=A.** The initial evaluation for chronic pelvic pain should include a urinalysis and culture, cervical swabs for gonorrhea and *Chlamydia*, a CBC, an erythrocyte sedimentation rate, a B-hCG level, and pelvic ultrasonography. CT and MRI are not part of the recommended initial diagnostic workup, but may be helpful in further assessing any abnormalities found on pelvic ultrasonography. Referral for diagnostic laparoscopy is appropriate if the initial workup does not reveal a source of the pain, or if endometriosis or adhesions are suspected. Colonoscopy would be indicated if the history or examination suggests a gastrointestinal source for the pain after the initial evaluation.

10-228. +Gas+Csp. A 36-year-old white male complains of episodic pain in the rectum over the past several years. The pain occurs every 3–6 weeks and is sharp, cramp-like, and severe. It lasts from 1 to 15 minutes. He has no other gastrointestinal complaints. A physical examination, including a digital rectal examination and anoscopy, is normal. The most likely diagnosis is
A) fecal impaction
B) coccygodynia
C) anal fissure
D) proctalgia fugax
E) sacral nerve neuralgia

Pain, rectum. **10-228.** Proctalgia fugax. **ANS=D.** Symptoms consistent with proctalgia fugax occur in 13%–19% of the general population. These consist of episodic, sudden, sharp pains in the anorectal area lasting several seconds to minutes. The diagnosis is based on a history that fits the classic picture in a patient with a normal examination. All the other diagnoses listed would be evident from the physical examination, except for sacral nerve neuralgia, which would not be intermittent for years and would be longer lasting.

07-179. +Mus+Adm. A 35-year-old male complains of 2 months of right shoulder pain. He does not recall an injury, but says it is painful to lie on his right side or to work with his right hand above his head. On examination, the shoulder appears normal and there is no pain with external rotation of the shoulder, bringing the arm across the body (scarf test), or attempted external and internal rotation of the shoulder against resistance. Lowering the arm from full abduction (painful arc),

Pain, shoulder. **07-179.** Impingement syndrome. **ANS=C.** The combination of a painful arc and pain on use of the supraspinatus muscle indicates **impingement syndrome, which is due to irritation of the rotator cuff under the coracoacromial arch. It is by far the most common cause of shoulder pain seen by family physicians. Subdeltoid bursitis is a much more acute problem, and impairs shoulder mobility in all directions. Adhesive capsulitis produces**

attempted abduction above 45° against resistance, and elevating the internally rotated arm above 90° against resistance are all painful. The most likely diagnosis is A) subdeltoid bursitis B) adhesive capsulitis C) impingement syndrome D) glenohumeral osteoarthritis E) acromioclavicular osteoarthritis	**loss of external rotation. Glenohumeral arthritis produces pain with external rotation, and variable amounts of impaired mobility**, depending on progression of the problem over time. **Acromioclavicular joint arthritis produces a positive scarf sign, and often a visible bump over the joint**, since it lies so close to the skin surface.
09-087. +Mus+Adm. A 50-year-old female complains of a 6-month history of the insidious onset of right shoulder pain and decreased range of motion. She does not respond to consistent use of prescription strength anti-inflammatory medication. Radiographs are negative. Treatment of this patient's condition should include A) physical therapy with home exercises B) early surgical referral C) a short course of oral methylprednisolone D) corticosteroid injection of the acromioclavicular joint	Pain, shoulder. **09-087.** Adhesive capsulitis or a degenerative rotator cuff tendinopathy. **ANS=A.** This patient most likely has either adhesive capsulitis or a degenerative rotator cuff tendinopathy. It is important to rule out osteoarthritis with radiographs. Treatment typically includes NSAIDs, subacromial cortisone injections, and physical therapy. These problems take months to treat and should not be referred quickly for surgical evaluation, unless the diagnosis is in question.
09-142. +Mus+Adm. You are examining a patient with a chronically painful shoulder. You forward flex the arm to 90° with the elbow bent to 90°. You then internally rotate the arm, which causes pain in the shoulder. This finding suggests: A) glenohumeral instability B) anterior shoulder dislocation C) impingement/rotator cuff disorder D) acromioclavicular joint osteoarthritis E) acromioclavicular joint separation	Pain, shoulder. **09-142.** impingement test. **ANS=C.** The maneuver described is Hawkins' impingement test. Pain with this maneuver may signify subacromial impingement, including a rotator cuff tendinopathy or tear.
10-001. +Mus+Adm.>L**?*** A 46-year-old female presents to your office with a 2-week history of pain in her left shoulder. She does not recall any injury, and the pain is present when she is resting and at night. Her only chronic medical problem is type 2 diabetes mellitus. On examination, she has limited movement of the shoulder and almost complete loss of external rotation. Radiographs of the shoulder are normal, as is her erythrocyte sedimentation rate. Which one of the following is the most likely diagnosis? A) Frozen shoulder B) Torn rotator cuff C) Impingement syndrome D) Chronic posterior shoulder dislocation E) Osteoarthritis	Pain, shoulder. **10-001.** frozen**; ANS=A. Frozen shoulder** is an idiopathic condition that most commonly affects patients between the ages of 40 and 60. **Diabetes mellitus is the most common risk factor** for frozen shoulder. **Symptoms include shoulder stiffness, loss of active and passive shoulder rotation, and severe pain, including night pain. Laboratory tests and plain films are normal; the diagnosis is clinical** (SOR C). Frozen shoulder is differentiated from chronic posterior shoulder dislocation and osteoarthritis on the basis of radiologic findings. Both shoulder dislocation and osteoarthritis have characteristic plain film findings. **A patient with a rotator cuff tear will have normal passive range of motion. Impingement syndrome does not affect passive range of motion, but there will be pain with elevation of the shoulder.**
10-198. +Neu+Adm.**>**L* A 30-year-old male presents with a 3-week history of severe, burning pain in his right shoulder. He recalls no mechanism of injury. An examination reveals weakness to resistance of the biceps and triceps, and with external rotation of the shoulder. Full range of motion of the neck and shoulder does not worsen the pain. Which one of the following would be most likely to identify the cause of this patient's problem? A) Electromyography and nerve conduction studies B) MRI of the neck C) MR arthrography (MRA) of the shoulder D) CT of the brain E) Ultrasonography of the upper extremity	Pain, shoulder. **10-198.** brachial neuritis**. ANS=A.** This patient has brachial neuritis, which can be difficult to differentiate from cervical radiculopathy, shoulder pathology, and cerebrovascular accident. The pain preceded the weakness, no trauma was involved, and the weakness is in a nondermatomal distribution, making brachial neuritis the most likely diagnosis. Electromyography is most likely to show this lesion, but only after 3 weeks of symptoms. MRI of the neck may show abnormalities, but not the cause of the current problem. Symptoms are not consistent with shoulder pathology, deep-vein thrombosis of the upper extremity, or cerebrovascular accident.
08-143. +Mus+Csp. A 55-year-old overweight male presents with a complaint of pain in the left big toe. He recently started jogging 2 miles a day to try to lose weight, but has not changed his diet and says he drinks 4 cans of beer every night. The pain has developed gradually over the last 2 weeks and is worse after running. An examination shows a normal foot with tenderness and swelling of the medial plantar aspect of the left first metatarsophalangeal joint. Passive dorsiflexion of the toe causes pain in that area. Plantar flexion produces no discomfort, and no numbness can be appreciated. Which one of the following is the most likely diagnosis? A) Sesamoid fracture B) Gout C) Morton's neuroma D) Cellulitis	Pain, toe. **08-143.** Pain involving the big toe is a common problem. **ANS=A.** The first metatarsophalangeal (MTP) joint has two sesamoid bones, and injuries to these bones account for 12% of big-toe injuries. Overuse, a sharp blow, and sudden dorsiflexion are the most common mechanisms of injury. Gout commonly involves the first MTP joint, but the onset is sudden, with warmth, redness, and swelling, and pain on movement of the joint is common. Morton's neuroma commonly causes numbness involving the digital nerve in the area, and usually is caused by the nerve being pinched between metatarsal heads in the center of the foot. Cellulitis of the foot is common, and can result from inoculation through a subtle crack in the skin. However, there would be redness and swelling, and the process is usually more generalized. Sesamoiditis is often hard to differentiate from a true sesamoid fracture. Radiographs should be obtained, but at times they are nondiagnostic. Treatment, fortunately, is similar, unless the fracture is open or widely displaced. Limiting weight bearing and flexion to control discomfort is the first step. More complex treatments may be needed if the problem does not resolve in 4–6 weeks.
10-194. +Int+Csp.**>**L* A 19-year-old college student comes to your office with significant pain in his right great toe that is making it difficult for him to walk. He has never had this problem before. When you examine him you find increased swelling with marked erythema and seropurulent drainage and ulceration of the medial nail fold. The toe is very tender to touch, particularly when pressure is applied to the tip of the toe. The most appropriate initial management would be A) oral antibiotics that cover common skin flora, for 5–7 days B) soaking the toe in warm, soapy water for 10–20 minutes twice daily, followed by application of a topical antibiotic, with a return visit in 3–5 days C) elevation of the nail with a wisp of cotton D) partial avulsion of the medial nail plate and phenolization of the matrix at this visit E) partial avulsion of both the medial and lateral nail plates at this visit	Pain, toe. **10-194.** Ingrown nail. **ANS=D.** This ingrown nail meets the criteria for moderate severity: increased swelling, seropurulent drainage, infection, and ulceration of the nail fold. In these cases, antibiotics before or after phenolization of the matrix do not decrease healing time, postoperative morbidity, or recurrence rates (SOR B). A conservative approach, elevating the nail edge with a wisp of cotton or a gutter splint, is reasonable in patients with a mild to moderate ingrown toenail who do not have significant pain, substantial erythema, or purulent drainage. Either immediate partial nail avulsion followed by phenolization, or direct surgical excision of the nail matrix is effective for the treatment of ingrown nails (SOR B). Pretreatment with soaking and antibiotics has not been demonstrated to add therapeutic benefit or to speed resolution. Several studies demonstrate that once the ingrown portion of the nail is removed and matricectomy is performed, the localized infection will resolve without the need for antibiotic therapy. Bilateral partial matricectomy maintains the functional role of the nail plate (although it narrows the nail plate) and should be considered in patients with a severe ingrown toenail or to manage recurrences.
08-133. +Mus+Csp. Which one of the following decreases pain from infiltration	**Pain. 08-133.** local anesthetic. **ANS=E.** The pain from infiltration of local

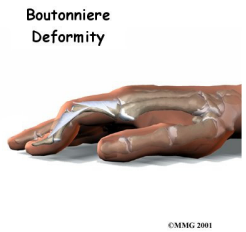
of local anesthetics? A) Cooling the anesthetic solution B) Using a 22-gauge needle rather than a 30-gauge needle C) Infiltrating quickly D) Infiltrating through surrounding intact skin E) Adding sodium bicarbonate to the mixture	anesthetics can be decreased by using a warm solution, using small needles, performing the infiltration slowly, and adding sodium bicarbonate to the mixture. It also helps to inject the agent through the edges of the wound (assuming the wound is not contaminated) and to pretreat the wound with topical anesthetics.
09-220. +Pbs+Adm. A patient with end-stage metastatic cancer is having continued significant pain despite regular use of 60 mg of long-acting morphine sulfate every 12 hours. What is the maximum 24-hour dose of morphine sulfate that you may safely titrate up to in order to relieve this patient's pain? A) 240 mg B) 360 mg C) 480 mg D) 600 mg E) No limit	Pain. **09-220.** end-stage disease. Morphine**. ANS=E.** Because there is no therapeutic ceiling for morphine, extremely large dosages can be used safely and effectively if the drug is titrated properly.
09-224. +Mus+Cca. During a preparticipation examination of a 5-year-old male for summer soccer camp, his mother states that he frequently awakens during the night with complaints of cramping pain in both legs, and that he seems to experience this after a day of heavy physical activity. She says that he appears to drag his legs at times, but she has never noticed a definite limp. A physical examination of the hips, knees, ankles, and leg musculature is entirely normal. Which one of the following would be the most appropriate next step in the evaluation and management of this patient? A) Plain films of both hips and knees B) Serum electrolyte levels C) Recommending that he not participate in running sports D) Reassurance, with no activity restrictions or treatment E) Referral to a pediatric orthopedist	Pain. **09-224.** Benign nocturnal limb pains of childhood (growing pains) occur in as many as one-third of children, most often between 4 and 6 years of age. **ANS=D.** The etiology is unknown, but the course does not parallel pubescent growth, as would be expected if bone growth was the source of pain. The pain often awakens the child within hours of falling asleep following an active day. The pain is generally localized around the knees, most often in the shins and calves, but also may affect the thighs and the upper extremities. A characteristic history coupled with a normal physical examination will confirm the diagnosis. Reassurance that no additional tests or treatments are necessary and that the condition is self-limiting is the most appropriate response.
10-131. +Pbs+Adm. A 60-year-old female receiving home hospice care was taking oral morphine, 15 mg every 2 hours, to control pain. When this was no longer effective, she was transferred to an inpatient facility for pain control. She required 105 mg of morphine in a 24-hour period, so she was started on intravenous morphine, 2 mg/hr with a bolus of 2 mg, and was well controlled for 5 days. However, her pain has worsened over the past 2 days. Which one of the following is the most likely cause of this patient's increased pain? A) An inadequate initial morphine dose B) Addiction to morphine C) Pseudoaddiction to morphine D) Physical dependence on morphine E) Tolerance to morphine	Pain. **10-131.** morphine tolerance. **ANS=E.** This patient has become tolerant to morphine. The intravenous dose should be a third of the oral dose, so the starting intravenous dose was adequate. Addiction is compulsive narcotic use. Pseudoaddiction is inadequate narcotic dosing that mimics addiction because of unrelieved pain. Physical dependence is seen with abrupt narcotic withdrawal.
07-042. +Pbs+Com. Which one of the following statements regarding palliative care services is most consistent with the National Consensus Project for Quality Palliative Care guidelines? A) Palliative care services are limited to patients with diseases that reduce life expectancy B) Palliative care begins at the onset of terminal disability from the diagnosed condition C) The unit of care comprises the patient and his or her family, as defined by the patient or surrogate D) Palliative care failures are directly related to deviating from the initial care plan E) Pain management should focus on modalities that will not promote addiction or dependency	Palliative care. **07-042.** Palliative care services are provided to patients of all ages who have a chronic illness, condition, or injury that adversely affects daily functioning or reduces life expectancy. **ANS=C.** Ideally, palliative care begins when a condition is diagnosed and continues through cure or until death and family bereavement. The unit of care comprises the patient and his or her family as defined by the patient or surrogate. The care plan changes according to the evolving needs and preferences of the patient and the family, and may involve additional input from other specialists and caregivers. The care team should help patients and families understand any changes that occur in the condition and how they affect ongoing care and goals of treatment. The evolving care plan should be documented clearly throughout, including alternative options for settings and treatment, and should be conveyed to all involved. The management of pain should incorporate pharmacologic, nonpharmacologic, and complementary therapies. Barriers to effective pain management, such as fear of side effects, addiction, or respiratory depression, should be recognized and addressed. Because controlled substances are often used for long-term symptom management, palliative care professionals need to work with policy makers, law enforcement representatives, and regulators to ensure that efforts to address drug abuse do not interfere with the care of patients who are in pain.
08-142. +Car+Adm. A 23-year-old female sees you with a complaint of intermittent "irregular" heartbeats that occur once every week or two, but do not cause her to feel lightheaded or fatigued. They last only a few seconds and resolve spontaneously. She has never passed out, had chest pain, or had difficulty with exertion. She is otherwise healthy, and a physical examination is normal. Which one of the following cardiac studies should be ordered initially? A) 24-hour ambulatory EKG monitoring (Holter monitor) B) 30-day continuous closed-loop event recording C) Echocardiography D) An EKG E) Electrophysiologic studies	Palpitations. **08-142. ANS=D.** The symptom of an increased or abnormal sensation of one's heartbeat is referred to as "palpitations." This condition is common to primary care, but is often benign. Commonly, these sensations have their basis in anxiety or panic. However, about 50% of those who complain of palpitations will be found to have a diagnosable cardiac condition. It is recommended to start the evaluation for cardiac causes with an EKG, which will assess the baseline rhythm and screen for signs of chamber enlargement, previous myocardial infarction, conduction disturbances, and a prolonged QT interval.
08-115. +Gas+Adm. When considering a diagnosis of pancreatitis, amylase levels A) can help determine the severity of the disease B) are less likely to be elevated in alcoholics C) are more sensitive and specific than serum lipase levels D) are less likely to be affected by nonpancreatic conditions such as renal insufficiency	Pancreatitis. **08-115. Acute. ANS=B.** Amylase and lipase levels are used to help make the diagnosis of acute pancreatitis. The serum lipase level is more specific and more sensitive than the amylase level. Amylase elevations can be seen with other abdominal illnesses, such as inflammation of the small bowel. Alcoholics with recurrent pancreatitis may have normal serum amylase levels; in such cases, serum lipase would be a better test. There are several scoring systems for the severity of pancreatitis, including the CT severity index, the APACHE II score, the Imrie Scoring System, and Ranson's Criteria, but none of these use serum amylase in their calculation. The elevation of serum amylase does not correspond well with the severity of the pancreatitis.
08-140. +Gas+Adm. Which one of the following is a risk factor for acute	Pancreatitis. **08-140.** Pancreatitis is most closely associated with gallstones and

pancreatitis? A) Gastroesophageal reflux disease B) Intravenous drug abuse C) Angiotensin receptor blocker use D) Pyelonephritis E) Gallstones	excessive alcohol use. **ANS=E.** Gastroesophageal reflux disease, pyelonephritis, drug abuse (other than alcohol), and angiotensin receptor blocker use are not risk factors for the development of pancreatitis.
09-056. +Gas+Adm. A 40-year-old male with acute pancreatitis has an alanine transaminase (ALT) level that is five times normal. Which one of the following is the most likely diagnosis? A) Gallstone pancreatitis B) Pancreatic necrosis C) Pancreatic pseudocyst D) Hepatitis C E) Alcohol-induced pancreatitis	Pancreatitis. **09-056. Gallstone pancreatitis**, acute. **ANS=A.** In this setting, **a threefold or greater elevation of alanine transaminase has a positive predictive value of 95%** for acute gallstone pancreatitis. **High levels of C-reactive protein are associated with pancreatic necrosis. Hepatitis C is identified by antibody detection or polymerase chain reaction** testing. Other markers are investigational.
07-098. +Psy+Mhe. Which one of the following is true regarding panic disorder? A) It is associated with major depression B) It is more common in men than in women C) It is best treated with anti-epileptic drugs D) It is exacerbated by benzodiazepines E) Relapses are rare	Panic disorder. **07-098. ANS=A.** Ninety percent of patients with panic disorder will have at least one other psychiatric disorder during their lifetime. Conditions commonly reported include major depression, generalized anxiety disorder, agoraphobia, post-traumatic stress disorder, bipolar disorder, and alcohol abuse. **The risk of suicidal behavior is likely to be increased among patients with panic disorder and coexisting major depression**. Panic disorder is more common in women than in men. Anti-epileptic drugs are not indicated for panic disorder. Relapse occurs within 2 years in at least one-third of patients with the disorder. **The most effective medications for panic disorder include SSRIs, SNRIs, and tricyclic antidepressants, as well as benzodiazepines.**
09-020. +Psy+Mhe. An 18-year-old male comes to your office because of the recent onset of recurrent, unpredictable episodes of palpitations, sweating, dyspnea, gastrointestinal distress, dizziness, and paresthesias. His physical examination is unremarkable except for moderate obesity. Laboratory findings, including a CBC, blood chemistry profile, and thyroid-stimulating hormone (TSH) level, reveal no abnormalities. The most likely diagnosis is A) mitral valve prolapse B) paroxysmal supraventricular tachycardia C) pheochromocytoma D) generalized anxiety disorder E) panic disorder	Panic disorder. **09-020.** Panic disorder typically presents with the symptoms described, in late adolescence or early adulthood. The attacks are sporadic and last 10–60 minutes. Generalized anxiety disorder is more common, and common symptoms include restlessness, fatigue, muscle tension, irritability, difficulty concentrating, and sleep disturbance. Patients with mitral valve prolapse usually have an abnormal cardiac examination. Pheochromocytoma is associated with headache and hypertension, and usually occurs in thin patients. Paroxysmal supraventricular tachycardia is usually not associated with gastrointestinal distress or paresthesias.
08-088. +Pbc+Cfp. An asymptomatic 24-year-old white female comes to your office for a refill of oral contraceptive pills. A speculum examination is normal with the exception of a slightly friable, welldemarcated, 1.4-cm raised lesion involving a portion of the cervix. All previous Papanicolaou (Pap) tests have been normal and she has no history of abnormal bleeding or leukorrhea. Which one of the following would be most appropriate at this point? A) A Pap test, including a scraping of the erosion, with routine follow-up unless the patient becomes symptomatic B) A Pap test with follow-up in 3 months if results are normal C) A Pap test and a colposcopically directed biopsy D) A cone biopsy E) Topical antibiotic cream	PAP. **08-088.** Cervical lesion**. ANS=C.** The finding of a red, raised, friable lesion on the cervix, or a well-demarcated cervical lesion, mandates a biopsy to exclude cervical carcinoma, and treatment for chronic cervicitis should not be started until the biopsy results are available. A Papanicolaou test by itself is insufficient if there is a grossly visible lesion, as false-negatives occur in 10%–50% of tests.
09-097. +Ref+Cfp. Typically, a high-grade squamous intraepithelial lesion (HSIL) of the cervix is treated with ablation or excision. In which one of the following can treatment be deferred? A) Adolescents B) Patients attempting to conceive C) Patients with a history of three previous normal Papanicolaou smears D) Patients with a negative DNA test for HPV E) Patients over the age of 70	PAP. **09-097.** High-grade squamous intraepithelial lesion. **ANS=A. Patients attempting to conceive are not candidates for conservative management of cervical dysplasia, because treatment of progressive disease during pregnancy may be harmful**. When possible, the problem should be resolved before conception. Patients who have had three normal Papanicolaou (Pap) smears in succession are candidates for lengthened screening intervals according to some recommendations. However, once a problem is found, they should be managed the same as other cases. **A negative test for HPV can be used to assess the risk of patients with atypical squamous cells of undetermined significance (ASC-US) or a low-grade squamous intraepithelial lesion (LSIL); it does not change the management of patients with a high-grade intraepithelial lesion (HSIL). HPV infection is common and transient in most young women in their first few years of sexual activity. With careful follow-up, they can be observed rather than treated for HSIL.** Patients over 70 years of age no longer require screening if they have a long history of normal Pap smears, but when an abnormality is found it should be treated.
07-173. +Neu+Cel. Which one of the following is more consistent with Parkinson's disease than with other variant parkinsonian syndromes? A) Tremor at the onset of illness B) Frequent falls at the onset of illness C) Urinary urge incontinence at the onset of illness D) Symmetric, bilateral motor manifestations at the onset of illness	Parkinson's disease**. 07-173. ANS=A. Tremor is characteristically an early manifestation of Parkinson's disease**. It is less pronounced in other variant parkinsonian syndromes. Examples of these syndromes include multiple system atrophy and progressive supranuclear palsy. Initial motor findings, including tremor, are often unilateral in Parkinson's disease. Early falls, autonomic dysfunction, and symmetric motor findings are more typical of variant parkinsonian syndromes. Compared to Parkinson's disease, these syndromes respond poorly to levodopa.
09-216. +Neu+Cel. A 73-year-old male sees you for evaluation of a tremor. Based on the history and examination, you suspect Parkinson's disease. Which one of the following would be most helpful for confirming the diagnosis? A) CT of the brain B) MRI of the brain C) A positive response to levodopa D) Confirming that the tremor occurs with movement E) Confirming that the tremor had a symmetric onset	Parkinson's disease. **09-216. ANS=C.** Patients with Parkinson's disease should respond to an adequate therapeutic challenge of levodopa or a dopamine agonist. The diagnosis of idiopathic Parkinson's disease is clinical, not radiographic. Cardinal signs of Parkinson's disease include an asymmetric tremor onset and a distal resting tremor of 3–6 Hz.

10-074. +Pbs+Com.* Pay-for-performance (P4P) programs provide financial incentives for meeting predetermined quality targets. Contracts with major payors often include these programs. When considering P4P programs in such contracts, physicians should negotiate for which one of the following? A) Guidelines developed by academic medicine researchers B) Guidelines based on consensus opinions C) Mandatory physician participation D) Reporting of negative performance results to licensure boards E) Taking patient compliance into account when performing the evaluation	Pay-for-performance. **10-074.** Pay-for-performance programs are becoming a critical part of the health care reform debate, and when the discussion began in 2005, over 100 such programs were in existence. **ANS=E. The objective is to reward physicians for achieving goals that should lead to improved patient outcomes.** In addition to evaluating clinical performance, many programs now also evaluate efficiency and information technology. However, many programs are not based on outcomes data, and have less desirable aspects such as inadequate incentive levels, withholding of payment, limited clinical focus, or unequal or unfair distribution of incentives. **Plans that exclude patient compliance as a factor can lead to withholding of physician incentives because of patient nonadherence, or to physicians selectively removing such patients from their panels.** As the exact process is still being defined, all family physicians should be actively engaged in learning more about these programs, and in negotiating for appropriate measures to be included. The AAFP has **seven main principles in its support for pay-for-performance programs: (1) the focus should be on improved quality of care; (2) physician-patient relationships should be supported; (3) evidence-based clinical guidelines should be utilized; (4) practicing physicians should be involved with the program design; (5) reliable, accurate, and scientifically valid data should be used; (6) physicians should be provided with positive incentives; and (7) physician participation should be voluntary. Ensuring that patient adherence is included helps prevent conflicts between patients and their physicians. A pay-for-performance program should not result in a reduction of fees paid to the physician as a result of implementing a program**. Negative results should not penalize the physician with regard to health plan credentialing, verification, or licensure.
10-047. +Pbs+Com.* *Patient-centered medical home* is a term used to describe which one of the following developments in medical care? A) A federally imposed restriction on family medicine's role in providing care B) A physician-led team of care providers taking responsibility for the quality and safety of an individual's health C) A "practice without walls" that provides primary care services in the homes of patients D) A small group of patients paying an annual fee to have a physician be available to them at all times E) Improving the dignity of care for nursing-home residents	PCMH (*Patient-centered medical home).* **10-047.** P*atient-centered medical home* (PCMH) is a development in primary care that stresses a personal physician leading a multidisciplinary team that takes responsibility for integrating and coordinating an individual's care. **ANS=B.** Quality and safety are hallmarks of the PCMH, which stresses outcome-based and evidence-supported practices. This concept was originated by organizations in the field of pediatrics and was further developed by a collaboration of the major academies of primary care. There are institutions that accredit individual and group practices as fulfilling the role of a PCMH, which are now being compensated at a higher level by third-party payers, including Medicare.
07-151. +Ref+Cfp. A 24-year-old female presents to your office with lower abdominal pain, dyspareunia, and a vaginal discharge. She has a history of multiple sex partners. Examination shows that the cervix is tender to manipulation and the uterus is tender and enlarged to the size expected at 6–8 weeks gestation. No adnexal masses are noted. She has no rebound tenderness on abdominal examination. Which one of the following indicates that the patient should be hospitalized for parenteral therapy? A) No improvement with 24 hours of outpatient antibiotics B) A previous history of pelvic inflammatory disease C) An elevated erythrocyte sedimentation rate and WBC count D) Laboratory confirmation of gonorrhea or chlamydial infection E) Pregnancy	Pelvic inflammatory disease**. 07-151. ANS=E.** The **criteria for hospitalizing patients** with pelvic inflammatory disease include **failure to improve after 3 days of oral therapy, inability to tolerate antibiotics, suspicion that the patient will not comply with therapy, tubo-ovarian abscess, severe illness with high fever, vomiting, pain, pregnancy, and the underlying possibility of a surgical problem such as appendicitis**.
10-124. +Ref+Cfp. The Centers for Disease Control and Prevention recommends empiric treatment of male sexual partners for which one of the following conditions? A) Vaginal candidiasis B) Vaginal warts C) Pelvic inflammatory disease D) Bacterial vaginosis	Pelvic inflammatory disease**. 10-124. ANS=C.** The promise of a reduction in the incidence and prevalence of sexually transmitted diseases through partner notification and treatment programs remains elusive, as evidence supporting this effect is scarce and inconclusive. What is clear is that treating sexual partners does reduce reinfection of the index patient. Programs such as contact notification, counseling and scheduling of appointments for evaluation of the partner, and expedited partner therapy (EPT), in which sexual contacts of infected patients are provided antibiotics delivered by the index patient without evaluation or counseling, have demonstrated only limited effectiveness; in the case of EPT this limited benefit has been shown only with trichomoniasis. **Because currently available evidence fails to demonstrate benefit from treating the male sexual contacts of women with vaginal candidiasis, vaginal warts, or bacterial vaginosis, the Centers for Disease Control and Prevention (CDC) states that treating the male partner is not indicated with these infections.** In the case of pelvic inflammatory disease (PID), evaluation and treatment of males with a history of sexual contact with the patient during the 60 days preceding the onset of symptoms is imperative because of the high risk of reinfection. Current CDC guidelines recommend empiric treatment of these male contacts with antibiotic regimens effective against both chlamydial and gonococcal infection, regardless of the presumed etiology of the PID.
10-081. +Nep+Adm. A 48-year-old female with type 2 diabetes has been hospitalized for 4 days with persistent fever. Her diabetes has been controlled with diet and glyburide (Micronase, DiaBeta). You saw her 2 weeks ago in the office with urinary frequency, urgency, and dysuria. At that time a urinalysis showed 25 WBCs/hpf, and a urine culture subsequently grew *Escherichia coli* sensitive to all antibiotics. She was placed on trimethoprim /sulfamethoxazole (Bactrim, Septra) empirically, and this was continued after the culture results were	Perinephric abscess. **10-081.** Perinephric abscess is an elusive diagnostic problem that is defined as a collection of pus in the tissue surrounding the kidney, generally in the space enclosed by Gerota's fascia. **ANS=E.** Mortality rates as high as 50% have been reported, usually from failure to diagnose the problem in a timely fashion. The difficulty in making the diagnosis can be attributed to the variable constellation of symptoms and the sometimes indolent course of this disease. **The diagnosis should be considered when a patient has fever and**

reported. She improved over the next week, but then developed flank pain, fever to 39.5°C (103.1°F), and nausea and vomiting. She was hospitalized and intravenous cefazolin (Kefzol) and gentamicin were started while blood and urine cultures were performed. This urine culture also grew *E. coli* sensitive to the current antibiotics. Her temperature has continued to spike to 39.5°C since admission, without any change in her symptoms. Which one of the following would be most appropriate at this time? A) Add vancomycin (Vancocin) to the regimen B) Order a radionuclide renal scan C) Order intravenous pyelography D) Order a urine culture for tuberculosis E) Order CT of the abdomen	**persistence of flank pain. Most perinephric infections occur as an extension of an ascending urinary tract infection, commonly in association with renal calculi or urinary tract obstruction. Patients with anatomic urinary tract abnormalities or diabetes mellitus have an increased risk.** Clinical features may be quite variable, and the most useful predictive factor in distinguishing uncomplicated pyelonephritis from perinephric abscess is persistence of fever for more than 4 days after initiation of antibiotic therapy. The radiologic study of choice is CT. This can detect perirenal fluid, enlargement of the psoas muscle (both are highly suggestive of the diagnosis), and perirenal gas (which is diagnostic). The sensitivity and specificity of CT is significantly greater than that of either ultrasonography or intravenous pyelography. Drainage, either percutaneously or surgically, along with appropriate antibiotic coverage reduces both morbidity and mortality from this condition.
10-221. +Res+Euc. The mother of a 16-year-old male calls to report that her son has a severe sore throat and has been running a fever of 102°F. Which one of the following additional findings would be most specific for peritonsillar abscess? A) A 1-day duration of illness B) Ear pain C) Difficulty opening his mouth D) Hoarseness E) Pain with swallowing	Peritonsillar abscess**. 10-221. Trismus is almost universally present with peritonsillar abscess, while voice changes, otalgia, and odynophagia may or may not be present. ANS=C.** Pharyngotonsillitis and peritonsillar cellulitis may also be associated with these complaints. Otalgia is common with peritonsillar abscess, otitis media, temporomandibular joint disorders, and a variety of other conditions. Peritonsillar abscess is rarely found in patients who do not have at least a 3-day history of progressive sore throat.
09-238. +Int+Adm. A 12-year-old male who lives on a farm presents with lesions on his toes (shown in **Figure**). Which one of the following items from the patient's history is relevant to the diagnosis? A) Recent tooth extraction and gingival surgery B) A family history of systemic lupus erythematosus C) Recurrent fevers for the past 2 weeks D) Exposure to cold temperatures E) Vaccination of the sheep he is raising for a 4-H project 	Pernio, or chilblains. **09-238. ANS=D.** This patient has pernio, or chilblains, which is a localized inflammatory lesion of the skin, usually found in the extremities following exposure to nonfreezing cold temperatures. It is generally a benign condition, and is not associated with any systemic diseases. These lesions are red-purple plaques with deep swelling, and are accompanied by itching or burning. They are not associated with infections or connective tissue disease.
09-093. +Psy+Mhe. The parents of a 7-year-old male ask you to evaluate him because of increasing concerns about his temper tantrums over the past 9 months. He often becomes angry and hostile, argues with them constantly, and refuses to follow rules or directions. A major source of difficulty is his refusal to quit playing with his toys when he is asked to come to the dinner table. After the child ignored repeated attempts to get him to come to the table a few nights ago, the father became frustrated and told him he had lost his television privileges. In response, the child became aggressive and destructive, breaking his toys and sweeping his dinner plate and glass of milk onto the floor. The parents describe many similar scenarios at bedtime, bath time, and when he is getting dressed. They believe that their son is deliberately behaving this way to annoy them. This history is most consistent with A) attention-deficit/hyperactivity disorder B) bipolar disorder C) conduct disorder D) oppositional defiant disorder E) normal childhood individualization	Personality disorder. **09-093.** Oppositional defiant disorder. **09-093. ANS=D.** This child meets the DSM-IV criteria for oppositional defiant disorder, defined as a pattern of negativistic, hostile, and defiant behavior lasting at least 6 months. The child will often lose his or her temper, argue with adults, actively defy or refuse to comply with adults' requests or rules, deliberately annoy people, blame others for his or her mistakes or misbehavior, be easily annoyed by others, appear angry and resentful, or be spiteful or vindictive. At least four of these behaviors must be present to meet the criteria for diagnosis. The disturbance in behavior must also cause clinically significant impairment in social, academic, or occupational functioning, and the behaviors must not occur exclusively during the course of a psychotic or mood disorder. Meeting the criteria for conduct disorder excludes the diagnosis of oppositional defiant disorder. If the individual is 18 years of age or older and meets the criteria for antisocial personality disorder, then oppositional defiant disorder is excluded.
10-184. +Psy+Mhe.**?*** A 19-year-old female high-school student is brought to your office by a friend who is concerned about the patient having cut her wrists. The patient denies that she was trying to kill herself, and states that she did this because she "just got so angry" at her boyfriend when she caught him sending a text message to another woman. She denies having a depressed mood or anhedonia, and blames her fluctuating mood on everyone who "keeps abandoning her," making her feel like she's "nothing." She admits that she has difficulty controlling her anger. Her sleep quality and pattern appear normal, as does her appetite. She denies hallucinations or delusions. The wounds on her wrists appear superficial and there is evidence of previous cutting behavior on her forearms. Her vital signs are stable. Which one of the following would be most beneficial for this patient? A) Clonazepam (Klonopin) B) Fluoxetine (Prozac) C) Quetiapine (Seroquel) D) Inpatient psychiatric admission E) Psychotherapy	Personality disorder. **10-184.** Borderline personality disorder. **ANS=E.** This patient displays most of the criteria for borderline personality disorder. This is a maladaptive personality type that is present from a young age, with a strong genetic predisposition. It is estimated to be present in 1% of the general population and involves equal numbers of men and women; women seek care more often, however, leading to a disproportionate number of women being identified by medical providers. **Borderline personality disorder is defined by high emotional lability, intense anger, unstable relationships, frantic efforts to avoid a feeling of abandonment, and an internal sense of emptiness.** Nearly every patient with this disorder engages in self-injurious behavior (cutting, suicidal gestures and attempts), and about 1 in 10 patients eventually succeeds in committing suicide. However, 90% of patients improve despite having made numerous suicide threats. Suicidal gestures and attempts peak when patients are in their early 20s, but completed suicide is most common after age 30 and usually occurs in patients who fail to recover after many attempts at treatment. In contrast, suicidal actions such as impulsive overdoses or superficial cutting, most often seen in younger patients, do not usually carry a high short-term risk, and serve to communicate distress. Inpatient hospitalization may be an appropriate treatment option if the person is experiencing extreme difficulties in living and daily

	functioning, and pharmacotherapy may offer a mild degree of symptom relief. While these modalities have a role in certain patients, **psychotherapy is considered the mainstay of therapy, especially in a relatively stable patient such as the one described.**
07-131. +Res+Com. An 18-year-old white female who works at a day-care center sees you because of a cough. Three weeks ago she developed cold symptoms that have progressed to paroxysms of coughing with post-tussive emesis. She reports that there are children at the day-care center who have coughs and colds, but none have been diagnosed with pertussis. She has always been healthy, has no known drug allergies, and had all of the routine childhood immunizations. A polymerase chain reaction (PCR) is negative for pertussis and a chest film appears normal. Which one of the following would be most appropriate at this point? A) Tetanus diphtheria acellular pertussis (TDaP) vaccine B) Albuterol C) Promethazine D) Azithromycin (Zithromax) E) Prednisolone (Orapred)	Pertussis. **07-131.** infection**. ANS=D.** This person works in an environment where pertussis may be contracted from unvaccinated or incompletely vaccinated individuals. According to the Centers for Disease Control and Prevention (CDC) this patient has **"clinical" pertussis, defined as an acute cough for 14 days with no other apparent cause, plus one of the following: paroxysmal cough, post-tussive emesis, or inspiratory "whooping." A negative PCR does not exclude clinical pertussis. The CDC recommends treating clinical cases with erythromycin, azithromycin, or clarithromycin**. Because pertussis is highly contagious, antibiotics are recommended to control outbreaks. The effectiveness of symptom-reducing treatments (e.g., antihistamines, corticosteroids, B-agonists, or immunoglobulins) is unclear. A systematic review showed little evidence to justify their use for pertussis. The CDC's Advisory Committee on Immunization Practices no longer recommends the Td booster, and Td would not boost her immunity to pertussis. **Because of the waning of pertussis immunity after routine childhood immunizations, the newer tetanus toxoid, reduced diphtheria toxoid and acellular pertussis (Tdap) vaccine is recommended for adolescents**. Although it is unclear whether this patient needs Tdap because of boosted immunity resulting from clinical pertussis, immunization would not be the first treatment in this case.
09-169. +Pbc+Com. In the United States, the number of deaths has increased in recent years for which one of the following vaccine-preventable illnesses? A) Tetanus B) Hepatitis C C) Rubella D) Pertussis E) West Nile virus	Pertussis**. 09-169. ANS=D.** In the United States, deaths from pertussis increased from 4 deaths in 1996 to 17 deaths in 2001, and a total of 56 deaths from 2001 to 2003. Immunity has decreased in previously vaccinated adolescents and adults, and now they are a reservoir for infection. Tdap vaccine is recommended as a single booster for patients age 19–65, and those between the ages of 11 and 18 years should receive Tdap rather than a Td booster. The Tdap vaccine protects against pertussis, in addition to tetanus and diphtheria. Tetanus and rubella deaths are not increasing. There are no vaccines for hepatitis C or West Nile virus.
08-047. +Pbc+Cel. Many of the changes that occur as part of aging affect pharmacokinetics. Which one of the following is INCREASED in geriatric patients? A) Drug absorption B) Glomerular filtration rate C) Lean body mass D) Volume of distribution of water-soluble compounds such as digoxin E) Percentage of body fat	Pharmacology, aging. **08-047.** The physiologic changes that accompany aging result in altered pharmacokinetics. **ANS=E.** Drug distribution is one important factor. In older persons, there is a relative increase in body fat and a relative decrease in lean body mass, which causes increased distribution of fat-soluble drugs such as diazepam. This also increases the elimination half-life of such medications. The volume of distribution of water-soluble compounds such as digoxin is decreased in older patients, which means a smaller dose is required to reach a given target plasma concentration. There is a predictable reduction in glomerular filtration rate and tubular secretion with aging, which causes decreased clearance of medications in the geriatric population. The absorption of drugs changes little with advancing age. All of these changes are important factors in choosing dosages of medications in the elderly population.
10-120P. +Non+Cel.>L Which one of the pharmacologic effects of transdermal medications changes the LEAST with aging? A) Liver metabolism of the drugs B) Renal excretion of the drugs C) Distribution within the body D) Transdermal absorption of the drugs	Pharmacology, aging. **10-120. ANS=D.** Transdermal absorption of medications changes very little with age. Due to an increase in the ratio of fat to lean body weight, the volume of distribution changes with aging, especially for fat-soluble drugs. Both liver metabolism and renal excretion of drugs decrease with aging, increasing serum concentrations.
10-003. +Non+Adm**.** >L* Which one of the following is a physiologic difference between males and females that can affect the pharmacokinetics of medications with a narrow therapeutic index? A) A consistently higher glomerular filtration rate in women B) The typically higher BMI in women C) Smaller fat stores in women D) Greater gastric acid secretion in women E) Slower gastrointestinal transit times in women	Pharmacology, sexes. **10-003. ANS=E.** There are key physiologic differences between women and men that can have important implications for drug activity. Gastrointestinal transit times are slower in women than in men, which can diminish the absorption of medications such as metoprolol, theophylline, and verapamil. In addition, women should wait longer after eating before taking medications that should be administered on an empty stomach, such as ampicillin, captopril, levothyroxine, loratadine, and tetracycline. Women also secrete less gastric acid than men, so they may need to drink an acidic beverage to aid in absorption of medications that require an acidic environment, such as ketoconazole. Women usually have lower BMIs than men, and may need smaller loading or bolus dosages of medications to avoid unnecessary adverse reactions. Women typically have higher fat stores than men, so lipophilic drugs such as benzodiazepines and neuromuscular blockers have a longer duration of action. Women also have lower glomerular filtration rates than men, resulting in slower clearance of medications that are eliminated renally, such as digoxin and methotrexate.
07-166. +Pbc+Cca. You see a 6-year-old male who has had a sore throat since yesterday. He has not had a fever and is currently afebrile. He complains of a slight runny nose and cough. On examination you note a tonsillar exudate and anterior cervical lymphadenopathy. A rapid antigen detection test for group A B-hemolytic streptococci is negative. The most appropriate course of action at this point is to A) perform no further tests and treat symptomatically B) obtain a throat culture and base antibiotic treatment on the results C) obtain a throat culture and begin empiric antibiotics at this visit D) perform no further testing and treat empirically with antibiotics E) test for mononucleosis and treat symptomatically	Pharyngitis. **07-166.** streptococcal **Infection; ANS=B.** A rapid antigen detection test (RADT) was performed in this patient because he exhibited two criteria for streptococcal pharyngitis. In children and adolescents, a backup throat culture is still recommended because the sensitivity of the RADT is only in the 80%–90% range. **Guidelines do not recommend empiric treatment for pediatric patients, but do recommend bacteriologic confirmation of group A B-hemolytic streptococcal pharyngitis by rapid antigen detection testing or throat culture prior to initiation of treatment**. **Centor criteria: include tonsillar exudates, tender anterior cervical lymphadenopathy, absence of cough, and history of fever.** The presence of

	three or four of these criteria has a positive predictive value of 40%–60%, and the absence of three or four of these criteria has a negative predictive value of 80%. Patients with four positive criteria should be treated with antibiotics, those with three positive criteria should be tested and treated if positive, and those with 0–1 positive criteria should be treated with analgesics and supportive care only.
09-052. +Res+Adm. A healthy 24-year-old male presents with a sore throat of 2 days' duration. He reports mild congestion and a dry cough. On examination, his temperature is 37.2°C (99.0°F). His pharynx is red without exudates, and there are no anterior cervical nodes. His tympanic membranes are normal, and his chest is clear. You would do which one of the following? A) Treat with analgesics and supportive care B) Treat with azithromycin (Zithromax) C) Perform a throat culture and begin treatment with penicillin D) Perform a rapid strep test	Pharyngitis. **09-052.** Respiratory disease, acute. **ANS=A.** The Centers for Disease Control and Prevention (CDC) assembled a panel of national health experts to develop evidence-based guidelines for evaluating and treating adults with acute respiratory disease. According to these guidelines, the most reliable clinical predictors of streptococcal pharyngitis are the **Centor criteria. These include tonsillar exudates, tender anterior cervical lymphadenopathy, absence of cough, and history of fever.** The presence of three or four of these criteria has a positive predictive value of 40%–60%, and the absence of three or four of these criteria has a negative predictive value of 80%. Patients with four positive criteria should be treated with antibiotics, those with three positive criteria should be tested and treated if positive, and those with 0–1 positive criteria should be treated with analgesics and supportive care only. This patient has only one of the Centor criteria, and according to the panel should not be tested or treated with antibiotics.
10-038. +Res+Cca.* A 7-year-old male presents with a fever of 38.5°C (101.3°F), a sore throat, tonsillar inflammation, and tender anterior cervical adenopathy. He does not have a cough or a runny nose. His younger sister was treated for streptococcal pharyngitis last week and his mother would like him to be treated for streptococcal infection. Which one of the following is true concerning this situation? A) Empiric antibiotic treatment for streptococcal pharyngitis is warranted B) The chance of this patient having a positive rapid antigen detection test for *Streptococcus* is <50% C) There is a generalized consensus among the various national guidelines for management of pharyngitis D) The patient should have a tonsillectomy when he recovers from this infection E) The family dog should be treated for streptococcal infection	Pharyngitis. **10-038. ANS=A.** The patient has a score of 5 under the Modified Centor scoring system for management of sore throat. Patients with a score ≥4 are at highest risk (at least 50%) of having group A B-hemolytic streptococcal (GABHS) pharyngitis, and empiric treatment with antibiotics is warranted. Various national and international organizations disagree about the best way to manage pharyngitis, with no consensus as to when or how to test for GABHS and who should receive treatment. The minimal benefit seen with tonsillectomy in reducing the incidence of recurrent GABHS pharyngitis does not justify the risks or cost of surgery. Treatment of pets for the prevention of GABHS infection has proven ineffective.
09-055. +Mus+Adm. You test a patient's muscles and find that his maximum performance consists of the ability to move with gravity neutralized. This qualifies as which grade of muscle strength, on a scale of 5? A) 0 B) 1 C) 2 D) 3 E) 4	Physical Exam. **09-055.** Muscle strength. **ANS=C. Muscle strength** is scored on a scale of 0 to 5. The **inability to contract** a muscle is scored as **0**. **Contraction without movement constitutes grade 1** strength. **Movement with the effect of gravity neutralized** is grade **2** strength, while **movement against gravity only** is grade **3** strength. **Movement against gravity plus some additional resistance** indicates grade **4** strength. Normal, or grade 5, strength is demonstrated by movement against substantial resistance.
07-207. +Mus+Euc. A 16-year-old high-school basketball player is struck on the end of her long finger by the ball. Her finger was fully extended and the result was a forced flexion injury of the proximal interphalangeal (PIP) joint. She is unable to actively extend the PIP joint, although passive extension is possible. She is tender over the dorsal aspect of the middle phalanx. Radiographs are negative. Which one of the following is true regarding this injury? A) Immediate referral to an orthopedist is indicated B) Buddy taping to the adjacent ring finger is the only treatment necessary C) Any splint (fashioned aluminum splint, stack splint, ring splint) would be adequate D) Splinting should be continued for 2 weeks E) A boutonniere deformity may result	PIP (proximal interphalangeal) joint injury. **07-207.** Joint injury. Injury to the central extensor slip can occur when the proximal interphalangeal (PIP) joint is forcibly flexed while the digit is actively extended. **ANS=E**. The injury is evaluated by holding the joint in a position of 15°–30° of flexion. The patient will not be able to actively extend the joint, but passive extension should be possible. There will be tenderness over the dorsal aspect of the middle phalanx. Delay or improper treatment may result in a boutonniere deformity, which usually develops over several weeks but can occasionally develop acutely. **Treatment consists of splinting the PIP joint in full extension for 6 weeks.** The **stack splint should only be used to treat injuries of the distal interphalangeal joint**. 
10-196. +Ref+Mac. Ultrasonography shows a complete placenta previa in a 23-year-old primigravida at 20 weeks gestation. She has not experienced any vaginal bleeding. Which one of the following would be the most appropriate management for this patient? A) Schedule a cesarean section at 38 weeks gestation B) Perform a digital examination to assess for cervical dilation C) Administer corticosteroids to promote fetal lung maturity D) Order MRI to rule out placenta accreta E) Repeat the ultrasonography at 28 weeks gestation	Placenta previa. **10-196.** Placenta previa is a relatively common incidental finding on second trimester ultrasonography. **ANS=E.** Approximately 4% of ultrasound studies at 20–24 weeks gestation show a placenta previa, but it occurs in only 0.4% of pregnancies at term, because of migration of the placenta away from the lower uterine segment. Therefore, in the absence of bleeding, the most appropriate management is to repeat the ultrasonography in the third trimester (SOR A). Because many placenta previas resolve close to term, a decision regarding mode of delivery should not be made until after ultrasonography is performed at 36 weeks gestation. Digital cervical examinations should not be performed in patients with known placenta previa because of the risk of precipitating bleeding. Corticosteroids are indicated at 24–34 weeks gestation if the patient has bleeding, given the higher risk of premature birth. In patients with a history of previous cesarean delivery who have a placenta previa at the site of the previous incision, a color-flow Doppler study should be performed to evaluate for a potential placenta accreta. In such cases, MRI may be helpful to confirm the diagnosis.
10-043. +Ref+Mac.?* A 30-year-old white gravida 2 para 1 who has had no prenatal care presents for urgent care at 33 weeks gestation. Her symptoms	Placental abruption**. 10-043. ANS=D.** Late pregnancy bleeding may cause fetal morbidity and/or mortality as a result of uteroplacental insufficiency and/or

include vaginal bleeding, uterine tenderness, uterine pain between contractions, and fetal distress. Her first pregnancy was uncomplicated, with a vaginal delivery at term. Which one of the following is the most likely diagnosis? A) Uterine rupture B) Vasa previa C) Placenta previa D) Placental abruption E) Cervical cancer	premature birth. The condition described here is placental abruption (separation of the placenta from the uterine wall before delivery). There are several causes of vaginal bleeding that can occur in late pregnancy that might have consequences for the mother, but not necessarily for the fetus, such as cervicitis, cervical polyps, or cervical cancer. Even advanced cervical cancer would be unlikely to cause the syndrome described here. The other conditions listed may bring harm to the fetus and/or the mother. Uterine rupture usually occurs during active labor in women with a history of a previous cesarean section or with other predisposing factors, such as trauma or obstructed labor. Vaginal bleeding is an unreliable sign of uterine rupture and is present in only about 10% of cases. Fetal distress or demise is the most reliable presenting clinical symptom. Vasa previa (the velamentous insertion of the umbilical cord into the membranes in the lower uterine segment) is typically manifested by the onset of hemorrhage at the time of amniotomy or by spontaneous rupture of the membranes. There are no prior maternal symptoms of distress. The hemorrhage is actually fetal blood, and exsanguination can occur rapidly. Placenta previa (placental implantation that overlies or is within 2 cm of the internal cervical os) is clinically manifested as vaginal bleeding in the late second or third trimester, often after sexual intercourse. The bleeding is typically painless, unless labor or placental abruption occurs.
08-181. +Pbc+Cel. A 67-year-old male sees you for knee pain from osteoarthritis. It has not responded to his usual treatment, and you treat him with an intra-articular corticosteroid injection. It is mid-November, and he tells you that he has not received the influenza vaccine this year. He has also never received pneumococcal vaccine. He has a history of allergic rhinitis, treated with intranasal corticosteroids. Which one of the following is true regarding pneumococcal vaccine and influenza vaccine for this patient? A) The immunizations should be administered at least 4 weeks apart B) Administration of both immunizations should be delayed 4 weeks because of immunosuppression C) Administration of influenza vaccine should be delayed for 4 weeks because it is a live attenuated vaccine D) Administration of pneumococcal vaccine should be delayed for 4 weeks because it is contraindicated with simultaneous intra-articular corticosteroids E) It is acceptable to administer both immunizations at this visit	Pneumococcal and influenza vaccines. **08-181. ANS=E.** Low-dose topical, oral, nasal, and intra-articular corticosteroids are not immunosuppressive and do not contraindicate administration of any vaccine. **Influenza vaccine and pneumococcal vaccine can be given together. Neither is a live vaccine.**
08-188. +Pbc+Csp. A 32-year-old white male undergoes an emergency splenectomy after a motor vehicle accident. Which one of the following should he receive after the surgery? A) Pneumococcal vaccine and meningococcal vaccine B) Pneumococcal vaccine alone C) Meningococcal vaccine alone D) No immunizations	Pneumococcal and meningococcal. **08-188. V**accines. Pneumococcal and meningococcal vaccines are currently recommended for patients with asplenia. **ANS=A.** *Haemophilus influenzae* type b (Hib) vaccine can be considered as well. A Td booster or Tdap also should be considered. Emergency splenectomy for trauma is an indication for vaccination, although splenic remnants may persist.
08-099. +Pbc+Cca. Which one of the following is an indication for a second dose of pneumococcal polysaccharide vaccine in children? A) Cerebrospinal fluid leak B) Cyanotic congenital heart disease C) Type 1 diabetes mellitus D) Sickle cell disease E) Chronic bronchopulmonary dysplasia	Pneumococcal polysaccharide vaccine. **08-099. ANS=D. Patients with chronic illness, diabetes mellitus, cerebrospinal fluid leaks, chronic bronchopulmonary dysplasia, cyanotic congenital heart disease, or cochlear implants should receive one dose of pneumococcal polysaccharide vaccine after 2 years of age, and at least 2 months after the last dose of pneumococcal conjugate vaccine. Revaccination with polysaccharide vaccine is not recommended for these patients. Individuals with sickle cell disease, those with anatomic or functional asplenia, immunocompromised persons with renal failure or leukemia, and HIV-infected persons should receive polysaccharide vaccine on this schedule and should be revaccinated at least 3 years after the first dose.**
09-040. +Res+Adm. You would recommend pneumococcal vaccine for which one of the following? A) A 20-year-old male who smokes 1 pack of cigarettes daily B) A 52-year-old male with type 2 diabetes mellitus who received pneumococcal vaccine 6 years ago C) A 60-year-old male who is a long-term resident of a nursing home because of a previous stroke, and who received pneumococcal vaccine at age 54 D) A 62-year-old male with chronic renal failure who received pneumococcal vaccine at age 50 and age 55 E) A 71-year-old male with no medical problems who received pneumococcal vaccine at age 65. **Note: Immunocompetent pts who should receive 1 shot before 65 and then until 65: Chronic heart disease (excluding hypertension), Chronic lung disease, Diabetes mellitus, Cerebrospinal fluid leaks, Cochlear implant, Alcoholism, Chronic liver disease including cirrhosis, Cigarette smoking.**	Pneumococcal polysaccharide vaccine. **09-040.** In 10/08 the Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control and Prevention recommended adding cigarette smoking to the list of high-risk conditions that are indications for the 23-valent pneumococcal polysaccharide vaccine. **1) All persons between the ages of 19 and 64 who smoke should receive this vaccine. 2) One-time revaccination after 5 years is recommended for persons with chronic renal failure, asplenia (functional or anatomic), or other immunocompromising conditions.** The patient with chronic renal failure in this question has already received two immunizations. **The diabetic patient and the nursing-home resident have both received one immunization and should not receive a second dose until age 65.** The 71-year-old has already been immunized after age 65, and a repeat immunization is not recommended.
08-010. +Pbc+Com. The pneumococcal polyvalent vaccine (Pneumovax 23) would be recommended for which one of the following patients? A) A 1-year-old patient as a routine immunization B) An 18-month-old patient diagnosed with cystic fibrosis C) A 35-year-old patient recently diagnosed with HIV infection D) A healthy 49-year-old patient E) A healthy 75-year-old patient who received a dose 8 years ago	Pneumococcal polyvalent vaccine. **08-010.** Recommendations. **ANS=C.** The Advisory Committee on Immunization Practices (ACIP) recommends routine pneumococcal vaccination for healthy patients starting at age 65 years. Patients over 2 years of age with various chronic diseases and patients who are immunocompromised also should be vaccinated (SOR A). Children less than 2 years of age should receive the 7-valent conjugate vaccine as a part of their routine well child vaccinations at 2, 4, 6, and 12 months of age. There is a lack of data concerning the safety of the vaccine when given three or more times.
09-145. +Res+Cca. A 4-week-old white male is brought to your office with a 2-week history of increasing dyspnea, cough, and poor feeding. The child appears nontoxic and is afebrile. On examination you note conjunctivitis, and a chest	Pneumonia, Chlamydial. **09-145. ANS=B.** Chlamydial pneumonia is usually seen in infants 3–16 weeks of age, and they frequently have been sick for several weeks. The infant appears nontoxic and is afebrile, but is tachypneic with a

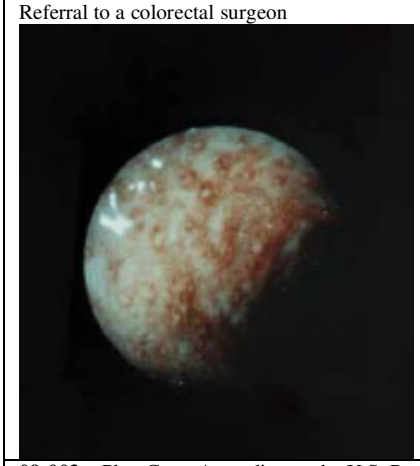
examination reveals tachypnea and rales. A chest film shows hyperinflation and diffuse interstitial infiltrates. A WBC count reveals eosinophilia. What is the most likely etiologic agent? A) *Staphylococcus* species B) *Chlamydia trachomatis* C) Respiratory syncytial virus D) Parainfluenza virus	prominent cough. Physical examination reveals diffuse rales with few wheezes. Conjunctivitis is present in about 50% of cases. The chest film shows hyperinflation and diffuse interstitial or patchy infiltrates. Staphylococcal pneumonia has a sudden onset. The infant appears very ill and has a fever. At the time of onset there may be an expiratory wheeze simulating bronchiolitis. Signs of abdominal distress, tachypnea, dyspnea, and localized or diffuse bronchopneumonia or lobar disease may be present. The WBC count shows a prominent leukocytosis. Respiratory syncytial infections start with rhinorrhea and pharyngitis, followed in 1–3 days by cough and wheezing. Auscultation reveals diffuse rhonchi, fine rales, and wheezes. The chest film is often normal. If the illness progresses, cough and wheezing increase, air hunger and intercostal retractions develop, and evidence of hyperexpansion of the chest is seen. In some infants, the course of the illness may be similar to that of pneumonia. Rash or conjunctivitis may occur occasionally, and fever is an inconsistent sign. The WBC count is normal or elevated, and the differential may be normal or shifted either to the right or left. Chlamydial infections may be differentiated from respiratory syncytial infections by a history of conjunctivitis and a subacute onset. Coughing is prominent, but wheezing is not. There may also be eosinophilia. Fever is usually absent.
07-065. +Res+Com+Adm. A 60-year-old male who has mild COPD comes to your office for evaluation of cough, fever, fatigue, mild but increasing shortness of breath, and occasional pain with deep inspiration. Symptoms have been present for 3–4 days, and his cough is becoming more productive. On examination of the chest you note crackles and rales, dullness to percussion, and tactile fremitus over the right posterior chest. His respiratory rate is 18/min, and his temperature is 38.1E C (100.5E F). You suspect community-acquired pneumonia. Which one of the following is true regarding this patient's condition? A) A chest radiograph is indicated B) Sputum samples have a high diagnostic yield for bacterial pneumonia C) Blood cultures are indicated prior to starting antibacterial drug therapy D) The preferred antibiotic for initial empiric management is amoxicillin or trimethoprim/sulfamethoxazole (Bactrim, Septra) E) Treatment should be started in a hospital rather than an ambulatory setting. http://www.uptodate.com/contents/calculator-community-acquired-pneumonia-severity-index-psi-for-adults Calculator: Community-Acquired Pneumonia Severity Index (PSI) for Adults Sex: M (0 points) + F (-10 points) Demographic factors: Age (1 point for each year) + Nursing home resident (10 points) + Neoplastic disease (30 points) + Liver disease (20 points) + Congestive heart failure (10 points) + Cerebrovascular disease (10 points) + Renal disease (10 points). Physical examination findings: Altered mental status (20 points) + Respiratory rate >= 30/minute (20 points) + Systolic blood pressure < 90 mmHg (20 points) + Temperature < 35 degrees C or >= 40 degrees C (15 points) + Pulse >= 125/minute (10 points). Laboratory and radiographic findings: Arterial pH < 7.35 (30 points) + Blood urea nitrogen >= 30 mg/dL (11 mmol/L) (20 points) + Sodium < 130 mEq/L (20 points) + Glucose >= 250 mg/dL (14 mmol/L) (10 points) + Hematocrit < 30 percent (10 points) + Partial pressure of arterial oxygen < 60 mmHg or oxygen saturation < 90% (10 points) + Pleural effusion (10 points).	Pneumonia, community-acquired. **07-065. ANS=A.** American Thoracic Society (ATS) guidelines for managing community-acquired pneumonia (CAP) recommend that "**all patients suspected of CAP should receive chest radiography to establish the diagnosis and identify complications** (pleural effusion, multilobar disease)." Sputum samples are adequate in only 52.3% of patients with CAP, and only 44% of those samples contain pathogens. In a study of CAP in 19 Canadian hospitals over a 6-month period, positive blood cultures were obtained in only 5.2%–6.2% of patients, including those with the most severe disease. Based on these findings, other researchers concluded that a positive blood culture had no correlation with the severity of illness or outcome. ATS guidelines recommend two sets of blood cultures for hospitalized patients, but this is not necessary for outpatient diagnosis. **Initial treatment of CAP is empiric, and macrolides, fluoroquinolones, or doxycycline should be used in most patients, although fluoroquinolones should be used sparingly because of increasing resistance concerns.** Amoxicillin/clavulanate and B-lactams are alternatives. The Pneumonia Severity Index was developed to assist physicians in identifying patients who are at higher risk of complications and are more likely to benefit from hospitalization. Based on these guidelines, this patient falls into a low-risk category and can be treated as an outpatient. PSI calculator Interpretation: 0-50 Points : Class I 0.1% Mortality 51-70 Points : Class II 0.6% Mortality 71-90 Points : Class III 0.9% Mortality 91-130 Points : Class IV 9.3% Mortality 131-395 Points : Class V 27.0% Mortality
07-147. +Res+Com. Which one of the following is true concerning community-acquired pneumonia? A) The absence of a pulmonary infiltrate on a chest film rules out pneumonia B) Intravenous antibiotics are always more effective than oral antibiotics in treating uncomplicated pneumonia C) In patients with uncomplicated pneumonia, the risk of relapse is greatest on the day prior to planned discharge D) Hypoxemia is rarely an indication for hospitalization E) It takes several weeks for all symptoms of pneumonia to resolve	Pneumonia, community-acquired. **07-147. ANS=E.** One week after their initial presentation with pneumonia, 80% of patients still have fatigue and cough. It usually takes several weeks for all manifestations to resolve and the patient to return to normal. According to the latest American Thoracic Society (ATS) guidelines for the diagnosis and treatment of adults with community-acquired pneumonia (CAP), **all patients with suspected CAP should have a chest radiograph to establish the diagnosis and identify complications (pleural effusion, multilobar disease).** Chest radiography performed early in the course of the disease may be negative, however. Intravenous antibiotics are frequently no better than oral antibiotics in patients with uncomplicated pneumonia. The risk of relapse or worsening is greatest on the day of admission and goes down progressively after that. **All patients with hypoxemia should be hospitalized.**
07-177. +Res+Com. A 68-year-old previously healthy male presents to the emergency department with fever and rigors, chills, cough, fatigue, dyspnea, and pleuritic chest pain. He has no chronic medical problems and does not smoke. A chest film shows a lobar consolidation. The most likely bacterial cause of this problem is A) *Staphylococcus aureus* B) *Streptococcus pneumoniae* C) *Legionella* D) *Mycoplasma pneumoniae* E) *Chlamydia*	Pneumonia, community-acquired**. 07-177. ANS=B.** This is a classic presentation for community-acquired pneumonia (CAP). The classic symptom presentation includes cough, fever, pleuritic chest pain, myalgias, dyspnea, malaise, and fatigue. **Typical pneumonia is usually caused by *Streptococcus pneumoniae*, with 60%–70% of typical cases being due to this organism**. Atypical pneumonia is usually caused by *Mycoplasma*, *Chlamydia*, *Legionella*, adenovirus, or influenza virus. **Age is the best differentiating factor between typical and atypical pneumonia, as older persons and the very young are more likely to have typical etiologies and young adults are more likely to have atypical etiologies.**
08-190. +Rep+Adm. A 32-year-old African-American female presents with a 3-day history of fever, cough, and shortness of breath. She has been healthy	Pneumonia**,** community-acquired. **08-190. ANS=D.** For previously healthy patients with community-acquired pneumonia and no risk factors for drug

otherwise, except for a sinus infection 2 months ago treated with amoxicillin. She does not appear toxic. A chest radiograph reveals an infiltrate in the right lower lobe, consistent with pneumonia. Which one of the following would be the best choice for antibiotic treatment? A) High-dose amoxicillin B) Azithromycin (Zithromax) C) Doxycycline D) Levofloxacin (Levaquin) E) Cefuroxime axetil (Ceftin)	resistance, a macrolide such as azithromycin is the preferred treatment (SOR A). Doxycycline is also acceptable (SOR C). Patients who have been treated with antibiotics within the previous 3 months should be treated with a respiratory fluoroquinolone (moxifloxacin, gemifloxacin, or levofloxacin) (SOR A). A B-lactam plus a macrolide is also an alternative (SOR A). The antibiotic chosen should be from a different class than the one used for the previous infection. These alternative treatments are also recommended for those with comorbidities such as chronic heart, lung, liver, or renal disease; diabetes mellitus; alcoholism; malignancies; asplenia; immunosuppressing conditions or use of immunosuppressing drugs; or other risk factors for drug-resistant *Streptococcus pneumoniae* infection (SOR A).
09-083. +Res+Adm. The preferred antibiotic treatment for community-acquired pneumonia in a young adult in the ambulatory setting is A) trimethoprim/sulfamethoxazole (Bactrim, Septra) B) cephalexin (Keflex) C) azithromycin (Zithromax) D) penicillin V E) ciprofloxacin (Cipro)	Pneumonia, community-acquired. **09-083. ANS=C.** In a young adult with community-acquired pneumonia who is not sick enough to be hospitalized, the current recommendation is to empirically treat with a macrolide antibiotic such as azithromycin. This covers the atypical organism *Mycoplasma pneumoniae*, which is one of the most common causes of community-acquired pneumonia. Certain fluoroquinolones such as levofloxacin also cover atypical causes, but ciprofloxacin does not. The other antibiotics listed are also ineffective against *Mycoplasma*.
08-177. +Res+Adm. A 60-year-old female is admitted to the hospital with pneumonia 1 week after her discharge following elective colorectal surgery. Her initial stay was 5 days and she had no complications. She had no signs of infection until 2 days ago when she developed a temperature of 39.1°C (102.4°F), a cough with yellow sputum, and hypoxia. She has no abdominal pain or diarrhea. Her pulse rate is slightly elevated to 96 beats/min, and her blood pressure is unchanged from baseline. A chest radiograph confirms a left lingular infiltrate. Methicillin-resistant *Staphylococcus* pneumonia is rare in this institution. Of the following antibiotic regimens, which one would be the best initial treatment for this patient? A) Ampicillin/sulbactam (Unasyn) B) Ceftazidime sodium (Fortaz) and gentamicin C) Ceftriaxone (Rocephin) and azithromycin (Zithromax) D) Clarithromycin (Biaxin) E) Levofloxacin (Levaquin) Known MDR risk factors — Host risk factors for infection with multidrug resistant (MDR) pathogens include receipt of antibiotics within the preceding 90 days, current hospitalization of ≥5 days, high frequency of antibiotic resistance in the community or in the specific hospital unit, immunosuppressive disease and/or therapy, and presence of risk factors for HCAP. (See "Epidemiology, pathogenesis, microbiology, and diagnosis of hospital-acquired, ventilator-associated, and healthcare-associated pneumonia in adults", section on 'MDR risk factors'.) For patients with known MDR risk factors, we recommend empiric three-drug combination therapy including: ONE of the following: Antipseudomonal cephalosporin such as cefepime (2 g intravenously every eight hours) or ceftazidime (2 g intravenously every 8 hours)Antipseudomonal carbapenem such as imipenem (500 mg intravenously every six hours) or meropenem (1 g intravenously every eight hours) or doripenem (500 mg intravenously every eight hours; administered over one hour for HAP or HCAP, administered over four hours for VAP) [34,35]Piperacillin-tazobactam (4.5 g intravenously every six hours)For patients who are allergic to beta-lactam antibiotics: aztreonam (2 g intravenously every six to eight hours) PLUS one of the following: Antipseudomonal fluoroquinolone, preferred regimen if Legionella is likely, such as ciprofloxacin (400 mg intravenously every eight hours) or levofloxacin (750 mg intravenously daily). These agents may be administered orally when the patient is able to take oral medications. The dose of levofloxacin is the same when given intravenously and orally, while the dose of ciprofloxacin is 750 mg orally twice daily. Aminoglycoside such as gentamicin or tobramycin (7 mg/kg intravenously per day adjusted to a trough level <1 mcg/mL) or amikacin (20 mg/kg intravenously per day adjusted to a trough level <4-5 mcg/mL). The aminoglycoside can be stopped after five to seven days in responding patients. PLUS ONE of the following (if MRSA is suspected, there are MRSA risk factors, or there is a high incidence of MRSA locally): Linezolid (600 mg intravenously every 12 hours; may be administered orally when the patient is able to take oral medications) OR Vancomycin (15 to 20 mg/kg [based on actual body weight] intravenously every 8 to 12 hours for patients with normal renal function, with a target serum trough concentration of 15 to 20 mg/L.) In seriously ill patients, a loading dose of 25 to 30 mg/kg can be used to facilitate rapid attainment of the target trough concentration.	Pneumonia, health care–associated pneumonia. **08-177.** This patient has a significant pneumonia that requires the initiation of empiric antibiotics. **ANS=B.** It is important to remember that because this patient was recently in the hospital, the usual coverage for community-acquired pneumonia is not adequate. Health care–associated pneumonia is more likely to involve severe pathogens such as *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, and *Acinetobacter* species. Methicillin-resistant *Staphylococcus aureus* also is a consideration, depending on local prevalence. Of the antibiotic regimens listed, ceftazidime and gentamicin is the only choice that covers these organisms. Uptodate: Healthcare-associated pneumonia (HCAP) is defined as pneumonia that occurs in a non-hospitalized patient with extensive healthcare contact, as defined by one or more of the following: Intravenous therapy, wound care, or intravenous chemotherapy within the prior 30 daysResidence in a nursing home or other long-term care facilityHospitalization in an acute care hospital for two or more days within the prior 90 daysAttendance at a hospital or hemodialysis clinic within the prior 30 days. No known MDR (MultiDrug Resistance) risk factors — We suggest one of the following intravenous antibiotic regimens for empiric coverage of HAP, VAP, and HCAP in patients with no known risk factors for MDR pathogens: Ceftriaxone (2 g intravenously daily). OR Ampicillin-sulbactam (3 g intravenously every six hours) or piperacillin-tazobactam (4.5 g intravenously every six hours) if there is concern based on prevailing pathogens within an institution for gram-negative bacilli not treated by ampicillin-sulbactam (eg, Enterobacter spp, Serratia spp, Pseudomonas spp). OR Levofloxacin (750 mg intravenously daily) or moxifloxacin (400 mg intravenously daily). Both agents may be administered orally at the same doses when the patient is able to take oral medications. OR Ertapenem (1 g intravenously daily). Choice of a specific agent for empiric therapy should be based on knowledge of the prevailing pathogens (and susceptibility patterns) within the healthcare setting.
09-130. +Res+Cel. Which one of the following drugs would be the most appropriate empiric therapy for nursinghome–acquired pneumonia in a patient with no other underlying disease? A) Cefazolin B) Erythromycin C) Ampicillin D) Tobramycin (Nebcin) E) Levofloxacin (Levaquin)	Pneumonia, nursing home. **09-130. ANS=E.** The major concern with regard to pneumonia in the nursing-home setting is the increased frequency of oropharyngeal colonization by gram-negative organisms. In the absence of collectible or diagnostic sputum Gram's stains or cultures, empiric therapy must cover *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Haemophilus*

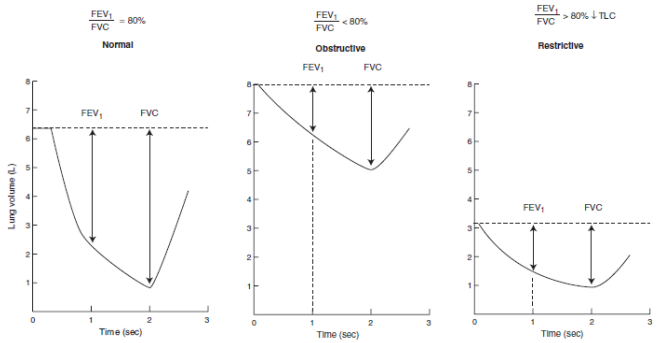
	influenzae, and gram-negative bacteria. Levofloxacin is the best single agent for providing coverage against this spectrum of organisms.
10-142. +Res+Cel. An 80-year-old male nursing-home resident is brought to the emergency department because of a severe, productive cough associated with a high fever, hypoxia, and hypotension. The patient is found to have a left lower lobe pneumonia, and admission to the intensive-care unit is advised. Which one of the following is the most appropriate antibiotic therapy for this patient? A) Moxifloxacin (Avelox) B) Ceftriaxone (Rocephin) and azithromycin (Zithromax) C) Doxycycline D) Ceftriaxone and metronidazole (Flagyl) E) Ceftazidime (Fortaz), imipenem/cilastatin (Primaxin), and vancomycin (Vancocin)	Pneumonia, nursing home. **10-142. ANS=E.** Empiric coverage for methicillin-resistant *Staphylococcus aureus* and double coverage for pseudomonal pneumonia should be prescribed in patients with nursing home–acquired pneumonia requiring intensive-care unit admission (SOR B).
07-136. +Res+Adm. A 40-year-old white male was seen 4 weeks ago for a sudden onset of cough and shortness of breath. At that visit his oxygen saturation was 92%, but his examination and a chest radiograph were normal. You prescribed azithromycin (Zithromax) and an albuterol inhaler. Ten days later he was feeling well and his oxygen saturation was 97%. Today, he returns to the office with a dry cough and shortness of breath. On examination he has rare inspiratory rales that clear with deep breaths, and he has an oxygen saturation of 86%. A chest film and a D-dimer test are normal. Pulmonary function tests show significant restriction that improves only minimally with albuterol. He has not been exposed to anyone with a similar illness, has no history of asthma, and has no smoking history or occupational exposure. However, he reports that 2 months ago his home was flooded after a heavy rain, and he has been tearing out carpeting that was ruined by the flood. Which one of the following is the most likely diagnosis? A) Persistent asthma with acute exacerbations B) Legionnaires' disease C) Pulmonary embolism, with lupus antibody as the most likely cause of the negative D-dimer test D) Hypersensitivity pneumonitis	Pneumonitis. **07-136.** Hypersensitivity pneumonitis can present in acute, subacute, or chronic forms. **ANS=D**. The case described includes two episodes of the acute form. **The patient was exposed to mold antigens in his flooded home. Within 4–8 hours of exposure, chills, cough, and shortness of breath will be noted, and at times will be dramatic. A chest film can be normal, even with significant hypoxia. Pulmonary function tests will show restrictive changes, as compared to the reversible obstructive changes of acute asthma.** Blood tests often show an elevated erythrocyte sedimentation rate. **Serum IgG tests for the probable antigen confirm the diagnosis.** Symptoms resolve over several days, but will suddenly and violently recur with repeated exposure to the offending antigen. The subacute form of hypersensitivity pneumonitis begins gradually over weeks or months, causing a cough and increasing shortness of breath. The chronic form develops over years of exposure, causing fibrotic changes to the lungs that will be evident on radiographs, as well as chronic rales on auscultation. **Asthma would be an unlikely diagnosis in this case, with the pulmonary function tests showing restrictive changes rather than obstructive changes**, **and little improvement with albuterol.** Also, the lack of a previous history of asthma makes it less likely. Legionnaires' disease is always possible, but is unlikely in this case given the sudden onset, quick recovery over several days, and sudden recurrence. **Pulmonary embolism is ruled out by the negative D-dimer test.**
08-129. +Res+Adm. A 25-year-old Hispanic male comes to the emergency department with the sudden onset of moderate to severe right-sided chest pain and mild dyspnea. Vital signs are normal. A chest film shows a loss of markings along the right lung margins, involving about 10%–15% of the lung space. The mediastinum has not shifted. The best INITIAL treatment would be A) strict bed rest B) oxygen supplementation and close observation C) decompression of the chest by insertion of a large-bore intravenous catheter into the right second intercostal space at the midclavicular line D) immediate chest tube insertion using a water seal E) thoracotomy for wedge resection of pulmonary blebs	Pneumothorax**. 08-129. S**pontaneous. **ANS=B.** A small spontaneous pneumothorax involving less than 15%–20% of lung volume can be managed by administering oxygen and observing the patient. The pneumothorax will usually resorb in about 10 days if no ongoing air leak is present. Oxygen lowers the pressure gradient for nitrogen and favors transfer of gas from the pleural space to the capillaries. Decompression with anterior placement of an intravenous catheter is usually reserved for tension pneumothorax. Chest tube placement is used if observation is not successful or for larger pneumothoraces. Strict bed rest is not indicated.
09-033. +Res+Euc. A 20-year-old nonsmoker presents to your office with a sudden onset of chest pain. You order a chest radiograph, which shows a small (<15%) pneumothorax. He is in no respiratory distress and vital signs are normal. Pulse oximetry shows a saturation of 98% on room air. Which one of the following would be most appropriate initially? A) CT of the affected lung B) Analgesics and a follow-up visit in 48 hours C) Chest tube insertion D) Hospital admission and a repeat chest film in 24 hours	Pneumothorax. **09-033.** Practice guidelines state that **a patient without apparent lung disease who develops a spontaneous "small" pneumothorax (<15% of lung volume) can be managed as an outpatient with analgesics and follow-up within 72 hours**. CT of the lung is needed in complicated cases, including patients with known lung disease or recurrent pneumothoraces. **A chest tube is required only when the pneumothorax involves >15% of lung volume.**
09-129. +Non+Cfp. A 30-year-old female comes to your office because she is concerned about irregular menses (fewer than 9/year), acne, and hirsutism. Her BMI is 36.0 kg/m2. She has no other medical problems and would like to have a baby. Her fasting blood glucose level is 140 mg/dL. Which one of the following would be the most appropriate treatment for this patient's condition and concerns? A) Lifestyle modification only B) Lifestyle modification and pioglitazone (Actos) C) Lifestyle modification and metformin (Glucophage) D) Lifestyle modification and an oral contraceptive E) Lifestyle modification and oral testosterone	Polycystic ovary syndrome. **09-129. ANS=C.** Lifestyle modification and metformin. This patient has classic features of polycystic ovary syndrome (PCOS). The diagnosis is based on the presence of two of the following: oligomenorrhea or amenorrhea, clinical or biochemical hyperandrogenism, or polycystic ovaries visible on ultrasonography. Lifestyle modifications are necessary, but medications are also needed. First-line agents for the treatment of hirsutism in patients with PCOS include spironolactone, metformin, and eflornithine (SOR A). Firstline agents for ovulation induction and treatment of infertility in patients with PCOS include metformin and clomiphene, alone or in combination with rosiglitazone (SOR A). Metformin can also improve menstrual irregularities in patients with PCOS (SOR A), and is probably the first-line agent for obese patients to promote weight reduction (SOR B). In addition, metformin improves insulin resistance (diagnosed by elevated fasting blood glucose) in patients with PCOS, as do rosiglitazone and pioglitazone. Pioglitazone would not be appropriate for this patient because it causes weight gain. Oral contraceptives would improve the patient's menstrual irregularities and hirsutism, but she wishes to become pregnant. Testosterone would worsen the hyperandrogenism and would not treat the PCOS.
10-033. +Non+Cfp.* A 25-year-old female has been trying to conceive for over 1 year without success. Her menstrual periods occur approximately six times per year. Laboratory evaluation of her hormone status has been negative, and her husband has a normal semen analysis. Her only other medical problem is hirsutism, which has not responded to topical treatment. Pelvic ultrasonography	Polycystic ovary syndrome. **10-033. ANS=A.** This patient fits the criteria for polycystic ovary syndrome (oligomenorrhea, acne, hirsutism, hyperandrogenism, infertility). Symptoms also include insulin resistance. Evidence of polycystic ovaries is not required for the diagnosis. Metformin has the most evidence supporting its use in this situation, and is the only treatment listed that is likely to

of her uterus and ovaries is unremarkable. Of the following, which one would be the most appropriate treatment for her infertility? A) Metformin (Glucophage) B) Danazol C) Medroxyprogesterone (Provera) D) Spironolactone (Aldactone)	decrease hirsutism and improve insulin resistance and menstrual irregularities. Metformin and clomiphene alone or in combination are first-line agents for ovulation induction. Clomiphene does not improve hirsutism, however. Progesterone is not indicated for any of this patient's problems. Spironolactone will improve hirsutism and menstrual irregularities, but is not indicated for ovulation induction.
07-121. +Hem+Adm. Major diagnostic criteria for polycythemia vera include increased red cell mass, normal oxygen saturation, and A) hypercapnia B) thrombocytosis C) thrombocytopenia D) hepatomegaly E) splenomegaly	Polycythemia vera. **07-121.** Major diagnostic criteria for polycythemia vera include increased red cell mass, normal oxygen saturation, and the presence of splenomegaly. **ANS=E.**
10-171P. +Hem+Adm. A 62-year-old African-American female undergoes a workup for pruritus. Laboratory findings include a hematocrit of 55.0% (N 36.0–46.0) and a hemoglobin level of 18.5 g/dL (N 12.0–16.0). Which one of the following additional findings would help establish the diagnosis of polycythemia vera? A) A platelet count >400,000/mm3 B) An O2 saturation <90% C) A WBC count <4500/mm3 (N 4300–10,800) D) An elevated uric acid level	Polycythemia vera. **10-171.** Polycythemia vera should be suspected in African-Americans or white females whose hemoglobin level is >16 g/dL or whose hematocrit is >47%. **ANS=A.** For white males, the thresholds are 18 g/dL and 52%. It should also be suspected in patients with portal vein thrombosis and splenomegaly, with or without thrombocytosis and leukocytosis. Major criteria include an increased red cell mass, a normal O2 saturation, and the presence of splenomegaly. Minor criteria include elevated vitamin B12 levels, elevated leukocyte alkaline phosphatase, a platelet count >400,000/mm3, and a WBC count >12,000/mm3. Patients with polycythemia vera may present with gout and an elevated uric acid level, but neither is considered a criterion for the diagnosis.
08-100. +Mus+Adm. A 62-year-old white male complains of fatigue and proximal extremity discomfort without any localized joint pain. Which one of the following conditions is associated with a consistently normal creatine kinase enzyme level at all phases of disease? A) Polymyalgia rheumatica B) Polymyositis C) Dermatomyositis D) Drug-induced myopathy E) Hypothyroid endocrinopathy	Polymyalgia rheumatica**. 08-100.** Polymyalgia rheumatica is a disease of the middle-aged and elderly. **ANS=A.** Discomfort is common in the neck, shoulders, and hip girdle areas. There is an absence of objective joint swelling, and findings tend to be symmetric. Characteristically, the erythrocyte sedimentation rate and C-reactive protein levels are significantly elevated; however, these tests are nonspecific. Occasionally there are mild elevations of liver enzymes, but muscle enzymes, including creatine kinase, are not elevated in this disorder. Elevation of muscle enzymes strongly suggests another diagnosis. Polymyositis and dermatomyositis are associated with variable levels of muscle enzyme elevations during the active phases of the disease. Drug-induced myopathies such as those seen with the statin family of cholesterol-lowering medications tend to produce some elevation of muscle enzymes during the course of the disorder. Hypothyroidism is associated with creatine kinase elevation. It should be strongly considered in the patient with unexplained, otherwise asymptomatic creatine kinase elevation found on a routine chemistry profile. Hyperthyroidism may cause muscle disease and loss of muscle, but it is not associated with creatine kinase elevation.
10-066. +Mus+Adm.>L?* Which one of the following is necessary to make a diagnosis of polymyalgia rheumatica? A) Joint swelling B) Early morning stiffness C) Reduction of symptoms with high-dose NSAID therapy D) An erythrocyte sedimentation rate ≥60 mm/hr E) Bilateral shoulder or hip stiffness and aching	Polymyalgia rheumatica**. 10-066.** There must be bilateral shoulder or hip stiffness and aching for at least one month in order to make the diagnosis of polymyalgia rheumatica. Joint swelling occurs occasionally, but neither swelling nor early morning stiffness is necessary to make the diagnosis. Polymyalgia rheumatica does not respond to NSAIDs. The erythrocyte sedimentation rate should be ≥40 mm/hr. **ANS=E.**
08-060. +Res+Csp. Which one of the following confers the greatest risk for postoperative pulmonary complications in noncardiothoracic surgery? A) Heart failure B) Age ≥80 C) COPD D) Cigarette use E) Corticosteroid use	Postoperative complications. **08-060.** Postoperative pulmonary complications are important contributors to the risks associated with surgery and anesthesia. **ANS=B**. Significant postoperative pulmonary complications include atelectasis, pneumonia, respiratory failure, and exacerbation of underlying chronic lung disease. Risk factors for postoperative pulmonary complications can be divided into patient-related factors, procedure-related factors, and laboratory factors. Patient-related risk factors include advanced age, American Society of Anesthesiologists Physical Status classification of 2 or higher, functional dependence, COPD, and heart failure. Of these, advanced age confers the greatest risk, with risk beginning to increase after age 50. One study found an odds ratio of 5.63 for those age 80 and above. Procedure-related risk factors include aortic aneurysm repair, nonresective thoracic surgery, abdominal surgery, neurosurgery, emergency surgery, general anesthesia, head and neck surgery, vascular surgery, and prolonged surgery. The only laboratory predictor supported by good evidence is a serum albumin level <30 g/L.
08-218. Rep+Csp. Good evidence supports which one of the following measures for reducing the risk of postoperative pulmonary complications after major abdominal surgery? A) Avoidance of preoperative systemic corticosteroids B) Use of an incentive spirometer C) Antibiotic prophylaxis for 48 hours D) Postoperative total parenteral nutrition	Postoperative complications. **08-218.** Use of an **incentive spirometer and similar lung expansion techniques such as chest physiotherapy have been shown to have significant benefit for reducing postoperative complications**. **A course of preoperative corticosteroids has been shown to be beneficial, such as in a patient with COPD.** Prolonged antibiotic prophylaxis and postoperative total parenteral nutrition have not been shown to have any benefit. **ANS=B.**
08-048. +Pbc+Mac. Which one of the following is safest for use in pregnancy (FDA category B or better)? A) Trimethoprim/sulfamethoxazole (Bactrim, Septra) B) Ciprofloxacin (Cipro) C) Nitrofurantoin (Macrodantin) D) Gentamicin	Pregnancy, fetal risk drugs. **08-048.** The FDA has established a fetal risk summary dividing drugs into categories. **ANS=C.** Category A drugs have been shown in controlled studies to pose no risk. At present there are no category A antibiotics. Most fall into categories B and C, with category B drugs thought to be relatively safe in pregnancy. When possible, a category B antibiotic should be chosen for treatment of a pregnant patient. Category C drugs have unknown fetal risk with no adequate human studies, and the possibility of risks and benefits must be considered before prescribing them for pregnant women. Category D drugs show some evidence for fetal risk; although there may be times when use of these drugs is necessary, they should not be used unless there is a very serious or life-

	threatening situation. Category X drugs have proven fetal risk and are contraindicated in pregnancy. Of the drugs listed, only nitrofurantoin is in category B. The others are all category C drugs. The FDA is currently in the process of revising their classification and labeling for drugs in pregnancy and lactation.
09-011. +Non+Cfp. A 25-year-old female is concerned about recurrent psychological and physical symptoms that occur during the luteal phase of her menstrual cycle and resolve by the end of menstruation. She wants help managing these symptoms, but does not want to take additional estrogen or progesterone. Which one of the following management strategies is supported by the best clinical evidence? A) Cognitive-behavioral therapy B) Spironolactone during the luteal phase C) Bright light therapy during the luteal phase D) Evening primrose oil started 2–4 days prior to the luteal phase E) Black cohosh	Premenstrual syndrome. **09-011.** Randomized, controlled trials found that luteal-phase **spironolactone improved psychological and physical symptoms of premenstrual syndrome** over 2–6 months compared with placebo. **Ans=B.**
10-169. +Psy+Cfp. A 40-year-old white female lawyer sees you for the first time. When providing a history, she describes several problems, including anxiety, sleep disorders, fatigue, persistent depressed mood, and decreased libido. These symptoms have been present for several years and are worse prior to menses, although they also occur to some degree during menses and throughout the month. Her menstrual periods are regular for the most part. The most likely diagnosis at this time is A) premenstrual syndrome B) dysthymia C) dementia D) menopause E) anorexia nervosa	Premenstrual syndrome. **10-169.** (PMS). Psychological disorders, including anxiety, depression, and dysthymia, are frequently confused with PMS, and must be ruled out before initiating therapy. Symptoms are cyclic in true PMS. The most accurate way to make the diagnosis is to have the patient keep a menstrual calendar for at least two cycles, carefully recording daily symptoms. Dysthymia consists of a pattern of ongoing, mild depressive symptoms that have been present for 2 years or more and are less severe than those of major depression. This diagnosis is consistent with the findings in the patient described here. **ANS=B.**
07-112. +Pbc+Mac. Which one of the following is an evidence-based clinical recommendation for maternity care? A) All pregnant women should be screened serologically for herpes simplex virus infection B) All pregnant women should be screened for bacterial vaginosis C) All pregnant women should be screened for asymptomatic bacteriuria by urine culture D) Only at-risk women should be tested for HIV infection E) Only women 25 years of age or younger should be screened for chlamydial infection	Prenatal care. **07-112.** Maternity care; recommendations. **ANS=C. All pregnant women should be screened for asymptomatic bacteriuria due to the increased risk for pyelonephritis and preterm labor**. All pregnant women **should also be screened for active hepatitis B, syphilis, and HIV infection**. **Only at-risk women (those 25 years of age or younger and those at risk of STDs) need to be screened for *Chlamydia*.** Routine screening for bacterial vaginosis is not recommended.
07-176. +Pbc+Mac. Which one of the following vaccinations is contraindicated in pregnancy? A) Diphtheria B) Hepatitis B C) Influenza D) Tetanus E) Varicella	Prenatal care. **07-176. Vaccinations in pregnancy; Recommendation. ANS=E.** The varicella vaccine contains live attenuated varicella-zoster virus. Immunization during pregnancy is contraindicated because the effects on the fetus are unknown. Diphtheria, hepatitis B, influenza, and tetanus vaccines are not contraindicated during pregnancy. **Hint: You B(V)ar Varricela in pregnancy.**
08-059. +Ref+Mac. Which one of the following is recommended for routine prenatal care? A) Hepatitis C antibody testing B) Parvovirus antibody testing C) Cystic fibrosis carrier testing D) HIV screening E) Examination of a vaginal smear for clue cells	Prenatal care. **08-059.** HIV screening is recommended as part of routine prenatal care, even in low-risk pregnancies. **ANS=D**. Counseling about cystic fibrosis carrier testing is recommended, but not routine testing. Hepatitis C and parvovirus antibodies are not part of routine prenatal screening. Routine screening for bacterial vaginosis with a vaginal smear for clue cells is not recommended. **UpToDate:** Routine prenatal visit: Rhesus type and antibody; Hematocrit or hemoglobin and mean corpuscular volume (MCV); Cervical cytology; Rubella immunity (If nonimmune, the patient should be counseled and receive postpartum immunization); Urinary culture; Syphilis testing; Hepatitis B antigen; Chlamydia testing; Thyroid function; HIV; Down syndrome screening.
09-063. +Non+Mac. A 29-year-old gravida 1 para 0 at 8 weeks gestation is concerned about Down syndrome. She had a sibling with Down syndrome, and she and her spouse want to know what antenatal tests are available to them. Which one of the following has the best detection rate for Down syndrome in the first trimester of pregnancy? A) Serum B-hCG and pregnancy-associated plasma protein A (PAPP-A), with nuchal translucency (combined screening) B) Maternal serum levels of inhibin A, a-fetoprotein, unconjugated estriol, and B-hCG (quadruple screening) C) Ultrasonography D) Chorionic villus sampling E) Amniocentesis	Prenatal care. **09-063. Fetal abnormalities screening. Down syndrome. ANS=D.** In today's environment, there are multiple screening tools and tests to detect fetal aneuploidy. All pregnant women, regardless of age, should be offered the opportunity to undergo some form or combination of screening to detect fetal abnormalities (SOR B). **Chorionic villus sampling can be offered at 10–13 weeks gestation, and has a 97.8% detection rate for Down syndrome**—the **best detection rate of studies offered in the first trimester** (SOR C). **Combined screening can be offered at 11–14 weeks gestation, and has a 78.7%–89% detection rate** (SOR A). **Quadruple screening is done at 15–20 weeks gestation, and has a 67%–81% detection rate** (SOR A). Although **amniocentesis has the best detection rate of the options listed (99.4%), it cannot be offered until 16–18 weeks** gestation (SOR C); **ultrasonography at 18–22 weeks gestation has a 35%–79% detection rate** (SOR C).
10-156. +Pbc+Com. Which one of the following has been shown to benefit from screening for asymptomatic bacteriuria? A) Women with diabetes mellitus B) Men with prostatic enlargement on examination C) All adults with newly diagnosed hypertension D) Nursing-home residents with an indwelling Foley catheter E) Women who are pregnant	Prenatal care. **10-156.** asymptomatic screening. **ANS=E.** Clinical guidelines published by the U.S. Preventive Services Task Force in 2008 reaffirmed the 2004 recommendations regarding screening for asymptomatic bacteriuria in adults. The only group in which screening is recommended is asymptomatic pregnant women at 12–16 weeks gestation, or at the first prenatal visit if it occurs later (SOR A).
09-150. +Int+Cel. Which one of the following nutritional interventions should be recommended to accelerate pressure ulcer healing in the elderly? A) Supplemental arginine B) Oral vitamin C and zinc C) High-dose multivitamins D) Adequate protein intake	Pressure ulcer. **09-150. ANS=D.** Very few nutritional interventions have been shown to accelerate pressure ulcer healing in the elderly. Maintaining a protein intake of at least 1.2–1.5 g/kg/day is recommended, and some authorities recommend 2 g/kg/day with stage III or IV ulcers. Increased caloric intake is also necessary to promote healing. The role of vitamins and minerals in preventing and treating pressure ulcers is unclear.
10-214. +Int+Cel.>L* Which one of the following is true regarding treatment of	Pressure ulcer. **10-214. Trials have not definitively shown that nutritional**

pressure ulcers? A) Multiple controlled trials have shown that nutritional supplements hasten ulcer healing B) Keeping the head of the bed elevated to 45° during the day promotes healing by minimizing shearing forces C) Systemic antibiotics are most helpful when used intermittently to reduce bacterial counts D) Topical antibiotics should not be used for more than 2 weeks at a time	**supplements speed ulcer healing.** The **head of the bed should be elevated only as necessary, and should be kept to less than 30° to reduce shearing forces. Systemic antibiotics should only be used for cellulitis, osteomyelitis, and bacteremia**. **Topical antibiotics may be used for periods of up to 2 weeks** (SOR C). **ANS=D.**
09-079. +Ref+Mac. A 25-year-old female at 31 weeks gestation presents to the labor wing with painful uterine contractions every 3 minutes. On examination her cervix is 3 cm dilated and 50% effaced. Her membranes are intact and fetal heart monitoring is reassuring. She is treated with tocolysis, betamethasone, antibiotics, and intravenous hydration, and cultured for group B *Streptococcus*. The neonatal intensive care unit is notified, but the contractions ease and eventually stop. After 2 days of observation, her cervix is unchanged and she is discharged home. One week later, the patient presents with contractions for the last 8 hours. Her cervical findings are unchanged. Her group B *Streptococcus* culture was negative. Which one of the following would be the most appropriate next step in the management of this patient? A) Repeat tocolysis, betamethasone, antibiotics, and intravenous hydration B) Betamethasone, antibiotics, and intravenous hydration only C) Antibiotics and intravenous hydration only D) Tocolysis only E) Expectant management	Preterm labor. **09-079.** The purpose of obstetric management of preterm labor before 34 weeks gestation is to allow time to administer corticosteroids. **ANS=E.** Treatment does not substantially delay delivery beyond 1 week. Repeated administration of corticosteroids does not confer more benefit than a single course. Antibiotics are administered for prophylaxis of group B *Streptococcus* and are useful for delaying delivery if membranes are ruptured. They do not add any benefit otherwise, even though subclinical amnionitis may be a causative factor in many cases of preterm labor. Prolonged and repeated tocolysis is believed to be harmful. Tocolysis would not be indicated in this patient because she has had no cervical change and is therefore having preterm contractions, not preterm labor. Careful monitoring for fetal compromise, consultation with obstetric colleagues, and neonatal intensive-care unit involvement should be part of expectant management of preterm labor cases.
08-209. +Pbs+Com. Which one of the following community health programs best fits the definition of secondary prevention? A) A smoking education program at a local middle school B) A blood pressure screening at a local church C) A condom distribution program D) Screening diabetic patients for microalbuminuria Primary prevention represents the earliest possible interventions to foil disease before it begins. For CAD, this includes measures that prevent atherosclerotic plaques from ever developing. Secondary prevention includes early detection and halting the progression of established but asymptomatic disease. For CAD, this includes taking measures to prevent cardiovascular symptoms (e.g., dyspnea), damage (e.g., ventricular dysfunction), and events (e.g., acute coronary syndromes). However, once such symptoms, damage, or events occur, it is too late for secondary prevention. At this point, the only option is to try to rein in further disease progression with tertiary prevention. Tertiary prevention involves slowing, arresting, or reversing disease to prevent recurrent symptoms, further deterioration, and subsequent events.	Prevention. **08-209. ANS=B.** Prevention traditionally has been divided into three categories: primary, secondary, and tertiary. Primary prevention targets individuals who may be at risk to develop a medical condition and intervenes to prevent the onset of that condition (e.g., childhood vaccination programs, water fluoridation, antismoking programs, and education about safe sex). Secondary prevention targets individuals who have developed an asymptomatic disease and institutes treatment to prevent complications (e.g., routine Papanicolaou smears, and screening for hypertension, diabetes, or hyperlipidemia). Tertiary prevention targets individuals with a known disease, with the goal of limiting or preventing future complications (e.g., screening diabetics for microalbuminuria, rigorous treatment of diabetes mellitus, and post–myocardial infarction prophylaxis with B-blockers and aspirin).
08-234. +Gas+Adm. A 53-year-old male presents with a 2-week history of passing frequent, small, formed stools that contain mucus and streaks of blood. He says he has not had diarrhea. He recently traveled to Mexico. The **Figure** shows findings seen on anoscopy. Which one of the following would be the most appropriate next step? A) Empiric therapy for giardiasis B) Testing for *Clostridium difficile* C) Rectal cultures for *Chlamydia*, gonorrhea, and HSV-2 D) Referral to a colorectal surgeon 	Proctitis. **08-234.** The patient's symptoms and anoscopic examination are consistent with the diagnosis of acute proctitis. **ANS=C.** Possible causes include *Chlamydia*, gonorrhea, and ulcerative proctitis. Parasitic diseases such as *Entamoeba histolytica* can cause dysentery, but *Giardia lamblia* causes nausea, vomiting, malabsorption, and watery diarrhea rather than bloody diarrhea, and is an infection of the duodenum and proximal jejunum. *Clostridium difficile* infection is also not limited to the rectum, and the mucosa has a whitish, membranous appearance rather than an ulcerative appearance. The anoscopic examination did not reveal a nodular mass typical of colorectal cancer.
09-003. +Pbc+Com. According to the U.S. Preventive Services Task Force, which one of the following is true regarding prostate cancer screening? A) Most men between the ages of 50 and 75 should be screened for prostate cancer B) Screening for prostate cancer is inappropriate at any age C) The harms of screening for prostate cancer after the age of 75 outweigh the benefits D) A digital rectal examination has greater sensitivity than prostate-specific antigen (PSA) testing for detecting prostate cancer E) Health outcomes are improved by monitoring PSA velocity and doubling time	Prostate cancer. **09-003. S**creening; Recommendations. Ans: C; The U.S. Preventive Services Task Force (USPSTF) concluded with moderate certainty that **the harm from screening for prostate cancer in men 75 or older outweighs the benefits.** Potential harms include urinary incontinence, erectile dysfunction, bowel dysfunction, and death, and the USPSTF found no direct evidence of benefits from screening. **Evidence is insufficient to assess the benefits versus harms of screening in men younger than age 75.** Most major U.S. medical organizations recommend individualizing decisions after discussions with the patient, and agree that the best candidates for screening are men age 50 or older with a life expectancy ≥□10 years.
09-116. +Nep+Adm. A 25-year-old male who came to your office for a pre-	Proteinuria. **09-116.** orthostatic. **ANS=E.** Persons younger than 30 years of age

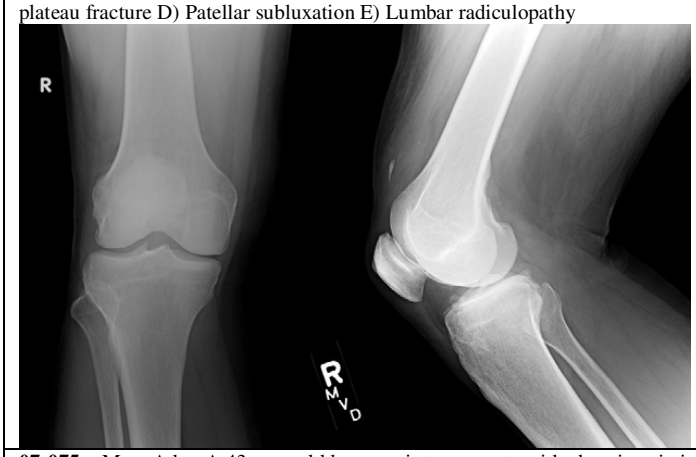
employment physical examination is found to have 2+ protein on a dipstick urine test. You repeat the examination three times within the next month and results are still positive. Results of a 24-hour urine collection show protein excretion of <2 g/day and normal creatinine clearance. As part of his further evaluation you obtain split urine collections with a 16-hour daytime specimen containing an increased concentration of protein, and an 8-hour overnight specimen that is normal. Additional appropriate evaluation for this man's problem at this time includes which one of the following? A) Serum and urine protein electrophoresis B) Antinuclear antibody C) Serum albumin and lipid levels D) Renal Ultrasonography E) No specific additional testing	who excrete less than 2 g of protein per day and who have a normal creatinine clearance should be tested for orthostatic proteinuria. This benign condition occurs in about 3%–5% of adolescents and young adults. It is characterized by increased protein excretion in the upright position, but normal protein excretion when the patient is supine. It is diagnosed using split urine collections as described in the question. The daytime specimen has an increased concentration of protein, while the nighttime specimen contains a normal concentration. Since this is a benign condition with normal renal function, no further evaluation is necessary.
08-220. +Mus+Adm. An 83-year-old female presents with pain, swelling, and erythema of her left knee, as well as some swelling and pain in her right wrist. She first noticed this problem last night before going to bed. She is generally healthy and takes no medications. She has not been sexually active since being widowed 15 years ago, and she currently lives with her sister. She states that she developed pain and swelling in her left ankle 2 years ago that lasted only a couple of days and resolved spontaneously. Blood testing shows a very elevated erythrocyte sedimentation rate but a normal rheumatoid factor and uric acid level. Which one of the following is the most likely diagnosis? A) Gonococcal arthritis B) Gout C) Pseudogout (calcium pyrophosphate disease) D) Rheumatoid arthritis E) Rupture of the anterior cruciate ligament	Pseudogout**. 08-220.** Acute monoarthritis in adults is most commonly caused by infection, trauma, or crystal deposition. **ANS=C.** Rheumatoid arthritis infrequently presents as monoarthritis, and more often has a subacute course with multiple, symmetric joints involved. Although osteoporosis may result in a fracture of the knee joint without trauma, there is no reason to believe that this patient has a torn anterior cruciate ligament. Gonococcal arthritis is one of the most common causes of septic arthritis, but is highly unlikely in this elderly, sexually inactive patient. Nongonococcal septic arthritis (especially due to staphylococcal and streptococcal bacteria) is still a consideration and should be ruled out by aspiration of fluid to be sent for culture. This patient's presentation is most consistent with pseudogout. Having a normal uric acid level suggests against gout, but does not rule it out. Also, gout is seven times more likely to be seen in males, whereas pseudogout is 1.5 times more frequent in females. Pseudogout most often affects the elderly, and usually affects the knee, wrist, and ankle. Gout presents most commonly in the first metatarsophalangeal joint and insteps of the feet, but also can occur in the knee, wrist, finger, and olecranon bursa. Differentiating between gout and pseudogout can be difficult and is best done by analysis of joint fluid. In patients with gout, this fluid contains highly negative birefringent, needle-shaped urate crystals, whereas in pseudogout the fluid contains rhomboid-shaped, weakly positive birefringent calcium pyrophosphate crystals.
07-097. +Res+Adm. A 45-year-old female presents to an urgent care center complaining of left-sided chest pain for the past 2 days. The pain is nonradiating and sharp in character, and increases with deep inspiration. She has no associated shortness of breath, cough, nausea, diaphoresis, or dizziness. She has no significant past medical history or recent travel history. On examination she is afebrile, with a pulse rate of 92 beats/min, a blood pressure of 116/72 mm Hg, and a respiratory rate of 12/min. Her lungs are clear and her heartbeat is regular with no murmurs. Her lower extremities have no edema, tenderness, or varicosities. Which one of the following is the most appropriate next step in her evaluation? A) A high-sensitivity D-dimer test B) A troponin I level C) Ultrasound examination of the veins of the lower extremities D) A multidetector helical CT of the chest E) An antinuclear antibody (ANA) level	Pulmonary embolism. **07-097.** D-dimer test. **ANS=A.** This patient has a low pretest probability of pulmonary embolism based on the Wells criteria. She would be a good candidate for a high-sensitivity D-dimer test, with a negative test indicating a low probability of venous thromboembolism. In patients with a low pretest probability of venous thromboembolism, an ultrasound or helical CT would not be the recommended initial evaluation. Neither troponin I nor an ANA level would be part of the recommended initial evaluation.
09-026. +Res+Euc. A 42-year-old female presents to the emergency department with pleuritic chest pain. Her probability of pulmonary embolism is determined to be low. Which one of the following should be ordered to further evaluate this patient? A) Brain natriuretic peptide (BNP) B) CT pulmonary angiography C) ELISA-based D-dimer D) A cardiac troponin level E) A ventilation-perfusion lung scan	Pulmonary embolism. **09-026.** D-dimer. **Ans=C. Patients who have a low or moderate pretest probability of pulmonary embolism should have d-dimer testing as the next step in establishing a diagnosis.**
10-042. +Res+Adm. A 58-year-old male presents with a several-day history of shortness of breath with exertion, along with pleuritic chest pain. His symptoms started soon after he returned from a vacation in South America. He has a history of deep-vein thrombosis (DVT) in his right leg after surgery several years ago, and also has a previous history of prostate cancer. You suspect pulmonary embolism (PE). Which one of the following is true regarding the evaluation of this patient? A) CT angiography would reliably either confirm or rule out PE B) Compression ultrasonography of the lower extremities will reveal a DVT in the majority of patients with PE C) No further testing is needed if a ventilation-perfusion lung scan shows a low probability of PE D) No further testing is needed if a D-dimer level is normal E) An elevated D-dimer level would confirm the diagnosis of PE	Pulmonary embolism. **10-042.** CT angiography. **ANS=A.** This patient has a high clinical probability for pulmonary embolism (PE). About 40% of patients with PE will have positive findings for deep-vein thrombosis in the lower extremities on compression ultrasonography. A normal ventilation-perfusion lung scan rules out PE, but inconclusive findings are frequent and are not reassuring. A normal D-dimer level reliably rules out the diagnosis of venous thromboembolism in patients at low or moderate risk of pulmonary embolism, but the negative predictive value of this test is low for high-probability patients. A positive D-dimer test does not confirm the diagnosis; it indicates the need for further testing, and is thus not necessary for this patient. A multidetector CT angiogram or ventilation-perfusion lung scan should be the next test, as these are reliable to confirm or rule out PE.
10-187. +Car+Adm. Which one of the following hospitalized patients is the most appropriate candidate for thromboembolism prophylaxis with enoxaparin (Lovenox)? A) An ambulatory 22-year-old obese male admitted for an appendectomy B) A 48-year-old male with atrial fibrillation on chronic therapeutic anticoagulation, admitted for cellulitis C) A 48-year-old male with end-stage liver disease and coagulopathy D) A 52-year-old female on chronic estrogen therapy, admitted with severe thrombocytopenia E) A 67-year-old female with hemiparesis, admitted for community-acquired pneumonia	Pulmonary embolism. **10-187.** Enoxaparin (Lovenox). **ANS=E.** Venous thromboembolism is a frequent cause of preventable death and illness in hospitalized patients. Approximately 10%–15% of high-risk patients who do not receive prophylaxis develop venous thrombosis. Pulmonary embolism is thought to be associated with 5%–10% of deaths in hospitalized patients. Anticoagulant prophylaxis significantly reduces the risk of pulmonary embolism and should be used in all high-risk patients. Prophylaxis is generally recommended for patients over the age of 40 who have limited mobility for 3 days or more and have at least one of the following risk factors: acute infectious disease, New York Heart Association class III or IV heart failure, acute myocardial infarction, acute respiratory disease, stroke, rheumatic disease, inflammatory bowel disease, previous venous thromboembolism, older age (especially >75 years), recent

	surgery or trauma, immobility or paresis, obesity (BMI >30 kg/m2), central venous catheterization, inherited or acquired thrombophilic disorders, varicose veins, or estrogen therapy. Pharmacologic therapy with an anticoagulant such as enoxaparin is clearly indicated in the 67-year-old who has limited mobility secondary to hemiparesis and is being admitted for an acute infectious disease. The patient on chronic anticoagulation, the patient with severe thrombocytopenia, and the patient with coagulopathy are at high risk for bleeding if given anticoagulants, and are better candidates for nonpharmacologic therapies such as foot extension exercises, graduated compression stockings, or pneumatic compression devices. Although the 22-year-old is obese and recently had surgery, his young age and ambulatory status make anticoagulant prophylaxis less necessary.
07-100. +Res+Adm. Which one of the following is most consistent with a diagnosis of asthma? A) Reduced FEV1 and reduced FEV1 /FVC ratio B) Reduced FEV1 and normal FEV1 /FVC ratio C) Reduced FEV1 and increased FEV1 /FVC ratio D) Reduced FVC and normal FEV1 /FVC ratio E) Reduced FVC and increased FEV1 /FVC ratio USMLE book: **Obstructive vs. restrictive lung disease**  Note: Obstructive lung volumes > normal (↑ TLC, ↑ FRC, ↑ RV); restrictive lung volumes < normal. In both obstructive and restrictive, FEV_1 and FVC are reduced, but in obstructive, FEV_1 is more dramatically reduced, resulting in a ↓ FEV_1/FVC ratio.	Pulmonary function tests. **07-100.** Asthma is typically associated with an obstructive impairment that is reversible with short-acting bronchodilators. **ANS=A**. **A reduced FEV1 and FEV1 /FVC ratio indicates airflow obstruction**. A **reduced FVC with a normal or increased FEV1 /FVC ratio is consistent with a restrictive pattern of lung function**. Restricted lung expansion causes ↓ lung volumes (↓ FVC and TLC). PFTs—FEV1/FVC ratio > 80%. Types: 1. Poor breathing mechanics (extrapulmonary, peripheral hypoventilation): a. Poor muscular effort—polio, myasthenia gravis b. Poor structural apparatus—scoliosis, morbid obesity 2. Interstitial lung diseases (pulmonary, lowered diffusing capacity): a. Adult respiratory distress syndrome (ARDS) b. Neonatal respiratory distress syndrome (hyaline membrane disease) c. Pneumoconioses (coal miner's silicosis, asbestosis) d. Sarcoidosis e. Idiopathic pulmonary fibrosis (repeated cycles of lung injury and wound healing with ↑ collagen) f. Goodpasture's syndrome g. Wegener's granulomatosis h. Eosinophilic granuloma (histiocytosis X) i. Drug toxicity (bleomycin, busulfan, amiodarone) **Hint:** notice how both FVC and FEV could be lower in Restrictive (R) and Obstructive (O) processes, so FEV1/FVC is the determinat factor. **Think R for Restrictive and Right, and numbers to the Right are gReater, in this case > than 0.7 or 70%**. So, if FEV1/FVC > 0.7 then think of Restrictive process, and the opposite applies for Obstructive processes. R= <FVC, <=FEV1, **FEV1/FVC > 0.7** O= <=FVC, <FEV1, FEV1/FVC < 0.7 Obstructive air diseases: Obstruction of air flow resulting in air trapping in the lungs, e.g. Chronic **B**ronchitis ("**B**lue **B**loater"), Em**P**hysema ("**P**ink puffer," barrel-shaped chest), Asthma, Bronchiectasis.
08-072. +Res+Adm. A 67-year-old smoker with a history of pulmonary tuberculosis at 22 years of age presents with a 6-month history of increasing shortness of breath. On office spirometry his FVC is 60% of predicted, his FEV1 is 80% of predicted, and his FEV1/FVC ratio is 0.8. Which one of the following would be the most appropriate next step in his evaluation? A) Refer to a pulmonary laboratory for static lung volume measurement and diffusion studies B) Perform a bronchodilator challenge test C) Investigate for nonpulmonary causes for the patient's symptoms D) Order a PPD skin test	Pulmonary function tests. **08-072.** Pulmonary function tests are usually classified as normal, compatible with a restrictive defect, or consistent with obstructive airway disease. **ANS=A**. In **restrictive ventilatory processes, the FVC is decreased, the FEV1 is decreased or normal, and the absolute FEV1 /FVC is >0.7.** In **obstructive airway problems, findings include a normal or decreased FVC, a decreased FEV1 , and an absolute FEV1 /FVC <0.7.** ***When simple spirometry suggests a restrictive ventilatory problem, the patient should undergo full pulmonary function testing for static lung volume measurements and diffusing capacity of the lung for carbon monoxide.*** **If spirometry suggests an obstructive problem, it should be repeated after administering an inhaled bronchodilator.** Because this patient has a history of pulmonary tuberculosis, a TB skin test is inappropriate and would not provide any useful information.
10-093. +Res+Csp.>L A 50-year-old male has a pre-employment chest radiograph showing a pulmonary nodule. There are no previous studies available. Which one of the following would raise the most suspicion that this is a malignant lesion if found on the radiograph? A) The absence of calcification B) Location above the midline of the lung C) A diameter of 4 mm D) A solid appearance	Pulmonary nodule. **10-093. ANS=A.** Pulmonary nodules are a common finding on routine studies, including plain chest radiographs, and require evaluation. Radiographic features of benign nodules include a diameter <5 mm, a smooth border, a solid appearance, concentric calcification, and a doubling time of less than 1 month or more than 1 year. Features of malignant nodules include a size >10 mm, an irregular border, a "ground glass" appearance, either no calcification or an eccentric calcification, and a doubling time of 1 month to 1 year (SOR B).
07-079. +Nep+Mac. A 28-year-old female at 20 weeks gestation is hospitalized with pyelonephritis and treated with appropriate intravenous antibiotics. A urine culture is positive for a pan-sensitive organism and you plan to discharge her with a prescription for a course of oral antibiotics. Which one of the following would be CONTRAINDICATED for her outpatient treatment? A) Amoxicillin B) Cephalexin (Keflex) C) Cefixime (Suprax) D) Levofloxacin (Levaquin) E) Amoxicillin/clavulanate (Augmentin)	Pyelonephritis**. 07-079.** In pregnancy. **ANS=D.** Most antibiotics cross the placenta, making it necessary to avoid those that may be harmful to the fetus. Penicillins, cephalosporins, and nitrofurantoin are commonly used in pregnancy, and there is no evidence for adverse fetal outcomes. Fluoroquinolones are contraindicated in pregnancy because they have been found to cause an irreversible arthropathy in animal studies. Nitrofurantoin is safe and effective for the treatment of cystitis, but does not attain adequate renal parenchymal penetration for treatment of pyelonephritis.
10-060. +Nep+Mac. A 39-year-old African-American multigravida at 36 weeks gestation presents with a temperature of 40.0°C (104.0°F), chills, backache, and vomiting. On physical examination, the uterus is noted to be nontender, but there is slight bilateral costovertebral angle tenderness. A urinalysis reveals many	Pyelonephritis**. 10-060. Pyelonephritis is the most common medical complication of pregnancy**. **ANS=E.** The diagnosis is usually straightforward, as in this case. Since the patient is quite ill, **treatment is best undertaken in the hospital with parenteral agents, at least until the patient is stabilized and**

leukocytes, some in clumps, as well as numerous bacteria. Of the following, the most appropriate therapy at this time would be
A) oral trimethoprim/sulfamethoxazole (Bactrim, Septra)
B) oral nitrofurantoin (Macrodantin)
C) oral levofloxacin (Levaquin)
D) intravenous doxycycline
E) intravenous ceftriaxone (Rocephin)

cultures are available. Ampicillin plus gentamicin or a cephalosporin is typically used. Sulfonamides are contraindicated late in pregnancy because they may increase the incidence of kernicterus. Tetracyclines are contraindicated because administration late in pregnancy may lead to discoloration of the child's deciduous teeth. **Nitrofurantoin may induce hemolysis in patients who are deficient in G-6-PD**, which includes approximately 2% of African-American women. **The safety of levofloxacin in pregnancy has not been established, and it should not be used unless the potential benefit outweighs the risk.**

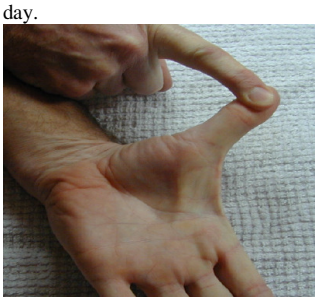
09-235. +Mus+Euc. An 84-year-old male is walking across the street and has to hurry to avoid oncoming traffic. He suddenly develops extreme pain in his knee and falls to the street, and has to be carried to the sidewalk. The following day he comes to the emergency department. He is comfortable when placed in a knee immobilizer, but is very tender just above the patella. He can bend his knee, but when he tries to straighten his leg it is so weak that he cannot move it at all. Radiographs of the knee are shown in the **Figure**. What is the most likely diagnosis? A) Patellar tendon rupture B) Quadriceps tendon rupture C) Tibial plateau fracture D) Patellar subluxation E) Lumbar radiculopathy



Quadriceps tendon rupture. **09-235.** Quadriceps tendon rupture can be partial or complete. **ANS=B.** When complete, as in this case, the patient has no ability to straighten the leg actively. A similar pattern is seen with patellar tendon rupture, but in this situation the patella is retracted superiorly by the quadriceps. Quadriceps rupture often produces a sulcus sign, a painful indentation just above the patella. If the patient is not seen until some time has passed since the injury, the gap in the quadriceps can fill with blood, so that it is no longer palpable. The clinical examination is usually diagnostic for this condition, but this patient's radiograph shows some interesting findings, especially on the lateral view. A small shard of the patella has been pulled off and has migrated superiorly with the quadriceps. The hematoma filling the gap in the quadriceps is the same density as the muscle, but wrinkling of the fascia over the distal quadriceps provides a clue that it is no longer attached to the superior margin of the patella. Tibial plateau fractures are intra-articular, so they produce a large hemarthrosis. They are evident on a radiograph in almost all cases. Pain inhibits movement of the knee, but the extreme weakness evident in this case would not be seen. Patellar subluxation is obvious acutely, when the patella is displaced laterally. More often, the patient comes in after the patella has relocated. Findings then include tenderness along the medial retinaculum, sometimes a joint effusion, and a positive apprehension sign when the patella is pushed gently laterally. Lumbar radiculopathy can cause weakness of the quadriceps if it involves the third lumbar root, but complete paralysis would not occur. Other findings would include lumbar pain radiating to the leg, possibly with paresthesias and fasciculations if there were significant neurologic impairment.

07-075. +Mus+Adm. A 43-year-old house painter presents with chronic pain in the radial aspect of the wrist, radiating down the thumb. Her symptoms are worsened with pinching and with wrist movement. She has had to quit her job due to the severity of symptoms. On examination she has pain in the thumb with opening and closing her hand, and a Finkelstein's test is positive. The most effective treatment for this patient would be
A) rest
B) NSAIDs
C) splinting
D) local corticosteroid injection

Acute therapy — Therapy in the acute setting consists of pain relief and restriction of thumb gripping and grasping. Once the signs and symptoms of active tenosynovitis have resolved (usually three to four weeks), gentle passive stretching exercises of the extensor and abductor tendons should begin. Sets of 20 stretches, each held for five seconds, should be performed daily. Thumb stretch exercise: Massage the palm and base of the thumb with lanolin cream for five minutes. Stretch the thumb back with gentle pressure. Perform sets of 15 to 20 per day.

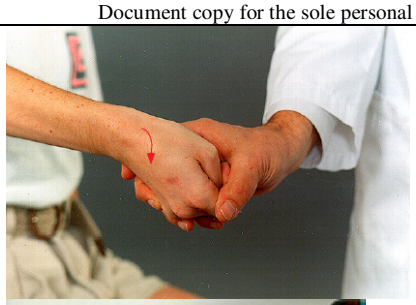


Persistent symptoms — A local intralesional injection is indicated if pain or swelling is persistent for two to six weeks despite the above measures. The injection may be repeated at four to six weeks if symptoms are not reduced by 50 percent.
Injection for de Quervain's tenosynovitis: The hand is placed in a neutral position and turned on the side with the radial side up. The radial styloid is identified and marked. The point of entry is halfway between the abductor pollicis longus and the extensor pollicis longus tendons at the radial styloid (about 3/8 inch proximal to the tip of the radial styloid). Ethyl chloride is applied to the skin for anesthesia.

Quervain's tenosynovitis**. 07-075.** The history and physical findings are most consistent with de Quervain's tenosynovitis, which affects the abductor pollicis longus and the extensor pollicis longus and brevis tendons. **ANS=D.** Local corticosteroid injection is the most effective treatment. NSAIDs and splinting may be somewhat effective for mild cases, but are less effective than corticosteroids. Rest alone has not been shown to be very helpful.
Uptodate: Palpation of the radial styloid: The wrist is placed in a neutral position with the radial side up. The most distal portion of the radial styloid is identified, marked, and palpated for local tenderness.

The examiner supports the patient's arm with one hand, and asks the patient to extend the thumb against resistance applied by the opposite hand of the examiner.

Finkelstein test for de Quervain's tenosynovitis: The examiner gently rotates the patient's wrist ulnarly (arrow) while the patient's fingers are folded over the thumb.

A 5/8 inch, 25 gauge needle is inserted at a 45º angle to a depth of 3/8 to 1/2 inch, flush against the periosteum of the radial styloid. If bone is not encountered at this depth the point of entry may have been too distal. Two to 3 mL lidocaine is injected to perform local anesthetic block; a bubble should appear. Moderate pressure to injection, a poorly distensible sac, or both may indicate chronic stenosis of the tendons. For therapeutic injection, the needle is left in place, the syringe containing the anesthetic is removed and replaced with a syringe containing 1/2 mL methylprednisolone (80 mg/mL) that is then injected.	 
09-109. +Car+Adm. A 49-year-old white female comes to your office complaining of painful, cold finger tips which turn white when she is hanging out her laundry. While there is no approved treatment for this condition at this time, which one of the following drugs has been shown to be useful? A) Propranolol (Inderal) B) Nifedipine (Procardia) C) Ergotamine/caffeine (Cafergot) D) Methysergide (Sansert)	Raynaud's disease. **09-109. ANS=B.** At present there is no approved treatment for Raynaud's disease. However, patients with this disorder reportedly experience subjective symptomatic improvement with calcium channel antagonists, with nifedipine being the calcium channel blocker of choice. B-Blockers can produce arterial insufficiency of the Raynaud type, so propranolol and atenolol are contraindicated. Drugs such as ergotamine preparations and methysergide can produce cold sensitivity, and should therefore be avoided in patients with Raynaud's disease.
10-041. +Nep+Adm. A 70-year-old male presents to your office for a follow-up visit for hypertension. He was started on lisinopril (Prinivil, Zestril), 20 mg daily, 1 month ago. Laboratory tests from his last visit, including a CBC and a complete metabolic panel, were normal except for a serum creatinine level of 1.5 mg/dL (N 0.6–1.5). A follow-up renal panel obtained yesterday shows a creatinine level of 3.2 mg/dL and a BUN of 34 mg/dL (N 8–25). Which one of the following is the most likely cause of this patient's increased creatinine level? A) Bilateral renal artery stenosis B) Coarctation of the aorta C) Essential hypertension D) Hyperaldosteronism E) Pheochromocytoma	Renal artery stenosis. **10-041. ANS=A.** Classic clinical clues that suggest a diagnosis of renal-artery stenosis include the onset of stage 2 hypertension (blood pressure >160/100 mm Hg) after 50 years of age or in the absence of a family history of hypertension; hypertension associated with renal insufficiency, especially if renal function worsens after the administration of an agent that blocks the renin-angiotensin-aldosterone system; hypertension with repeated hospital admissions for heart failure; and drug-resistant hypertension (defined as blood pressure above the goal despite treatment with three drugs of different classes at optimal doses). The other conditions mentioned do not cause a significant rise in serum creatinine after treatment with an ACE inhibitor.
10-092. +Nep+Euc.>L Which one of the following is the best radiographic test for confirming the diagnosis of renal colic? A) A KUB radiograph B) Ultrasonography C) CT D) Intravenous pyelography E) MRI	Renal colic**. 10-092. ANS=C. CT is the gold standard for the diagnosis of renal colic.** Its sensitivity and specificity are superior to those of ultrasonography and intravenous pyelography. **Noncalcium stones may be missed by plain radiography but visualized by CT. MRI is a poor tool for visualizing stones.**
08-230. +Nep+Adm. A patient with end-stage renal failure is found to be anemic. You suspect a vitamin B12 deficiency, but testing reveals that her vitamin B12 level is "low normal." Which one of the following laboratory test results would confirm a diagnosis of vitamin B deficiency? A) Low epogen B) Low folic acid C) High methylmalonic acid (MMA) D) Low homocysteine E) A normal peripheral smear	Renal failure. **08-230.** anemia. Patients with renal failure often have normal vitamin B12 levels despite an actual deficiency. **ANS=C.** In this situation, the clinician can order a methylmalonic acid (MMA) level to confirm the diagnosis. Vitamin B12 is the necessary coenzyme in the metabolism of MMA to succinylcholine. Thus, in the absence of vitamin B12, MMA levels increase. Additionally, homocysteine levels would be elevated in the presence of vitamin B12 deficiency (SOR A).
07-157. +Nep+Adm. You are reviewing laboratory findings in a 64-year-old male hospitalized with acute renal failure. The patient is not on any long-term medications. His renal function has previously been normal, but currently his serum creatinine level is 2.8 mg/dL (N 0.6–1.5), BUN 60 mg/dL (N 8–25), and fractional excretion of sodium (FENa) 0.75%. His urine specific gravity is 1.025, and the urine sediment shows only hyaline casts. Based on these findings, which one of the following conditions is most likely? A) Hypervolemia B) Acute pyelonephritis C) Interstitial nephritis D) Obstruction due to benign prostatic hypertrophy E) Hypovolemia **Acute renal failure:** Abrupt decline in renal function with ↑ creatinine and ↑ BUN over a period of several days. 1. Prerenal azotemia—↓ renal blood flow (e.g., hypotension) → ↓ GFR. Na+/H2O and urea retained by kidney. 2. Intrinsic renal—generally due to acute tubular necrosis or ischemia/toxins. Patchy necrosis leads to debris obstructing tubule and fluid backflow across necrotic tubule → ↓ GFR. Urine has epithelial/granular casts. 3. Postrenal—outflow obstruction (stones, BPH, neoplasia). Develops only with bilateral obstruction.	Renal failure. Acute renal failure **07-157.** (ARF) has prerenal, renal, and postrenal causes. **ANS=E**. The approach to patients with ARF must be systematic, requiring a thorough history, medication review (including all nonprescription drugs), and careful physical examination with attention to volume status. Besides **creatinine, BUN, and electrolytes, the urinalysis (including microscopic) and the fractional excretion of sodium (FENa) are essential to the initial evaluation**. **The FENa is very useful in separating prerenal causes from renal or postrenal causes in patients who have not been on chronic diuretic therapy**. **A FENa <1.0%, as in this patient, indicates a prerenal cause.** Of the possibilities listed, hypovolemia is the only condition that could result in prerenal ARF. Furthermore, **a BUN:creatinine ratio >20, a urine specific gravity >1.020, and hyaline casts in the sediment all support the diagnosis of hypovolemia.** Acute pyelonephritis may or may not result in ARF, and these patients usually have WBCs or WBC casts in the urine. Neither hypervolemia (due to fluid overload) nor benign prostatic hypertrophy would typically be associated with the laboratory findings given. Interstitial nephritis, a renal cause of ARF, would most likely result in a FENa greater than 1.0%.

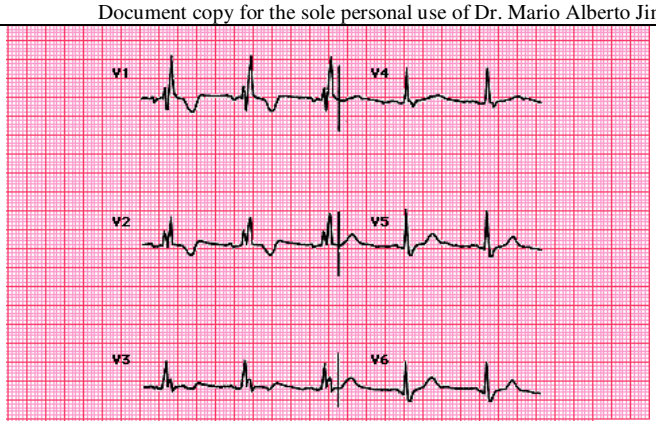
	MGH Handbook: **History and physical:** recent procedures and medications, vital signs, volume status, signs and symptoms of obstruction, vascular disease or systemic disease • **Urine evaluation:** output, urinalysis, sediment, electrolytes and osmolality • **Fractional excretion of sodium (FE_{Na})** = $(U_{Na}/P_{Na})/(U_{Cr}/P_{Cr})$ › < 1% →prerenal, contrast, or glomerulonephritis; > 2% →ATN › In setting of diuretics, $FE_{UN} = (U_{UN}/P_{UN})/(U_{Cr}/P_{Cr})$; < 35% →prerenal UN=Urea Nitrogen • Renal U/S: r/o obstruction & eval kidney size to estimate chronicity of renal failure • Serologies (if indicated): see "Glomerular Disease" • Renal biopsy: may be necessary if cause remains unclear
07-073. +Nep+Adm. For chronic kidney disease patients whose protein excretion exceeds 1 g/24 hr, the National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (KDOQI) recommends a blood pressure goal of A) ≤150/100 mm Hg B) ≤140/90 mm Hg C) ≤130/80 mm Hg D) ≤125/75 mm Hg E) ≤110/60 mm Hg	Renal failure. chronic kidney disease. **07-073. ANS=D.** The Kidney Disease Outcomes Quality Initiative guideline recommends a **blood pressure goal of ≤130/80 mm Hg for patients with normal urinary albumin concentrations, and a blood pressure goal of ≤125/75 mm Hg for patients whose protein excretion exceeds 1 g/24 hr**.
08-183. +Nep+Adm. Which one of the following is true regarding medication dosage adjustments for patients with chronic kidney disease? A) Loading doses should usually be adjusted B) Adjustments typically are not necessary until the glomerular filtration rate is <20 mL/min/1.73m2 C) A normal serum creatinine value indicates that no adjustment is necessary D) Serum drug levels are usually required for making adjustments E) A reduction of dose, an increase in dosing interval, or both may be necessary	Renal failure. Chronic kidney disease**. 08-183. ANS=E.** Many medications require dosage adjustments in patients with chronic kidney disease. Medications are adjusted based on the estimated glomerular filtration rate (GFR) or creatinine clearance. Most medication adjustments require a reduction in the dose, lengthening of the dosing interval, or both. Loading doses of medications usually do not need to be adjusted. Medication adjustments are divided into three groups, based on whether the GFR is >50 mL/min/1.73m2 , 10–50 mL/min/1.73m2 , or <10 mL/min/1.73m2. The production and excretion of creatinine decreases in older patients, so a normal serum creatinine level does not always correlate with normal kidney function. Serum drug levels typically are not required for adjusting medications in patients with chronic kidney disease.
08-185. +Nep+Adm. A 60-year-old male who has a 5-year history of diabetes mellitus is found to have an elevated creatinine level that has increased from 1.5 mg/dL to 2.0 mg/dL over the past year. His current medications include lisinopril (Prinivil, Zestril) to control blood pressure and proteinuria. He is aware that tight control of his blood glucose will help prevent the progression of renal disease, but wants to know what else he can do to preserve renal function. Which one of the following would be the most appropriate recommendation for this patient? A) Add an angiotensin receptor blocker (ARB) B) Maintain blood pressure at 140/90 mm Hg or less C) Follow a high-protein, low-fat diet D) Use erythropoietin therapy to keep the hemoglobin level above 14 g/dL E) Add a calcium channel blocker	Renal failure. Chronic kidney disease. **08-185. ONTARGET study ANS= ANY see note: "**The publication of the ONTARGET study after this examination went to press indicates that none of the answers listed is an appropriate choice, and all answers were therefore counted as correct. See *Lancet* 2008;372 (9638):547-553." There are several strategies for slowing the progression of chronic kidney disease to end-stage renal disease, which requires either a renal transplant or dialysis. ACE inhibitors have been shown to be renoprotective by preventing the progression of diabetic nephropathy. There also is data showing that angiotensin receptor blockers probably are as effective as ACE inhibitors. This stament is wrong: "**Combining the two can further retard the progress of chronic kidney disease, but with the caveat that the two medications can increase the risk of hyperkalemia in a patient with impaired renal function, and the combination confers a higher mortality risk than either agent alone." According to the ONTARGET study, Telmisartan+Ramipril did not reduce the progression of renal disease to a greater extend than ramipril alone, and instead, the combination showed higher rates of adverse events (hypotension related, including syncope and renal dysfunction)- adapted from ACC 2008.** In addition to tight glucose control, cessation of smoking, weight control, and treatment of hyperlipidemia, patients should strive to control hypertension. **If proteinuria is less than 1 g/day, then the blood pressure goal should be 130/80 mm Hg; however, if proteinuria is more than 1 g/day, some authorities recommend a goal of 125/75 mm Hg.** While good control of blood pressure is ideal, **calcium channel blockers (especially the dihydropyridine class) should be used only if necessary, because they have been associated with a more rapid decline of glomerular filtration rate.** Recent **studies have shown that patients on a low-protein diet have a slower rate of deterioration in renal status. The recommended restriction is 0.6–0.8 g/kg/day.** Anemia of chronic disease is a manifestation of chronic renal disorder. Although **erythropoietin therapy may not prevent progression, it does improve survival and quality of life.**
08-041. +Nep+Adm. A 35-year-old African-American male has a blood pressure of 142/88 mm Hg, confirmed on repeat measurements. A complete metabolic panel and urinalysis reveal a serum creatinine level of 1.9 mg/dL (N 0.6–1.5) and 2+ protein in the urine. Which one of the following would be the most appropriate initial treatment? A) ACE inhibitors B) Aldosterone antagonists C) B-Blockers D) Calcium channel blockers E) Diuretics	Renal failure. Chronic renal failure. **08-041. ANS=A.** Although JNC-7 guidelines recommend a diuretic as the initial pharmacologic agent for most patients with hypertension, the presence of "compelling indications" may indicate the need for treatment with antihypertensive agents that demonstrate a particular benefit in primary or secondary prevention. **JNC-7 guidelines recommend ACE inhibitors (ACEIs) or angiotensin receptor blockers (ARBs) for hypertensive patients with chronic kidney disease** (SOR A). First-line therapy for proteinuric kidney disease includes an **ACEI or an ARB. Because these drugs can cause elevations in creatinine and potassium, these levels should be monitored.** A serum **creatinine level as much as 35% above baseline is acceptable in patients taking these agents and is not a reason to withhold treatment unless hyperkalemia develops.** If an ACEI or an ARB does not control the hypertension, the addition of a diuretic or a calcium channel blocker may be

	required. **The combination of ACEIs and diuretics may be used to control hypertension in patients with diabetes mellitus, heart failure, or high coronary disease risk, as well as post myocardial infarction.** Calcium channel blockers are recommended for managing hypertension in patients with diabetes or high coronary disease risk. B-Blockers are useful as part of combination therapy in patients with hypertension and heart failure, or post myocardial infarction.
08-147. +Nep+Adm. A 47-year-old male with chronic kidney disease is being treated with epoetin alfa (Procrit). His hemoglobin level is 11.3 g/dL (N 13.0–18.0). Which one of the following would be most appropriate with regard to his epoetin alfa regimen? A) Increase the dosage until the hemoglobin level is >12.0 g/dL B) Increase the frequency of injections, using the same dose C) Decrease the frequency of injections, using the same dose D) Continue the current regimen	Renal failure. Chronic renal failure. **08-147. ANS=D.** In patients with renal failure, the risk for death and serious cardiovascular events is increased with higher hemoglobin levels (≥3.5 g/dL), and it is therefore recommended that levels be maintained at 10–12 g/dL. Studies have also demonstrated less mortality and morbidity when the dosage of epoetin alfa is set to achieve a target hemoglobin of <12 g/dL.
08-195. +Nep+Adm. A 57-year-old male with severe renal disease presents with acute coronary syndrome. Which one of the following would most likely require a significant dosage adjustment from the standard protocol? A) Enoxaparin (Lovenox) B) Metoprolol (Lopressor) C) Carvedilol (Coreg) D) Clopidogrel (Plavix) E) Tenecteplase (TNKase)	Renal failure. Enoxaparin **08-195.** is eliminated mostly by the kidneys. **ANS=A.** When it is used in patients with severe renal impairment the dosage must be significantly reduced. For some indications the dose normally given every 12 hours is given only every 24 hours. Although some B-blockers require a dosage adjustment, metoprolol and carvedilol are metabolized by the liver and do not require dosage adjustment in patients with renal failure. Clopidogrel is currently recommended at the standard dosage for patients with renal failure and acute coronary syndrome. Thrombolytics are given at the standard dosage in renal failure, although hemorrhagic complications are increased.
10-150. +Res+Euc.>L* A 42-year-old white male develops respiratory distress 12 hours after he sustained a closed head injury and a femur fracture. A physical examination reveals a respiratory rate of 40/min. He has a pO2 of 45 mm Hg (N 75–100), a pCO2 of 25 mm Hg (N 35–45), and a blood pH of 7.46 (N 7.35–7.45). His hematocrit is 30.0% (N 37.0–49.0). Of the following, the most likely diagnosis is A) respiratory depression due to central nervous system damage B) heart failure C) adult respiratory distress syndrome (ARDS) D) hypovolemic shock E) tension pneumothorax	Respiratory failure. **10-150.** Acute respiratory failure following severe injury and critical illness has received increasing attention over the last decade. **ANS=C.** With advances in the management of hemorrhagic shock and support of circulatory and renal function in injured patients, it has become apparent that 1%–2% of significantly injured patients develop acute respiratory failure in the post-injury period. Initially this lung injury was thought to be related to a particular clinical situation. This is implied by such names as "shock lung" and "traumatic wet lung," which have been applied to acute respiratory insufficiency. It is now recognized that the pulmonary problems that follow a variety of insults have many similarities in their clinical presentation and physiologic and pathologic findings. This has led to the theory that the lung has a limited number of ways of reacting to injury and that several different types of acute, diffuse lung injury result in a similar pathophysiologic response. The common denominator of this response appears to be injury at the alveolar-capillary interface, with resulting leakage of proteinaceous fluid from the intravascular space into the interstitium and subsequently into alveolar spaces. It has become acceptable to describe this entire spectrum of acute diffuse injury as adult respiratory distress syndrome (ARDS). The syndrome of ARDS can occur under a variety of circumstances and produces a spectrum of clinical severity from mild dysfunction to progressive, eventually fatal, pulmonary failure. Fortunately, with proper management, pulmonary failure is far less frequent than milder abnormalities.
07-212. +Neu+Adm. Which one of the following palliative measures is appropriate for a patient dying of end-stage Alzheimer's disease who is experiencing the "death rattle" in the final hours of life? A) Subcutaneous administration of fluids B) Rectal administration of fluids C) Glycopyrrolate (Robinul) D) Bethanechol (Urecholine) E) Rivastigmine (Exelon)	Respiratory secretion medication. **07-212.** Glycopyrrolate. **ANS=C.** **Anticholinergic medications, such as glycopyrrolate, may be used effectively to dry the secretions that cause the "death rattle" in terminally ill patients**. Bethanechol and rivastigmine are both cholinergic, which has the opposite effect. Administration of fluids by hypodermoclysis or proctoclysis would increase respiratory secretions, thereby increasing the symptoms.
10-068. +Pbs+Adm.>L?* A 71-year-old female with end-stage lung cancer was recently extubated and is awaiting transfer to hospice. She is awake and confused and has significant respiratory secretions. Which one of the following medications used for reducing respiratory secretions is LEAST likely to cause central nervous system effects such as sedation? A) Atropine B) Transdermal scopolamine (Transderm Scop) C) Hyoscyamine (Levsin) D) Glycopyrrolate (Robinul)	Respiratory secretion medication. **10-068. Glycopyrrolate does not cross the blood-brain barrier, and is therefore least likely to cause central nervous system effects such as sedation**. **ANS=D.** The other medications listed do cross the blood-brain barrier. Hyoscyamine (Levsin) is in Beers criteria list; a list of drugs that should generally be avoided in older adults. See **08-146.**
07-029. +Non+Cca. One of your patients recently adopted a 4-year-old girl and brings her to your office for an initial visit. When reviewing the child's history, you discover that the birth mother has retinitis pigmentosa. When counseling the adoptive mother, you would advise her that this disease often is initially manifested during adolescence as A) eye pain B) night blindness C) color blindness D) tunnel vision E) inability to see a whiteboard at the front of the class	Retinitis pigmentosa. **07-029.** Retinitis pigmentosa has multiple inheritance patterns, including autosomal dominant, autosomal recessive, and X-linked recessive. **ANS=B.** Symptoms can begin during either childhood or adulthood, but it classically presents as night blindness during adolescence, secondary to the initial degeneration of rods. As the disease progresses peripheral vision worsens but central vision is frequently spared, so that reading is still possible. Tunnel vision follows as peripheral vision worsens. Later, as the cones degenerate, color blindness and central visual loss progress. Eye pain is not a part of this process.
10-159. +Non+Adm. A 12-year-old female is brought to your office with an 8-day history of sore throat and fever, along with migratory aching joint pain. She is otherwise healthy and has no history of travel, tick exposure, or prior systemic illness. A physical examination is notable for exudative pharyngitis; a blanching,	Rheumatic fever. **10-159. A**cute. **ANS=D.** Acute rheumatic fever is very common in developing nations. It was previously rare in the U.S., but had a resurgence in the mid-1980s. It is most common in children ages 5–15 years. The diagnosis is based on the Jones criteria. **Two major criteria, or one major criterion and two**

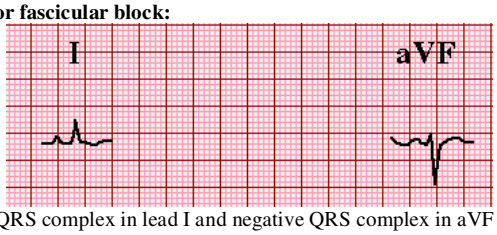
sharply demarcated macular rash over her trunk; and a III/VI systolic ejection murmur. Joint and neurologic examinations are normal. A rapid strep test is positive and her C-reactive protein level is elevated. Of the following, the most likely diagnosis is A) juvenile rheumatoid arthritis B) infective endocarditis C) Kawasaki syndrome D) acute rheumatic fever E) Lyme disease	**minor criteria, plus evidence of a preceding streptococcal infection,** indicate a high probability of the disease. **Major criteria include carditis, migratory polyarthritis, erythema marginatum, chorea, and subcutaneous nodules. Minor criteria include fever, arthralgia, an elevated erythrocyte sedimentation rate or C-reactive protein (CRP) level, and a prolonged pulse rate interval on EKG.** The differential diagnosis is extensive and there is no single laboratory test to confirm the diagnosis. This patient meets one major criterion (erythema marginatum rash) and three minor criteria (fever, elevated CRP levels, and arthralgia). Echocardiography should be performed if the patient has cardiac symptoms or an abnormal cardiac examination, to rule out rheumatic carditis
07-017. +Mus+Adm. A 50-year-old female reports a 1-month history of pain in her wrists. She does not recall any injury. On examination both wrists are warm but not red. They feel boggy to touch and lack 30E of both flexion and extension. No other joints are affected. She feels fatigued and unwell, but attributes this to her busy schedule. Radiographs of her wrists are normal. Laboratory findings are unremarkable except for a mildly elevated erythrocyte sedimentation rate and a negative rheumatoid factor. What is the most likely diagnosis? A) Rheumatoid arthritis B) Osteoarthritis C) Inapparent injury D) Fibromyalgia E) Lyme disease Alternatives to methotrexate — For those with contraindications to the use of methotrexate (MTX), the following nonbiologic and biologic DMARDs, and combination therapies can be considered: •Sulfasalazine alone; •Leflunomide alone; •Etanercept alone; •Adalimumab alone; •Infliximab alone; •Combination of hydroxychloroquine and sulfasalazine; •Anakinra alone. The following considerations affect choice of agent: **•The TNF inhibitors (etanercept, adalimumab, or infliximab) are preferred to anakinra (an interleukin-1 receptor antagonist), because the latter is the least potent of the available biologic DMARDs.** (See "Overview of biologic agents in the rheumatic diseases", section on 'Anakinra'.) **•Leflunomide, etanercept, adalimumab, and infliximab are CONTRAINDICATED in women who are pregnant or nursing**. The anti-TNF agents are contraindicated as well in patients with active infection and those at high risk of reactivation of tuberculosis unless given prophylactic antituberculous therapy. **•In patients unable to take MTX, etanercept or adalimumab is generally preferred over infliximab unless infliximab is taken together with another immune modulating drug, such as leflunomide.** Infliximab alone can lead to the development of human antichimeric antibodies, which are associated with diminished efficacy and an increased risk of side effects [12]. Laboratory features — Rheumatoid factor (RF), antibodies to citrullinated peptides, changes in the serum levels of acute phase reactants, and other laboratory abnormalities are associated with RA. **RFs and antibodies to citrullinated proteins and peptides are both useful in diagnosis**. Whether both tests should be routinely performed has still not been proven by large population surveys [1], but given the lack of complete overlap between the tests, it is clear that a positive reaction in either increases diagnostic sensitivity and a positive result in both increases specificity. Therefore, **in the evaluation of individual patients with a polyarthritis in whom the diagnosis is uncertain, both tests should be performed.** Acute phase reactants such as the erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) are sometimes helpful in the diagnosis of RA, but are of greater use in monitoring disease activity.	Rheumatoid arthritis. **07-017**. **Rheumatoid arthritis is most often symmetric at presentation and particularly affects the wrists and other extremity joints that have a high ratio of synovium to articular cartilage**. **ANS=A**. In the early months of the disease, rheumatoid factor is often negative, even in cases where it will be positive later. Although radiographs and laboratory tests are helpful, the diagnosis is primarily clinical. Osteoarthritis of the wrists usually involves the carpal-metacarpal joint of the thumb primarily, and the joint would be red only if there were an injury. Fibromyalgia usually involves the soft tissue of the trunk, and does not produce visible inflammation. Lyme disease can cause a variety of joint diseases, but not chronic symmetric arthritis. **Uptodate:** The decision to add a disease-modifying antirheumatic drug (DMARD) depends upon the relative activity of the disease, such as the number of inflamed joints, the severity of inflammation, the number of poor prognostic signs, and the degree of functional impairment. Antimalarial drugs — **An antimalarial drug may be appropriate for some patients with moderately active RA**, particularly those who lack poor prognostic features and are at the milder end of the spectrum of disease activity. Such patients have fewer joints involved and less swelling and tenderness. **Hydroxychloroquine at doses up to 6.5 mg/kg is often selected** (table 2) but other antimalarial drugs may also be of benefit. (See "Antimalarial drugs in the treatment of rheumatic disease".) Sulfasalazine — **Sulfasalazine (1000 mg two or three times daily) is preferred to antimalarial drugs in patients with more symptoms and signs of active synovitis** [5]. Its use as the only DMARD in patients with early, moderately active RA should generally be limited to patients who lack poor prognostic factors or are poor candidates for methotrexate. (See "Sulfasalazine in the treatment of rheumatoid arthritis" and 'Alternatives to methotrexate' below.) Methotrexate — **Methotrexate (MTX) is commonly selected as early therapy for moderately active RA in North America and Europe, except for patients with liver disease and women who are contemplating becoming pregnant or are pregnant** [8,9]. Use of methotrexate in RA is discussed in detail elsewhere, but the major issues will be briefly reviewed here. (See "Use of methotrexate in the treatment of rheumatoid arthritis".)
08-126. +Mus+Adm. Which one of the following tests is most specific for diagnosing rheumatoid arthritis? A) Anti-cyclic citrullinated peptide (anti-CCP) antibody B) Antinuclear antibody C) Erythrocyte sedimentation rate D) Serum complement levels E) Anti-Sm antibody	Rheumatoid arthritis. **08-126.** Rheumatoid arthritis is primarily a clinical diagnosis and no single laboratory test is considered definitively diagnostic. **ANS=A. Anti-cyclic citrullinated peptide (anti-CCP) antibody is recommended by rheumatologists to improve the specificity of testing for rheumatoid arthritis. Anti-CCP is more specific than rheumatoid factor, and may predict erosive disease more accurately.** Antinuclear antibody has limited usefulness for the diagnosis of rheumatoid arthritis. Sm antigen is useful to help diagnose systemic lupus erythematosus. Nonspecific changes in complement levels are seen in many rheumatologic disorders. The erythrocyte sedimentation rate is useful in monitoring disease activity and the course of rheumatoid arthritis, but is not specific.
08-191. +Mus+Adm. Which one of the following drugs used to treat rheumatoid arthritis can delay the progression of the disease? A) Aspirin B) Ibuprofen C) Indomethacin (Indocin) D) Capsaicin (Zostrix) E) Hydroxychloroquine (Plaquenil)	Rheumatoid arthritis. **08-191.** Hydroxychloroquine, originally developed as an antimalarial drug, is a well-known disease-modifying agent that can slow the progression of rheumatoid arthritis. **ANS=E.** Aspirin, indomethacin, and ibuprofen are anti-inflammatory agents. They relieve pain and improve mobility, but do not alter the progression of the disease. Capsaicin, a topical substance-P depleter, can relieve pain symptoms.
09-046. +Mus+Csp. A 50-year-old female with significant findings of rheumatoid arthritis presents for a preoperative evaluation for planned replacement of the metacarpophalangeal joints of her right hand under general anesthesia. She	Rheumatoid arthritis. **09-046. A**atlantoaxial subluxation preop eval. Ans=E. While all of the options listed may have some value in evaluating the preoperative status of a patient with long-standing rheumatoid arthritis, **imaging of the patient's**

generally enjoys good health and has had ongoing medical care for her illness. Of the following, which one would be most important for preoperative assessment of this patient's surgical risk? A) Resting pulse rate B) Resting oxygen saturation C) Erythrocyte sedimentation rate D) Rheumatoid factor titer E) Cervical spine imaging	**cervical spine to detect atlantoaxial subluxation would be most important for preventing a catastrophic spinal cord injury during intubation.** In many cases, cervical fusion must be performed before other elective procedures can be contemplated. Although rheumatoid arthritis may influence oxygen saturation and the erythrocyte sedimentation rate, these tests would not alert the surgical team to the possibility of significant operative morbidity and mortality. Resting pulse rate and rheumatoid factor are unlikely to be significant factors in this preoperative scenario.
07-039. +Res+Adm. A 35-year-old African-American male presents with a 3-day history of increasing cough, sinus pressure, and low-grade fever. His past medical history is positive only for hypertension. Which one of the following would be most appropriate at this point? A) Explaining that most cases of sinusitis resolve without treatment B) Ordering sinus films to determine the most appropriate course of care C) Prescribing high-dose pseudoephedrine and increased fluids D) Prescribing a 7-day course of amoxicillin E) Prescribing a 10-day course of levofloxacin (Levaquin)	Rhinosinusitis. **07-039. ANS=A.** In patients with a sinus infection, **acute bacterial rhinosinusitis should be diagnosed and treated with antibiotics only if symptoms have not improved after 10 days or if they worsen after 5–7 days.** First-line therapy for acute bacterial sinusitis is amoxicillin. While increasing fluid intake might be helpful, taking **pseudoephedrine to reduce symptoms would be a poor choice in a patient with hypertension**.
07-092. +Res+Com. Five days ago you prescribed amoxicillin, 500 mg 3 times daily for 14 days, to a 34-year-old female with purulent nasal drainage and tenderness over her maxillary sinuses. She returns today with worsening symptoms. Which one of the following would be the best choice for continued therapy? A) Change to a high-dose amoxicillin regimen B) Complete the prescribed regimen of amoxicillin C) Discontinue amoxicillin and initiate antihistamines D) Discontinue amoxicillin and start azithromycin (Zithromax) E) Discontinue amoxicillin and start levofloxacin (Levaquin)	Rhinosinusitis**. 07-092. ANS=E.** Guidelines recommend that **if symptoms of rhinosinusitis have not improved after 3–5 days, antibiotic resistance should be considered and broadening the spectrum of coverage is appropriate. Levofloxacin is recommended in this situation**. Given the symptoms of an infectious etiology, antihistamines alone are not appropriate. While high-dose amoxicillin is recommended as a first-line therapy, it is not recommended for treatment failures. Resistance to azithromycin is fairly high after an initial antibiotic failure.
09-118. +Res+Adm. A 38-year-old female with seasonal allergies presents with a 10-day history of sinus pain and purulent nasal drainage, along with temperature elevations up to 102°F (39°C). She has been taking nonprescription loratidine (Claritin), but says it provides little relief. She asks you to prescribe an antibiotic. Which one of the following would be most appropriate at this point? A) Continuation of symptomatic treatment only B) In-office nasal irrigation C) Amoxicillin D) Azithromycin (Zithromax) E) Imaging of the sinuses	Rhinosinusitis. **09-118. ANS=C.** The American Academy of Otolaryngology published guidelines for the diagnosis and management of rhinosinusitis in adults in 2007. They cite reasonable evidence for initiating antibiotic treatment in patients with symptoms persisting for 7–10 days that are not improving or worsening (SOR B). **Amoxicillin should be the first-line agent, with azithromycin or trimethroprim/ sulfamethoxazole recommended for penicillinallergic patients.** Broader-spectrum antibiotics such as fluoroquinolones should be reserved for treatment failures. Imaging is indicated only if other etiologies are being considered or if the problem is recurrent.
08-150. +Int+Adm. A 20-year-old female presents with a sudden onset of fever, chills, and headache of 2 days' duration, and now has a pink blanching rash. The rash covers most of her body, including the palms of her hands and the soles of her feet, but not including her face. She recently returned from a camping trip, but has had no recent contact with anyone who has been ill. Which one of the following would be the most appropriate treatment for this patient's symptoms? A) Doxycycline (Adoxa), 100 mg twice daily for 10 days B) Azithromycin (Zithromax), 500 mg daily for 3 days C) Cephalexin (Keflex), 500 mg twice daily for 10 days D) Penicillin, 500 mg twice daily for 10 days E) Reassurance	Rickettsial illness**. 08-150. ANS=A.** This is a classic description of rickettsial illness: a history of outdoor activity, the sudden onset of fever, chills, and rash on the palms of the hands and the soles of the feet. Penicillin, cephalexin, and azithromycin do not cover rickettsia. Reassurance would be inappropriate because this condition can be life threatening and should always be treated.
09-065. +Non+Cca. A 7-year-old Hispanic female has a 3-day history of a fever of 40.0°C (104.0°F), muscle aches, vomiting, anorexia, and headache. Over the past 12 hours she has developed a painless maculopapular rash that includes her palms and soles but spares her face, lips, and mouth. She has recently returned from a week at summer camp in Texas. Her pulse rate is 140 beats/min, and her blood pressure is 80/50 mm Hg in the right arm while lying down. Which one of the following is the most likely diagnosis? A) Mucocutaneous lymph node syndrome B) Leptospirosis C) Rocky Mountain spotted fever D) Scarlet fever E) Toxic shock syndrome	Rickettsial illness**. 09-065. Rocky Mountain spotted fever. ANS=C.** While all of the diagnoses listed are in the differential, the most likely is **Rocky Mountain spotted fever** (RMSF) (SOR C). It occurs throughout the United States, but is primarily found in the South Atlantic and south central states. It is most common in the summer and with exposure to tall vegetation (e.g., while camping, hiking, or gardening), and is transmitted by ticks. The diagnosis is based on **clinical criteria that include fever, hypotension, rash, myalgia, vomiting, and headache (sometimes severe). The rash associated with RMSF usually appears 2–4 days after the onset of fever and begins as small, pink, blanching macules on the ankles, wrists, or forearms that evolve into maculopapules. It can occur anywhere on the body, including the palms and soles, but the face is usually spared. Mucocutaneous lymph node syndrome is a similar condition in children** (usually <2 years old)**, but symptoms include changes in the lips and oral cavity, such as strawberry tongue, redness and cracking of the lips, and erythema of the oropharyngeal mucosa. Leptospirosis is usually accompanied by severe cutaneous hyperesthesia.** The patient with scarlet fever usually has prominent pharyngitis and a fine, papular, erythematous rash. Toxic shock syndrome may present in a similar fashion, but usually in postmenarchal females.
09-140. +Car+Adm. A 60-year-old male complains of multiple episodes of lightheadedness over the past 3 months, saying he felt as if he might "pass out" while sitting at his desk. His past medical history and a physical examination are unremarkable. An EKG shows right bundle branch block and left anterior hemiblock. Which one of the following would be the most appropriate next step? A) Echocardiography B) Cardiac event monitoring C) Hospital admission for pacemaker insertion D) Immediate initiation of aspirin and metoprolol (Lopressor)	Right bundle branch block, left anterior hemiblock. **08-150. ANS=B.** This patient's EKG demonstrates a right bundle branch block, as well as a left anterior hemiblock. This "trifascicular block" puts the patient at risk for tachyarrhythmias and bradyarrhythmias. Given the patient's complaint of near-syncope, a heart monitoring study would be most appropriate. An echocardiogram may be helpful eventually to assess cardiac function. Although the patient is at risk for heart block, immediate hospitalization is not indicated. Uptodate:

Electrocardiogram showing characteristic changes in the precordial leads in common RBBB. The asynchronous activation of the two ventricles increases the QRS duration (0.13 sec). The terminal forces are rightward and anterior due the delayed activation of the right ventricle, resulting in an rsR' pattern in the anterior-posterior lead V1 and a wide negative S wave in the left-right lead V6 (and, not shown, in lead I).



Left anterior fascicular block:



An upright QRS complex in lead I and negative QRS complex in aVF is characteristic of a left anterior hemiblock. The QRS duration is normal.

10-104. +Non+Cel.>L* Staff members of an assisted-living facility ask for your advice regarding aerobic exercise programs for their older residents. The evidence is greatest for which one of the following benefits of physical activity in the elderly?
A) Maintaining weight after weight loss
B) Improving quality of sleep
C) Increasing bone density
D) Reducing the risk of falls

Risk of falls. **10-104. E**lderly. **ANS=D.** There is strong evidence that physical activity will prevent falls in the elderly. The evidence for maintaining weight, improving sleep, and increasing bone density is not as strong.

10-215. +Non+Cel.* The "Get Up and Go Test" evaluates for which one of the following?
A) Risk of falling
B) Effects of peripheral neuropathy
C) Kinetic tremor
D) Neurocardiogenic syncope
E) Central causes of vertigo

Risk of falls. **10-215. Mobility screening test.** The "Get Up and Go Test" is the most frequently recommended screening test for mobility. **ANS=A.** It takes less than a minute to perform and involves asking the patient to rise from a chair, walk 10 feet, turn, return to the chair, and sit down. Any unsafe or ineffective movement with this test suggests balance or gait impairment and an increased risk of falling. If the test is abnormal, referral to physical therapy for complete evaluation and assessment should be considered. Other interventions should also be considered, such as a medication review for factors related to the risk of falling.

07-233. +Mus+Euc. A 53-year-old Hispanic male presents with a 3-day history of right shoulder pain. The pain started shortly after he caught himself when he fell coming down his front steps. Radiographs of the shoulder are normal. Which one of the following, if present, would be most suggestive of a rotator cuff tear? A) Inability to flex at the elbow against resistance B) Signs of decreased arterial perfusion of the hand C) Swelling of the acromioclavicular joint D) Weakness in external rotation of the shoulder

Rotator cuff. **07-233. Tear.** Shoulder pain after a fall may result from a strained muscle or ligament, an exacerbation of a smoldering subacromial bursitis or tendinitis, or a tear of the rotator cuff. **ANS=D.** Often there is a combination of two or three of these conditions. If the rotator cuff tear is small, treatment is similar to that recommended for the other conditions. However, if a significant rupture has occurred, immobilization and/or surgical consultation is appropriate. **On physical examination, a painful arc of abduction above 90° and weakness in external rotation would be expected with a torn rotator cuff**. Of these two, **weakness in external rotation is much more specific**.


1. Supraspinatus Strength


2. Strength in External Rotation


3. Internal Impingement


4. External Impingement

In combination, four clinical shoulder tests are predictive for rotator cuff tear. These are the SERI tests for: (1) supraspinatus weakness, (2) weakness in external rotation, and (3) impingement (internal rotation and external rotation). The predictive power of this clinical test combination compares favorably with that of MRI and ultrasound for the prediction of rotator cuff tears.
http://www.ori.org.au/bonejoint/gpinfo.htm

08-084. +Mus+Csp. A 22-year-old male with no previous history of shoulder problems is injured in a fall. He has immediate pain and is unable to abduct his arm. He goes to the emergency department and an MRI reveals an acute tear of the rotator cuff. Which one of the following is the best initial treatment for this injury?

Rotator cuff. **08-084.** An acute rupture of any major tendon should be repaired as soon as possible. **ANS=E.** Acute tears of the rotator cuff should be repaired within 6 weeks of the injury if possible (SOR C). Nonsurgical management is not recommended for active persons. Observing for an extended period will likely lead to retraction of the detached tendon, possible resorption of tissue, and muscle

A) Observation without treatment for 1 month B) Immobilization for 1 month C) Physical therapy for 1 month D) Corticosteroid injection E) Surgical repair	atrophy.
10-098. +Mus+Csp. A 37-year-old recreational skier is unable to lift his right arm after falling on his right side with his arm elevated. Radiographs of the right shoulder are negative, but diagnostic ultrasonography shows a complete rotator cuff tear. Which one of the following is most accurate with regard to treatment? A) Surgery is most likely to be beneficial if performed less than 6 weeks after the injury B) Treatment with NSAIDs for 3 months is recommended before further intervention C) Subacromial corticosteroid injections will provide functional and symptomatic relief in the majority of patients D) Surgical repair of rotator cuff tears to restore function is necessary only in geriatric patients E) Therapeutic ultrasound of the shoulder will make the condition tolerable during spontaneous healing	Rotator cuff. **10-098.** Tear. Surgery for rotator cuff tears is most beneficial in young, active patients. **ANS=A.** In cases of acute, traumatic, complete rotator cuff tears, repair is recommended in less than 6 weeks, as muscle atrophy is associated with reduced surgical benefit (SOR B). Advanced age and limited strength are also associated with reduced surgical benefit. NSAIDs are used for analgesia. Their benefit has not been shown to exceed that of other simple analgesics, and the side-effect profile may be higher. Corticosteroid injections will not improve a complete tear. Some experts also recommend avoiding their use in partial or complete tendon tears. Therapeutic ultrasound does not add to the benefit from range-of-motion exercises and exercises to strengthen the involved muscle groups.
08-204. +Pbc+Cca. Which one of the following is true regarding the schedule for administering rotavirus vaccine? A) The first dose should be given prior to 12 weeks of age B) The vaccine should be given at 2 months, 6 months, and 12 months of age C) A catch-up vaccination can be administered up to 3 years of age D) The minimum time between doses is 2 weeks	Rotavirus. **08-204.** Vaccine. Rotavirus vaccine is an oral vaccine recommended for infants in a 3-dose schedule at ages 2, 4, and 6 months. **ANS=A.** The first dose should be given between 6 and 12 weeks of age, with additional doses given at 4- to 10-week intervals. The vaccine cannot be initiated after 12 weeks of age and should not be administered after 32 weeks of age. The first rotavirus vaccine was taken off the market in 1999 after an increased risk of intussusception was noted in infants when the first dose of the vaccine was given after 12 weeks of age. Because of this, the two vaccines licensed in 2006 carry the recommendation that the vaccine not be initiated in infants over 12 weeks of age. There is no data regarding safety and efficacy after this age.
08-228. +Gas+Cca. The mother of an 11-month-old male asks about the viral gastroenteritis vaccine. You advise that it is A) routinely given at the 12-month visit B) associated with an increased risk for intussusception C) initiated at 6–12 weeks of age D) indicated only for immunocompromised children E) indicated only for children attending day care	Rotavirus. **08-228.** Vaccine. Rotavirus vaccine (RotaTeq) was licensed in February 2006 to protect against viral gastroenteritis. **ANS=C.** The Advisory Committee on Immunization Practices recommends the routine vaccination of infants with three doses to be given at 2, 4, and 6 months of age. The first dose should be given between 6 and 12 weeks of age, and subsequent doses should be given at 4- to 10-week intervals, but all three doses should be administered by 32 weeks of age. Unlike the vaccine RotaShield, which was marketed in 1999, RotaTeq is not known to increase the risk for intussusception.
10-106. +Pbs+Cca.>L**?*** You see a newly adopted 5-month-old for his first well child visit. The parents ask when the child can sit in a safety seat in the car facing forward. You would advise that the child should face rearward until he is at least A) 12 months of age AND weighs 20 lb B) 15 months of age AND weighs 25 lb C) 15 months of age OR weighs 25 lb D) 18 months of age AND weighs 30 lb E) 18 months of age OR weighs 30 lb	Safety seat. **10-106. ANS=A.** If a child faces forward in a crash, the force is distributed via the harness system across the shoulders, torso, and hips, but the head and neck have no support. Without support, the infant's head moves rapidly forward in flexion while the body stays restrained, causing potential injury to the neck, spinal cord, and brain. In a rear-facing position, the force of the crash is distributed evenly across the baby's torso, and the back of the child safety seat supports and protects the head and neck. For these reasons, **the rear-facing position should be used until the child is at least 12 months old and weighs at least 20 lb (9 kg).** For example, a 13-month-old child who weighs 19 lb should face rearward, and a 6-month-old child who weighs 21 lb should also face rearward.
07-050. +Int+Com. Which one of the following is true concerning scabies? A) It is typically spread by contact with infected bedding B) The classic diagnostic sign is the mite burrow C) The distribution of lesions is the same in adults and children D) The absence of a history of itching among family members excludes the diagnosis E) Recurrence of symptoms after treatment indicates another diagnosis	Scabies**. 07-050.** The mite burrow confirms the diagnosis of scabies, but can be missed if the skin is excoriated. **ANS=B.** Scabies spreads by direct skin contact, and is seldom spread by transfer from bedding. Children frequently have scabies lesions on the face or neck, while this rarely happens in adults. Scabies infections usually cause itching among several family members, but they may not admit it. Scabies can recur after treatment, usually because of incorrect or insufficient application of the treatment.
09-164. +Int+Adm. Which one of the following is the preferred treatment for scabies? A) Topical benzoyl peroxide, 10% B) Topical crotamiton (Eurax), 10% C) Topical permethrin (Elimite), 5% D) Topical lindane, 1% E) Oral ivermectin (Stromectol), 200 mg	Scabies. **09-164.** Permethrin and lindane are the two most studied topical treatments for scabies. **ANS=C. A Cochrane meta-analysis of four randomized trials comparing these agents indicates that a single overnight application of permethrin is more effective than lindane** (odds ratio for clinical failure, 0.66; 95% confidence interval, 0.46–0.95). The potential neurotoxicity of lindane, especially with repeated applications, has limited its use. Other topical treatments include benzoyl benzoate and crotamiton. Crotamiton has significantly less efficacy than permethrin at 4 weeks (61% versus 89%). Several controlled trials have assessed the efficacy of a single dose of ivermectin (200 _g/kg) for the treatment of scabies. In one placebo-controlled trial, 37 of 50 patients treated with ivermectin (74%) were cured.
08-151. +Psy+Mhe A previously healthy 27-year-old female has had a progressive decline in social and occupational functioning over the past year, along with a withdrawal from activities. In addition, her family notes that over the past 4 months she has had paranoid delusions, exhibited disorganized speech, and heard voices. She has not had any major depressive or manic episodes. A physical examination reveals a disheveled female with a flat affect, poor eye contact, and loosely-associated speech. A toxicology screen and basic laboratory analysis are unremarkable. She is not on any medications. Which one of the following is the most likely diagnosis?	Schizophrenia**. 08-151. ANS=C.** The diagnosis of schizophrenia requires two or more of the following characteristic symptoms (each present for a significant portion of time during a 1-month period): delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behavior, and negative symptoms (i.e., affective flattening, alogia, or avolition). In addition, one or more major areas of functioning, such as work, interpersonal relationships, or self-care, should be markedly below the level seen prior to the onset of symptoms. Schizoaffective and mood disorders, substance abuse, medical illness or medication-induced disorders, and pervasive developmental disorders should be ruled out. Brief psychotic

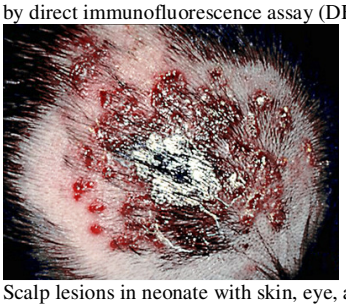
A) Brief psychotic disorder B) Delirium C) Schizophrenia D) Mood disorder with psychotic features E) Delusional disorder	disorder is characterized by the presence of delusions, hallucinations, disorganized speech, or grossly disorganized or catatonic behavior lasting at least 1 day but less than 1 month. Delirium may present with psychotic symptoms but is the direct physiologic consequence of a general medical condition and usually has a much shorter course. Mood disorders with psychotic features can be ruled out if no major depressive, manic, or mixed episodes have occurred concurrently with the active-phase symptoms, or if the duration of mood disturbance is brief compared to the overall duration of active and residual symptoms. Delusional disorder does not cause bizarre delusions and also lacks other characteristic symptoms of schizophrenia such as hallucinations, disorganized speech or behavior, or prominent negative symptoms.
07-172. +Psy+Mhe. Which one of the following statements is true regarding the use of light therapy to treat seasonal affective disorder? A) It generally is most effective when administered in the morning B) Duration of exposure to light is the main determinant of efficacy C) It is not known to precipitate mania D) Any light source may be used for treatment	Seasonal affective disorder. **07-172. Light therapy generally is most effective when administered in the morning**. **ANS=A.** Early morning light helps regulate the circadian pattern of melatonin secretion, whereas light in the evening can delay the normal melatonin phase shift. **The dosage of light therapy most often found to be effective is 5000 lux daily. This can be given as 2500 lux for 2 hours or 10,000 lux for 30 minutes**. Like drug therapy for depression, light therapy does carry a risk of precipitating mania. Patients should be instructed to use light therapy units that are specifically designed for treatment of seasonal affective disorder. Other light sources may not provide adequate brighypertensioness or ultraviolet light filtration.
09-113. +Neu+Euc. A 32-year-old female experiences an episode of unresponsiveness associated with jerking movements of her arms and legs. Which one of the following presentations would make a diagnosis of true seizure more likely? A) Post-event confusion B) Eye closure during the event C) A history of fibromyalgia D) A history of chronic back pain E) A normal serum prolactin level after the event	Seizure vs. pseudoseizures. **09-113. ANS=A.** Up to 20% of patients diagnosed with epilepsy actually have pseudoseizures. Eye closure throughout the event is uncommon in true seizures, and a history of fibromyalgia or chronic pain syndrome is predictive of pseudoseizures. If obtained within 20 minutes of the event, a serum prolactin level may be useful in differentiating a true seizure from a pseudoseizure. An elevated level has a sensitivity of 60% for generalized tonic-clonic seizures and 46% for complex partial seizures. Other features suggestive of seizure activity include tongue biting, the presence of an aura, postictal confusion, and focal neurologic signs.
07-132. +Neu+Euc. A 36-year-old male with a history of a seizure disorder is brought to the emergency department with generalized tonic-clonic activity. Emergency medical personnel report this has been ongoing for 15 minutes. After initial resuscitative measures, the preferred medication in this situation is A) phenytoin (Dilantin) B) fosphenytoin (Cerebyx) C) diazepam (Valium) D) lorazepam (Ativan) E) valproate sodium (Depacon)	Seizure. **07-132.** Status epilepticus**. ANS=D.** This patient presents in status epilepticus. Although diazepam has long been an effective treatment, lorazepam has emerged as the preferred agent because of pharmacologic properties that should give it a longer duration of action than diazepam. Phenytoin and fosphenytoin are limited by potentially serious adverse effects, such as hypotension. Valproic acid is not FDA approved for status epilepticus. Hint: **Lor**(d)azepam is the **Lor**d of treatment of generalized tonic-clonic seizures.
07-161. +Neu+Cel. A 75-year-old male is brought to your office 1 month after a stroke that involved the left anterior cerebral artery, manifested by leg weakness, initial incontinence, and slowness in mentation. He experienced seizure activity on the second day after his stroke, but this was controlled by phenytoin (Dilantin). He has improved significantly and is now ambulatory. His family states that he now has episodic confusion, sleepiness, and clumsiness, which is preceded by paresthesias and dizziness, although no tonic-clonic activity has been noted. He remains very drowsy for several hours after these episodes. He was wearing a cardiac monitor during one episode, but it showed nothing remarkable. His phenytoin level is therapeutic, and a CBC, metabolic profile, and magnesium level are all normal. Which one of the following would be the most appropriate next step? A) Discontinue the phenytoin B) Add phenobarbital to the phenytoin C) Begin bupropion (Wellbutrin) D) Begin modafinil (Provigil) E) Begin lamotrigine (Lamictal)	Seizure. **07-161.** Epilepsy geriatric population. **ANS=E.** Up to 50% of cases of epilepsy in the geriatric population result from cerebrovascular disease. Risk factors for post-stroke epilepsy include cortical involvement, hemorrhage, and large size. Approximately 35% of those who experience an acute stroke-related seizure develop post-stroke epilepsy, compared to only 9% of those who do not have acute seizure activity. **The most common seizures in the elderly are complex partial seizures, but they do not have the typical presentation seen in younger people (aura, déjà vu, olfactory hallucinations)**. **Geriatric patients are more likely to have nonspecific preceding symptoms, such as vaguely localized paresthesias, dizziness, and muscle cramps.** Those present may note episodic confusion, drowsiness, or clumsiness more than tonic-clonic movements. The postictal state is likely to be prolonged in the elderly. Misdiagnosis of these seizures is very common, with the diagnosis often delayed as much as 2 years from the time of the stroke. **The most valuable diagnostic tool is a reliable history from those who witness the event.** Treating seizures in the elderly by using anti-epileptic drugs (AEDs) is complicated by a number of factors. Pharmacokinetics are influenced by decreases in hepatic metabolism, renal elimination, plasma proteins, and protein binding. Many elderly patients are on a multiple-medication regimen that increases the risk of drug interactions, and many AEDs are enzyme inducing, which increases the risk of osteoporosis. The elderly also are more sensitive to side effects. The choice of AEDs should be individualized, **although many experts suggest early use of newer AEDs such as topiramate, gabapentin, lamotrigine, or levetiracetam because of fewer side effects and better pharmacokinetics.** Monotherapy is preferred, if possible, and older drugs are less expensive, but limited by side effects. In the case described here, the patient is having **breakthrough seizures despite therapeutic levels of phenytoin. Switching to lamotrigine would be preferable and is less likely to cause side effects**. When transitioning from one agent to another it would be best to gradually decrease the phenytoin rather than abruptly discontinuing it. The addition of phenobarbital would further increase drowsiness. Bupropion and modafinil may actually increase seizures.
08-053. +Neu+Cca. You see a 20-month-old male approximately 1 hour after he had a generalized seizure that lasted 2–3 minutes according to his mother. His past medical history is unremarkable except for two episodes of otitis media. On examination his temperature is 38.9°C (102.0°F), and he is awake, interactive, and consolable, with obvious otitis media of the left ear. A neurologic examination is unremarkable, and there are no meningeal signs. Which one of the following would be most appropriate at this point?	Seizure. **08-053. F**ebrile. This patient had a classic simple febrile seizure and no additional diagnostic studies are recommended. **ANS=E.** A lumbar puncture following a seizure is not routinely recommended in a child over 18 months of age, since by that age a patient with meningitis would be expected to demonstrate meningeal signs and symptoms or clinical findings suggesting an intracranial infection. There is no evidence to suggest that routine blood tests or neuroimaging studies are useful in a patient following a first simple febrile seizure, and it has not

A) Lumbar puncture B) Electroencephalography C) Neuroimaging studies D) Serum levels of electrolytes, calcium, phosphate, and magnesium, plus a blood glucose level and a CBC E) No diagnostic studies at this time	been shown that electroencephalography performed either at the time of presentation or within the following month will predict the likelihood of recurrence.
10-021. +Psy+Mhe**.** >L* The preferred method for diagnosing psychogenic nonepileptic seizures is A) inducing seizures by suggestion B) postictal prolactin levels C) EEG monitoring D) video-electroencephalography (vEEG) monitoring E) brain MRI	Seizures. **10-021. P**sychogenic nonepileptic. **ANS=D.** Inpatient **video-electroencephalography (vEEG) monitoring is the preferred test for the diagnosis of psychogenic nonepileptic seizures** (PNES), and is considered the gold standard (SOR B). Video-EEG monitoring combines extended EEG monitoring with time-locked video acquisition that allows for analysis of clinical and electrographic features during a captured event. Many other types of evidence have been used, including the presence or absence of self-injury and incontinence, the ability to induce seizures by suggestion, psychologic tests, and ambulatory EEG. While useful in some cases, these alternatives have been found to be insufficient for the diagnosis of PNES. **Elevated postictal prolactin levels (at least two times the upper limit of normal) have been used to differentiate generalized and complex partial seizures from PNES, but are not reliable** (SOR B). While prolactin levels are often elevated after an epileptic seizure, they do not always rise, and the timing of measurement is crucial, making this a less sensitive test than was previously believed. Other serum markers have also been used to help distinguish PNES from epileptic seizures, including creatine phosphokinase, cortisol, WBC counts, lactate dehydrogenase, pCO2 , and neuron-specific enolase. These also are not reliable, as threshold levels for abnormality, sensitivity, and specificity have not been determined. MRI is not reliable because abnormal brain MRIs have been documented in as many as one-third of patients with PNES. In addition, patients with epileptic seizures often have normal brain MRIs.
10-189. +Neu+Adm. Which one of the following should be given intravenously in the initial treatment of status epilepticus? A) Propofol (Diprivan) B) Phenobarbital C) Lorazepam (Ativan) D) Midazolam (Versed)	Seizures. **10-189.** Status epilepticus refers to continuous seizures or repetitive, discrete seizures with impaired consciousness in the interictal period. **ANS=C.** It is an emergency and must be treated immediately, since cardiopulmonary dysfunction, hyperthermia, and metabolic derangement can develop, leading to irreversible neuronal damage. Lorazepam, 0.1–0.15 mg/kg intravenously, should be given as anticonvulsant therapy after cardiopulmonary resuscitation. This is followed by phenytoin, given via a dedicated peripheral intravenous line. Fosphenytoin, midazolam, or phenobarbital can be used if there is no response to lorazepam. Propofol has been used for refractory status epilepticus to induce general anesthesia when the initial drugs have failed, but reports of fatal propofol infusion syndrome have led to a decline in its use.
09-010. +Non+Adm. Which one of the following serum proteins is typically DECREASED in a hospitalized patient with sepsis? A) Complement C3 B) Ferritin C) C-reactive protein (CRP) D) Albumin E) Fibrinogen	Sepsis. **09-010. A***cute phase response,* refers to the multiple physiologic changes that occur with tissue injury. **The synthesis of acute-phase proteins by hepatocytes is altered,** leading to **decreased** serum **levels of** several of these proteins, including **albumin and transferrin**. Serum levels **rise for other proteins, such as ceruloplasmin, complement proteins, haptoglobin, fibrinogen, and C-reactive protein. Serum levels of ferritin may be extremely** high in certain conditions, but are also influenced by total-body iron stores.
09-128. +Nep+Cel. A 72-year-old female is admitted to the hospital after having surgery for a hip fracture. Her previous medical history is significant for hypertension and type 2 diabetes mellitus. Two days after admission the orthopedic surgeon consults with you because the patient has had several hours of fever to 39°C (102°F); tachycardia, with a pulse rate of 120 beats/min; and systolic blood pressures of 91–97 mm Hg (baseline 120–140 mm Hg with medication). When you examine the patient she says she feels weak and chilled but she is alert. Her oxygen saturation is excellent on room air, and a physical examination is normal except for the sinus tachycardia and low blood pressure. A urinary catheter is in place, but there has been little output over the last 4 hours. Her renal function was normal prior to her hospitalization. A chest radiograph is normal. Her electrolyte levels are normal, but laboratory tests reveal the following abnormal results: WBCs 2500/mm3 (N 5000–10,000), BUN 50 mg/dL (N 10–15), Creatinine 2.3 mg/dL (N 0.6–1.0), Bicarbonate 18 mmol/L (N 22–30), Urinalysis: Specific gravity >1.030 (N 1.003–1.040), WBCs >100/hpf, RBCs 10–20/hpf, Epithelial cells 3–5/hpf, Casts few hyaline. In addition to antibiotics, which one of the following would be the most appropriate management of this patient's problem? A) High-rate intravenous normal saline B) Intravenous furosemide, 40 mg every 6 hours C) Intravenous dopamine, 2–4 :g/kg/min D) Intravenous sodium bicarbonate E) Urgent nephrology consultation for dialysis	Sepsis. **09-128. ANS=A.** This patient appears to be experiencing sepsis syndrome due to urinary infection. The renal failure that has resulted is almost certainly due to low perfusion of the kidneys (prerenal azotemia). This condition requires aggressive intravenous fluids to halt and reverse the reduction in nephrologic function. At times, this underperfusion can result in acute tubular necrosis (an intrinsic renal dysfunction) that may prevent excretion of any excess fluid, so the patient's fluid status should be monitored carefully. Metabolic acidosis will likely reverse with appropriate hydration, and sodium bicarbonate should be reserved for severe acidosis (<10–15 mmol/L) or for those with chronic kidney disease. Low-dose dopamine has been proven to be ineffective in acute renal failure, and this patient does not have an indication for dialysis. Intravenous furosemide is contraindicated.
10-087. +Mus+Cca**.**>L* An 8-year-old female is brought to your office because she has begun to limp. She has had a fever of 38.8°C (101.8°F) and says that it hurts to bear weight on her right leg. She has no history of trauma. On examination, she walks with an antalgic gait and hesitates to bear weight on the leg. Range of motion of the right hip is limited in all directions and is painful. Her sacroiliac joint is not tender, and the psoas sign is negative. Laboratory testing reveals an erythrocyte sedimentation rate of 55 mm/hr (N 0–10), a WBC count of 15,500/mm (N 4500–13,500), and a C-reactive 3 protein level of 2.5 mg/dL (N	Septic arthritis**. 10-087. ANS=D.** This child meets the criteria for possible septic arthritis. In this case ultrasonography is recommended over other imaging procedures. It is highly sensitive for detecting effusion of the hip joint. If an effusion is present, urgent ultrasound-guided aspiration should be performed. Bone scintigraphy is excellent for evaluating a limping child when the history, physical examination, and radiographic and sonographic findings fail to localize the pathology. CT is indicated when cortical bone must be visualized. MRI provides excellent visualization of joints, soft tissues, cartilage, and medullary

0.5–1.0). Which one of the following will provide the most useful diagnostic information to further evaluate this patient's problem? A) MRI B) CT C) A bone scan D) Ultrasonography E) Plain-film radiography	bone. It is especially useful for confirming osteomyelitis, delineating the extent of malignancies, identifying stress fractures, and diagnosing early Legg-Calvé-Perthes disease. Plain film radiography is often obtained as an initial imaging modality in any child with a limp. However, films may be normal in patients with septic arthritis, providing a false-negative result.
07-047. +Car+Euc. A 73-year-old Hispanic male presents to the emergency department with a 3-day history of abdominal and right flank pain. He is lethargic and pale, and his skin is clammy. His blood pressure is 86/30 mm Hg, pulse 106 beats/min, and temperature 38.6E C (101.5E F). His chest is clear and no murmurs are heard. He responds to painful stimuli. The abdomen is soft with no guarding or rebound. Immediate fluid resuscitation is begun and after an hour he has received 2 L of normal saline. In that hour he has had a urine output of only 30 cc. A chest film and an EKG are normal. Laboratory Findings WBCs. . . . . 15,500/mm3 (N 4300–10,800) Platelets. . . . . 70,000/mm3 (N 150,000–300,000) Base deficit. . . . . 13 mEq/L Serum pH. . . . . 7.21 (N 7.35–7.45) Urinalysis. . . . . packed WBCs, 3+ bacteria Which one of the following is most likely to enhance survival in this patient? A) Low-dose dopamine B) Recombinant human activated protein C (Xigris) C) Antithrombin D) Bicarbonate E) Erythropoietin	Septic shock**. 07-047. ANS=B.** This clinical scenario should lead one to think of septic shock. Recent comprehensive investigations and reviews have demonstrated that the use of recombinant activated protein C in patients with severe sepsis and a high risk for death does improve survival. Low-dose dopamine should not be used for maintenance or improvement of renal function. Antithrombin administration is not recommended for the treatment of severe sepsis and septic shock. As a specific treatment for anemia associated with severe sepsis, erythropoietin has not been shown to be of benefit. There is no evidence to support the use of bicarbonate in the treatment of hypoperfusion-induced acidemia associated with sepsis.
10-061. +Psy+Mhe**.>**L* A patient who takes fluoxetine (Prozac), 40 mg twice daily, develops shivering, tremors, and diarrhea after taking an over-the-counter cough and cold medication. On examination he has dilated pupils and a heart rate of 110 beats/min. His temperature is normal. Which one of the following medications in combination with fluoxetine could contribute to this patient's symptoms? A) Dextromethorphan B) Pseudoephedrine C) Phenylephrine D) Guaifenesin E) Diphenhydramine (Benadryl)	Serotonin syndrome. **10-061.** SSRI and Dextromethorphan interaction. Dextromethorphan is commonly found in cough and cold remedies, and is associated with serotonin syndrome. **ANS=A.** SSRIs such as fluoxetine are also associated with serotonin syndrome, and there are many other medications that increase the risk for serotonin syndrome when combined with SSRIs. The other medications listed here are not associated with serotonin syndrome, however.
07-209. +Ref+Cfp. Which one of the following is most important in the assessment and diagnosis of sexual dysfunction in women? A) A detailed history B) A physical examination C) An estradiol level D) A prolactin level E) A testosterone level	Sexual dysfunction. **07-209. W**omen. **ANS=A.** A detailed history is the main tool for the assessment and diagnosis of sexual dysfunction, and is usually obtained from both partners. A physical examination, including a pelvic examination, is part of routine care, but it infrequently identifies a cause of sexual dysfunction. The possibility that laboratory testing will identify causes of sexual dysfunction is low.
07-215. +Sen+Cca. A 4-month-old male is brought to your office for evaluation of "bloodshot eyes" of 2 days' duration. He is otherwise well. He was born at 35 weeks gestation, weighed 2550 g (5 lb 10 oz), and was discharged the day after his birth. He has received well child care and immunizations at the local public health clinic. Examination confirms bilateral subconjunctival hemorrhages. Except for moderate irritability, the remainder of the examination is unremarkable. There is no known family history of bleeding disorders. An urgent evaluation by an ophthalmologist is requested, and it reveals bilateral retinal hemorrhaging. Which one of the following is the most likely diagnosis? A) Acute thrombocytopenia, cause to be determined B) Hemophilia, type to be determined C) Retinopathy of prematurity D) Nonaccidental trauma E) Childhood glaucoma	Shaken infant syndrome**. 07-215. ANS=D.** Nonaccidental trauma, so-called shaken infant syndrome, is by far the most likely diagnosis in this case. Retinal hemorrhages are usually diagnostic when there is any reason to suspect this syndrome. Classic ocular findings include retinal or vitreous hemorrhages seen on funduscopic examination. Intraocular hemorrhages are reported in 65%–90% of cases. Other ocular manifestations include subconjunctival hemorrhages, eyelid ecchymosis, and retinal detachment. Acute thrombocytopenia would have other symptoms and signs, such as easy bruisability and petechiae. Hemophilia is familial and presents with bleeding in the joints or postoperatively. Retinopathy of prematurity usually is found in children with a birth weight <1500 g (3 lb 5 oz) and/or a gestational age □28 weeks. Normal retinal angiogenesis has ceased in these patients, and hyperproliferative neovascularization can lead to retinal detachment and blindness. Childhood glaucoma does not present with hemorrhagic symptoms, but with buphthalmos, or "ox eye," due to enlargement of the cornea with increased intraocular pressure.
08-001. +Res+Adm. A 30-year-old white male complains of several weeks of nasal stuffiness, purulent nasal discharge, and facial pain. He does not respond to a 3-day course of trimethoprim/ sulfamethoxazole (Bactrim, Septra). Follow-up treatment with 2 weeks of amoxicillin/ clavulanate (Augmentin) is similarly ineffective. Of the following diagnostic options, which one is most appropriate at this time? A) Pulmonary function testing B) Coronal CT of the sinuses C) Culture and sensitivity testing of the discharge D) Erythrocyte sedimentation rate	Sinusitis. **08-001. Acute. ANS=B.** This patient has a clinical presentation consistent with acute sinusitis. Failure to respond to adequate antibiotic therapy suggests either a complication, progression to chronic sinusitis, or a different, confounding diagnosis. The diagnostic procedure of choice in this situation is coronal CT of the sinuses, due to its increased sensitivity and competitive cost when compared with standard radiographs. Cultures of the nasal discharge give unreliable results because of bacterial contamination from the resident flora of the nose. The other options listed do not contribute to the diagnosis and treatment of sinusitis.
08-042. +Res+Adm. A 27-year-old male presents with what he thinks is a sinus infection. He has a 2-day history of right maxillary pain associated with nasal congestion and clear rhinorrhea. The only significant findings on examination are a low-grade fever and subjective tenderness with palpation over the right maxillary sinus. Which one of the following treatments is most supported by current evidence?	Sinusitis. **08-042. A**cute. **ANS=D.** Although oral antibiotics are overwhelmingly prescribed as initial treatment in acute sinusitis, it has been shown that the majority of acute illnesses are viral in origin and that 98% of cases will resolve spontaneously. Analgesics are considered the mainstay of therapy for acute sinusitis, according to evidence-based recommendations (SOR A). Other treatments should be considered if symptoms are prolonged (>7 days) or

A) Antihistamines B) Oral decongestants C) Topical vasoconstrictor sprays D) Oral analgesics E) Nasal lavage	severe (two or more localizing symptoms or signs of serious bacterial complications). There is little evidence of effectiveness for antihistamines, oral decongestants, or vasoconstrictor sprays. There is also little evidence of effectiveness for nasal lavage in acute sinusitis, although it has an emerging role in chronic sinusitis.
07-191. +Int+Csp. A 56-year-old male had a 1-cm basal cell carcinoma resected from his temple area. The pathology report shows that cancer is present in one of the margins of the specimen. Which one of the following would be the most appropriate next step? A) Observation of the area and reexcision if a suspicious lesion recurs B) Topical imiquimod (Aldara) C) Cryosurgery of the affected area D) Curettage and electrodesiccation of the affected area E) Surgical reexcision	Skin condition in adults. **07-191.** Basal cell carcinomas**. ANS=E.** **Surgical reexcision is the preferred method of treatment for residual basal cell carcinomas, especially around the face**. Imiquimod is not recommended for treating lesions on the head or face. Cryotherapy and curettage with electrodesiccation are recommended as primary treatments, but would not be appropriate in this case because lesions on the central part of the face are at risk for extensive subclinical spread.
08-212. +Int+Adm. A 65-year-old white male comes to your office with a 0.5-cm nodule that has developed on his right forearm over the past 4 weeks. The lesion is dome shaped and has a central plug. You schedule a biopsy but he does not return to your office for 1 year. At that time the lesion appears to have healed spontaneously. The most likely diagnosis is A) benign lentigo B) lentigo maligna C) basal cell carcinoma D) squamous cell carcinoma E) keratoacanthoma	Skin condition in adults. **08-212.** Keratoacanthoma grows rapidly and may heal within 6 months to a year. **ANS=E.** Squamous cell carcinoma may appear grossly and histologically similar to keratoacanthoma but does not heal spontaneously. The other lesions do not resemble keratoacanthoma.
09-239. +Int+Cel. A 90-year-old female nursing-home patient has a 1.5×2.0-cm lesion on her face (shown in **Figure**). She states that the "spot" has been present for years and that it doesn't bother her. Closer examination reveals a flat maculopapular lesion with varying colors and an irregular border. Which one of the following is the most likely diagnosis? A) Actinic keratosis B) Metastatic breast carcinoma C) Seborrheic keratosis D) Lentigo maligna melanoma E) Basal cell carcinoma 	Skin condition in adults. **09-239.** Melanoma, malignant**. ANS=D.** This patient has a malignant melanoma, often called lentigo maligna melanoma. These lesions typically appear during the seventh or eighth decade of life, and are most often located on the face. This patient's age, health status, and wishes must be considered in any treatment plans. The other skin lesions listed can be seen in this age group, but they are easily distinguished from this malignant lesion.
10-103. +Ref+Cfp.>L A 54-year-old female presents with a 2-month history of intense vulvar itching that has not improved with topical antifungal treatment. On examination you note areas of white, thickened, excoriated skin. Concerned about malignancy you perform punch biopsies, which reveal lichen sclerosus. The treatment of choice for this condition is topical application of A) conjugated estrogens B) fluorinated corticosteroids C) petrolatum D) 2% testosterone E) fluorouracil (Efudex)	Skin condition in adults. **10-103.** Lichen sclerosus is a chronic, progressive, inflammatory skin condition found in the anogenital region. **ANS=B.** It is characterized by intense vulvar itching. The treatment of choice is high-potency topical corticosteroids. Testosterone has been found to be no more effective than petrolatum. Fluorouracil is an antineoplastic agent most frequently used to treat actinic skin changes or superficial basal cell carcinomas.
10-179. +Int+Adm. Actinic keratoses of the skin may progress to A) nodular basal cell cancer B) pigmented basal cell cancer C) squamous cell cancer D) Merkel cell cancer E) malignant melanoma	Skin conditions in adults. **10-179.** Actinic keratoses are scaly lesions that develop on sun-exposed skin, and are believed to be carcinoma in situ. **ANS=C.** While most actinic keratoses spontaneously regress, others progress to squamous cell cancers.
08-003. +Int+Cca. A newborn male has a skin eruption on his forehead, nose, and cheeks. The lesions are mostly closed comedones with a few open comedones, papules, and pustules. No significant erythema is seen. Which one of the following is the most likely diagnosis? A) Erythema toxicum neonatorum B) Localized superficial *Candida* infection C) Herpes simplex D) Milia E) Acne neonatorum **Uptodate:**	Skin conditions in children. **08-003.** Acne neonatorum occurs in up to 20% of newborns. **ANS=E.** It typically consists of closed comedones on the forehead, nose, and cheeks, and is thought to result from stimulation of sebaceous glands by maternal and infant androgens. Parents should be counseled that lesions usually resolve spontaneously within 4 months without scarring. Findings in erythema toxicum neonatorum include papules, pustules, and erythema. *Candida* and herpes lesions usually present with vesiculopustular lesions in the neonatal period. Milia consists of 1- to 2-mm pearly keratin plugs without erythema, and may occur on the trunk and limbs. **Uptodate:** **Acne neonatorum**-Once thought to be caused by stimulation of sebaceous glands by maternal and endogenous androgens, many authors doubt that it is true acne and now call it neonatal cephalic pustulosis [8]. An inflammatory reaction to skin colonization with Malassezia species has been proposed, especially in severe cases. In the majority of cases, neonatal cephalic pustulosis is mild and can be treated with daily cleansing with soap and water and

The early, untreated skin lesions associated with neonatal HSV infection are characteristically clear vesicles on an erythematous base, often touching or "kissing" or coalesced in groups of vesicles. Culture of the clear fluid aspirated or swabbed from the vesicles will readily grow HSV in 24 to 48 hours, and slides made from cells scraped from the base of the lesion will show HSV viral antigens by direct immunofluorescence assay (DFA).



Scalp lesions in neonate with skin, eye, and mouth (SEM) neonatal herpes simplex virus infection (HSV). Gram-stained smear and bacterial cultures were negative, and the lesions did not respond to topical and systemic antibiotics. Viral cultures grew HSV type 2, and the lesions responded to intravenous acyclovir.

— Milia are white papules caused by retention of keratin and sebaceous material in the pilaceous follicles. They are frequently found on the nose and cheeks, and resolve in the first few weeks of life.

avoidance of exogenous oils and lotions [12]. No additional treatment is needed since neonatal cephalic pustulosis usually resolves spontaneously within four months without scarring [12]. Application of 2 percent ketoconazole cream twice daily [13] or 1 percent hydrocortisone cream once daily may expedite clearance of lesions. Affected newborns do not appear to have a greater risk of acne in adolescence.

Erythematous pustular rash on cheeks of a 3-week-old neonate.

Uptodate: Erythema toxicum neonatorum (ETN) occurs in 31 to 72 percent of full-term infants but declines in incidence with decreasing birth weight and gestational age [1]. The etiology is not known, but immaturity of the pilosebaceous follicles (the combined sebaceous gland and hair follicle) may contribute [2]. ETN is **characterized by multiple erythematous macules and papules (1 to 3 mm in diameter) that rapidly progress to pustules on an erythematous base** (picture 1) [3]. **The lesions are distributed over the trunk and proximal extremities, sparing the palms and soles.** They may be present at birth, but typically appear within 24 to 48 hours. The rash usually resolves in five to seven days, although it may wax and wane before complete resolution [1]. The diagnosis of ETN is usually made upon the basis of clinical appearance. It can be confirmed by microscopic examination of a Wright-stained smear of the contents of a pustule that demonstrates numerous eosinophils and occasional neutrophils. However, this usually is not necessary. A minority of patients (7 to 18 percent) may also have peripheral eosinophilia.

This healthy newborn developed a diffuse transient eruption comprised of red macules with central pinpoint whitish-yellow papules and pustules on the second day of life.

10-005. +Int+Cca**.** >L* During rounds, you notice a new rash on a full-term 2-day-old white female. It consists of 1-mm pustules surrounded by a flat area of erythema, and is located on the face, trunk, and upper arms. An examination is otherwise normal, and she does not appear ill. Which one of the following is the most likely diagnosis?

A) Erythema toxicum neonatorum
B) Transient neonatal pustular melanosis
C) Acne neonatorum
D) Systemic herpes simplex
E) *Staphylococcus aureus* sepsis

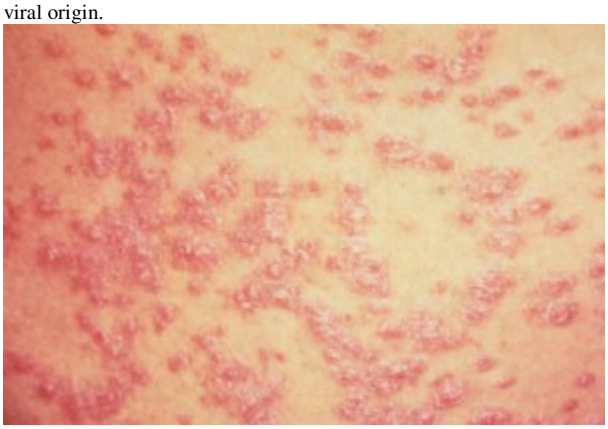
Skin conditions in children. **10-005.** Erythema toxicum neonatorum**. ANS=A.**
This infant has the typical "flea-bitten" rash of erythema toxicum neonatorum (ETN). Transient neonatal pustular melanosis is most common in African-American newborns, and the lesions lack the surrounding erythema typical of ETN. Acne neonatorum is associated with closed comedones, mostly on the face. As the infant described is not ill, infectious etiologies are unlikely.

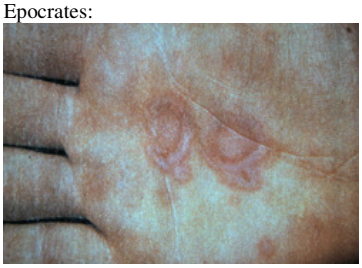
Uptodate: **Transient neonatal pustular melanosis** (TNPM) is less common than ETN. It mostly affects full-term black infants, although it is described in all races [5]. TNPM consists of three types of lesions [6]:

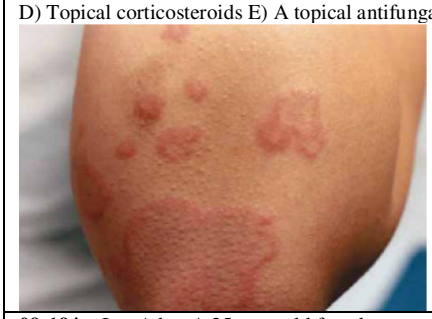
1. Small pustules on a nonerythematous base; these usually are present at birth
2. Erythematous macules with a surrounding collarette of scale; these develop as the pustules rupture and may persist for weeks to months
3. Hyperpigmented macules that gradually fade over several weeks to months (picture 2)

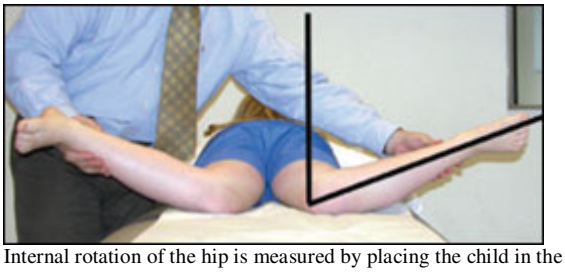
Lesions in different stages may be present at the same time, even at birth [6]. The diagnosis of TNPM is usually based upon the clinical appearance. Microscopic examination of a Wright-stained smear of the contents of a pustule demonstrates numerous neutrophils and rare eosinophils (in contrast to ETN). However, this is usually not necessary. Culture, if performed, yields no organism. No treatment is necessary.

	
07-043. +Int+Cca. A 3-year-old male is brought to your office because of a slowly spreading rash on his face of several days' duration. The mother states that he is otherwise healthy. Examination shows a 2-cm area of yellow crust on his right cheek. There is no surrounding erythema. Examination of the nose and throat reveals normal findings. Which one of the following would be the most appropriate treatment? A) Amoxicillin B) Cephalexin (Keflex) C) Mupirocin cream (Bactroban) D) Watchful waiting E) Warm, wet packs	Skin conditions, Impetigo. **07-043.** Impetigo is caused by group A B-hemolytic *Streptococcus* and/or *Staphylococcus aureus*, and is one of the most common skin infections in children. **ANS=C.** Even though it is thought to be self limiting, treatment is recommended because of its contagiousness. Amoxicillin would not cover *Staphylococcus*, and sometimes it is difficult to get young children to take oral antibiotics. In addition, they increase the risk of antibiotic-associated diarrhea or allergic reactions. Mupirocin cream has been found to be just as effective as oral antibiotics in cases of limited infections.
08-124. +Int+Adm. A 5-year-old female presents with a lesion on her forearm. It began as a red macule, turned into a small vesicle that easily ruptured, then dried into a 1-cm honey-colored, crusted lesion seen now. Which one of the following would be the most appropriate therapy? A) Oral penicillin V B) Oral erythromycin C) Topical disinfectant (e.g., hydrogen peroxide) D) Topical bacitracin E) Topical mupirocin (Bactroban)	Skin conditions, Impetigo. **08-124.** Topical mupirocin is as effective as cephalexin or amoxicillin /clavulanate in the treatment of impetigo. **ANS=E.** Oral penicillin V, oral erythromycin, and topical bacitracin are less effective than mupirocin. Topical disinfectants such as hydrogen peroxide are no more effective than placebo.
09-078. +Int+Cca. A 4-year-old male presents with a 3-day history of sores on his right leg. The sores began as small red papules but have progressed in size and now are crusting and weeping. Otherwise he is in good health and is up to date with immunizations. On examination he has three lesions on the right anterior lower leg that are 0.5–1.5 cm in diameter, with red bases and honey-colored crusts. There is no regional lymphangitis or lymphadenitis. Which one of the following is the preferred first-line therapy? A) Oral erythromycin (Erythrocin) B) Oral penicillin V C) Topical hexachlorophene (pHisoHex) D) Topical mupirocin (Bactroban)	Skin conditions, Impetigo. **09-078.** Impetigo, Nonbullous. **ANS=D.** The lesions described are nonbullous impetigo, due to either *Staphylococcus aureus* or *Streptococcus pyogenes*. Topical antibiotics, such as mupirocin, but not compounds containing neomycin, are the preferred first-line therapy for impetigo involving a limited area. Oral antibiotics are widely used, based on expert opinion and traditional practice, but are usually reserved for patients with more extensive impetigo or with systemic symptoms or signs. Penicillin V and hexachlorophene have both been shown to be no more effective than placebo. Topical antibiotics have been shown to be as effective as erythromycin, which has a common adverse effect of nausea.
10-226. +Int+Cca.>L* A 6-month-old white male is brought to your office because he has "blisters" in his diaper area. On examination, you find large bullae filled with cloudy yellow fluid. Some of the blisters have ruptured and the bases are covered with a thin crust. Which one of the following is most appropriate in the management of this condition? A) Rinsing diapers with a vinegar solution B) A topical antifungal agent C) Penicillin D) Trimethoprim/sulfamethoxazole (Bactrim, Septra)	Skin conditions, Impetigo. **10-226.** Impetigo, Bullous. **ANS=D.** Bullous impetigo is a localized skin infection characterized by large bullae; it is caused by phage group II *Staphylococcus aureus*. Cultures of fluid from an intact blister will reveal the causative agent. The lesions are caused by exfolatin, a local toxin produced by the *S. aureus*, and develop on intact skin. Complications are rare, but cellulitis occurs in <10% of cases. Strains of *Staphylococcus* associated with impetigo in the U.S. have little or no nephritogenic potential. Systemic therapy should be used in patients with widespread lesions. With the emergence of MRSA, trimethoprim sulfamethoxazole and clindamycin are options for outpatient therapy. Intravenous vancomycin can be used to treat hospitalized patients with more severe infections.
07-101. +Int+Adm. A 19-year-old female comes to your office with a skin rash that is mildly pruritic. The rash began on her back with a single 3-cm salmon-colored oval lesion. This lesion developed a scaly border and began to clear centrally. A week later, similar smaller lesions developed on her back, trunk, and proximal extremities. The long axis of these oval lesions followed the cleavage lines of the skin. The patient treated these lesions with over-the-counter hydrocortisone and diphenhydramine (Benadryl), but they did not resolve. Which one of the following would be the most appropriate management at this time? A) Famciclovir (Famvir) B) Prednisone C) Cetirizine (Zyrtec) D) Terbinafine (Lamisil) E) Reassurance	Skin conditions. **07-101.** Pityriasis rosea is a self-limited, acute exanthematous skin disorder that is thought to be viral. **ANS=E**. It begins with a herald patch that is 3–5 cm in size and usually precedes the rash on the trunk and back by a week. This is followed by central clearing of the lesion, with development of a scaly border. Smaller, similar lesions usually develop in the cleavage lines of the skin. The salmon or pink patches may be mistaken for tinea corporis, especially when the herald patch is present. Other illnesses to consider include psoriasis, Lyme disease, secondary syphilis, drug eruptions, and HIV seroconversion illness. No laboratory markers are present, and a skin biopsy is rarely needed. Most patients require only reassurance, although some may need topical corticosteroids to control itching. For more severe cases, phototherapy can be considered. **For unusually severe cases, erythromycin for 2 weeks may be helpful.** There is one placebo-controlled study of 90 patients that showed complete rash clearance in 73% of patients who received 2 weeks of erythromycin therapy, compared with no clearance of the rash in patients who received placebo (evidence level B, single controlled trial). It is thought that the benefit is from anti-inflammatory and immune-modulating effects rather than antibacterial effects. The rash may persist for 2–3 months. **Epocrates:** An inflammatory skin disease with unclear etiology, although an infectious cause has been suggested. Can present in patients of any age but most

	often in people aged 10 to 35 years. Manifests as an acute, self-limited, inflammatory eruption characterized by a single larger lesion, the herald patch, followed by eruption of smaller papulosquamous oval lesions. Spontaneous resolution, usually over several weeks, but can persist for up to 5 months. Symptoms treated by topical corticosteroids and/or oral antihistamines, or UV therapy. 
07-210. +Int+Com. Which one of the following is associated with a group A B-streptococcal infection? A) Guttate psoriasis B) Lichen planus C) Pityriasis rosea D) Bullous impetigo E) Roseola	Skin conditions. **07-210.** Psoriasis, guttate. **ANS=A.** In **guttate psoriasis there is an acute onset of small, widely scattered, uniform lesions, often following a streptococcal infection**. Bullous impetigo is caused by a dermatologic toxin produced at the site of an infection with *Staphylococcus aureus*. Exanthem subitum (roseola, sixth disease) is caused by human herpesvirus 6. Lichen planus is a papulosquamous disorder with an unknown etiology, but cutaneous eruptions clinically resembling lichen planus have been observed after administration of numerous drugs, including diuretics, gold, antimalarials, penicillamine, and phenothiazines, and in patients with skin lesions of chronic graft-versus-host-disease. Additionally, lichen planus associated with abnormal liver function has been correlated with viral hepatitis, particularly hepatitis C infection. Pityriasis rosea is a papulosquamous eruption of unknown etiology that occurs more commonly in the spring and fall. Its first manifestation is the development of a 2- to 6-cm annular lesion (the herald patch). There is some evidence that it has a viral origin.  Guttate psoriasis appears like lots of little drops of red rough patches over the skin. It often covers a much larger area of skin than plaque psoriasis as if the skin has been sprayed with droplets of paint. The treatment of guttate psoriasis is the same as plaque psoriasis. http://www.skinmagazine.co.uk/guttate_psoriasis_76
09-179. +Int+Adm. A 25-year-old female has an annular rash on the dorsal surface of both hands. The rash does not respond to initial treatment with an antifungal medication, and a biopsy reveals granuloma annulare. Which one of the following would be the most appropriate advice for this patient? A) Allow the rash to resolve without further treatment B) Cover the rash because it is contagious C) Treat the rash with systemic corticosteroids D) Treat the rash with a stronger antifungal medication	Skin Conditions. **09-179.** Granuloma annulare is a self-limited condition. **ANS=A.** It is not contagious, and therefore would not need to be covered to prevent transmission. Treatments may include injected or topical corticosteroids, but oral corticosteroids have not been specifically recommended. It may be necessary to refer the patient to a dermatologist because many of the potential treatments can have serious side effects.
10-023. +Int+Adm. >L**?*** A 45-year-old female presents with a rash on the central portion of her face. She states that she has intermittent flushing and intense erythema that feels as if her face is stinging. She has noticed that her symptoms can be worsened by sun exposure, emotional stress, alcohol, or eating spicy foods. She has been in good health and has taken conjugated estrogens (Premarin), 0.625 mg daily, since a hysterectomy for benign reasons. A general examination is normal except for erythema of the cheeks and chin. No pustules or comedone formation is noted around her eyes, but telangiectasias are present. Which one of the following would be appropriate in the management of this problem? A) Increasing her estrogen dosage B) Referral to a rheumatologist C) Low-potency non-fluorinated topical corticosteroids D) Oral prednisone E) Metronidazole gel (MetroGel)	Skin Conditions. **10-023.** Rosacea is a relatively common condition seen most often in women between the ages of 30 and 60. **ANS=E.** Central facial erythema and telangiectasias are prominent early features that may progress to a chronic infiltrate with papules and sometimes sterile pustules. Facial edema also may occur. Some patients develop rhinophyma due to hypertrophy of the subcutaneous glands of the nose. The usual presenting symptoms are central facial erythema and flushing that many patients find socially embarrassing. Flushing can be triggered by food, environmental, chemical, or emotional triggers. **Ocular problems occur in half of patients with rosacea, often in the form of an intermittent inflammatory conjunctivitis with or without blepharitis.** Management includes avoidance of precipitating factors and use of sunscreen. Oral metronidazole, doxycycline, or tetracycline also can be used, especially if there are ocular symptoms. These are often ineffective for the flushing, so low-dose clonidine or a nonselective _-blocker may be added. Topical treatments such as metronidazole and benzoyl peroxide may also be effective, particularly for mild cases. Other

	illnesses to consider include acne, photodermatitis, systemic lupus erythematosus, seborrheic dermatitis, carcinoid syndrome, and mastocytosis.
10-096. +Int+Adm. A 27-year-old white male construction worker suffers from severe plaque-type psoriasis that has required systemic therapy. Which one of the following is associated with this condition? A) A reduced overall risk of cardiovascular mortality B) A decreased risk of skin cancer with successful treatment C) A low likelihood of recurrence with successful treatment D) An increased risk for the condition in the children of affected individuals E) Low body mass index and difficulty maintaining weight	Skin conditions. **10-096.** **Psoriasis** is a genetic inflammatory condition that has been **associated with a significant risk of cardiovascular morbidity and mortality**. **ANS=D**. **Children of patients with the disorder are at increased risk.** This is especially true if both parents have the disorder. **Life expectancy is somewhat reduced in patients with severe psoriasis, particularly if the disease had an early onset**. Plaque psoriasis is usually a lifelong disease; this is in contrast to guttate psoriasis, which may be self-limited and never recur. Cigarette smoking may increase the risk of developing psoriasis. Psoriasis is **also associated with an increased likelihood of obesity, diabetes mellitus, and metabolic syndrome.**
10-233. +Int+Cca.**?** An 8-year-old white male presents with a 4-day history of erythematous cheeks, giving him a "slapped-cheek" appearance. Examination of the extremities reveals a mildly pruritic, reticulated, erythematous, maculopapular rash (see **Figure 1**). He is afebrile and no other constitutional symptoms are present. The most likely etiologic agent is A) human parvovirus B) adenovirus C) cytomegalovirus D) coxsackievirus 	Skin conditions. **10-233.** Fifth disease, or erythema infectiosum**. ANS=A.** All of these viruses can cause an erythematous exanthem; however, this description is classic for fifth disease, or erythema infectiosum. It was the fifth exanthem to be identified after measles, scarlet fever, rubella, and Filatov-Dukes disease (atypical scarlet fever). Roseola infantum is known as sixth disease. Erythema infectiosum is caused by parvovirus B19. It presents with the typical viral prodrome, along with mild upper respiratory symptoms. The hallmark rash has three stages. The first is a facial flushing, described as a "slapped cheek" appearance. In the next stage, the exanthem can spread concurrently to the trunk and proximal extremities as a diffuse macular erythematous rash. Finally, central clearing of this rash creates a lacy, reticulated appearance, as seen in Figure 1. This rash tends to be on the extensor surfaces and spares the palms and soles. It resolves in 1–3 weeks but can recur with heat, stress, and exposure to sunlight.
07-070. +Int+Adm. Most cases of chronic urticaria are A) caused by infection B) caused by an allergic reaction C) caused by an autoimmune response D) idiopathic E) associated with an anxiety disorder	Skin rash. **07-070.** Urticaria; Chronic urticaria was once considered to be a manifestation of an anxiety disorder or an allergic or idiosyncratic reaction to foods, food additives, or food dyes. **ANS=D.** There is no good evidence to support these suppositions. The likelihood of there being infectious causes of chronic urticaria, such as *Helicobacter pylori*, is still being debated, but is unlikely. An autoimmune mechanism appears to be the likely cause in a subpopulation of patients, but 60% of cases appear to be idiopathic.
07-160. +Int+Adm. A 25-year-old elementary school teacher presents with target or iris-like lesions on her palms and soles. You should suspect A) B-streptococcal infection B) erythema multiforme C) urticaria D) Lyme disease E) discoid lupus erythematosus	Skin rash. **07-160.** Erythema multiforme. **ANS=B.** "Target" or "iris-like" lesions are found only in erythema multiforme. Although these lesions are unique, they signify many and varied etiologies that often require intervention. The other options listed exhibit skin manifestations with much different appearances. Epocrates:  Typically presents in a symmetrical distribution of lesions over the dorsal surfaces of the extensor extremities with minimal mucous membrane involvement. Generally related to infectious diseases and not drug exposure. The most commonly associated infections are herpes simplex virus and Mycoplasma pneumoniae. Other associated infections include hepatitis B, Epstein-Barr virus, cytomegalovirus, histoplasmosis (with concomitant erythema nodosum), orf (parapox virus that can be transmitted from sheep or goats to humans), coccidiodomycosis, Kawasaki disease, and gardnerella. Associated drugs include aminopenicillins, docetaxel, TNF-alpha inibitors, antimalarials, anticonvulsants, and lidocaine injections. Statin medications have been associated with photo-induced lesions. Hepatitis B vaccine and allergic response to contact allergens have also been known to elicit the disorder. Supportive care and treatment of underlying infection remain the mainstay of therapy.
08-238. +Int+Adm. A 24-year-old generally healthy female presents with a rash that developed quickly over her extremities and trunk earlier in the day (see **Figure**). The lesions started as round erythematous macules, but over the course	Skin rash. **08-238.** Urticaria**. ANS=B.** The lesions shown are typical of wheals associated with urticaria. Acute urticaria has a variety of causes, but often is idiopathic. The lesions are sharply defined and can range from <1 cm to >8 cm.

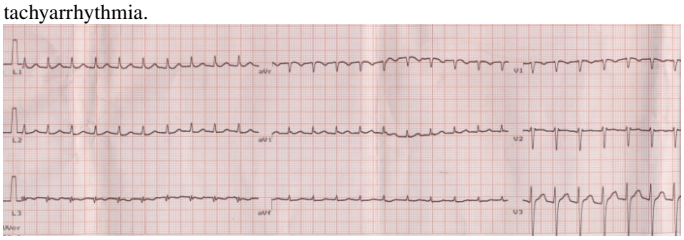
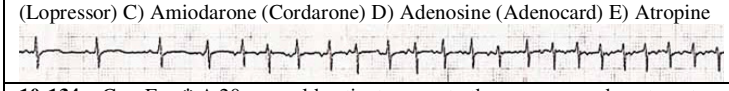
of a few hours have evolved. Some of the areas that were affected initially have already cleared. The affected skin is mildly pruritic, but she has no other symptoms or physical findings. Her mucous membranes are normal. Which one of the following would be the most appropriate first-line treatment for this patient's condition? A) An oral antibiotic B) An oral antihistamine C) Oral corticosteroids D) Topical corticosteroids E) A topical antifungal agent 	The color is erythematous, or white with an erythematous rim, and lesions can be round, oval, acriform, annular (as with this patient), or serpiginous. The lesions are often transient, fluctuating from hour to hour, and sometimes are associated with angioedema (edematous areas of dermis and subcutaneous tissue). Appropriate treatment for mildly symptomatic cases begins with antihistamines. Oral or parenteral corticosteroids would be appropriate if angioedema were significant (i.e., swelling of the face, mouth, or larynx).
09-194. +Int+Adm. A 25-year-old female presents with a maculopapular rash that has progressed to multiple areas and exhibits target lesions. A cold sore appeared on her upper lip 2 days before the rash appeared. She is not systemically ill and is on no medications. Which one of the following is true concerning this problem? A) Herpes simplex virus is a likely cause B) A skin biopsy will confirm the diagnosis C) The lesions usually disappear within 24 hours D) The palms of the hands and soles of the feet are not involved E) Scarring from the lesions is often seen after resolution	Skin rash. **09-194.** Erythema multiforme. Herpes simplex virus is the most common etiologic agent of erythema multiforme. **ANS=A**. Other infections, particularly *Mycoplasma pneumoniae* infections and fungal infections, may also be associated with this hypersensitivity reaction. Other causes include medications and vaccines. Skin biopsy findings are not specific for erythema multiforme. As opposed to the lesions of urticaria, the lesions of erythema multiforme usually are present and fixed for at least 1 week and may evolve into target lesions. The palms of the hands and soles of the feet may be involved. The lesions of erythema multiforme usually resolve spontaneously over 3–5 weeks without sequelae.
09-234. +Int+Adm. A 3-year-old female is brought to your office with a 3-hour history of skin lesions that are prominent, warm, papular, and serpiginous (see **Figure**). Which one of the following is the most likely cause of these lesions? A) Heredity B) Physical abuse C) Infection D) A topical agent E) An oral medication 	Skin rash. **09-234.** Urticaria (Acute) occurs when an allergen activates mast cells in the skin, and is commonly caused by oral and parenteral drugs, food, and, less frequently, infections. **ANS=E**. Topical agents and physical abuse are unlikely to present in this manner, and hereditary angioedema is more a systemic illness than a skin disorder.
08-196. +Neu+Cca. Which one of the following sleep problems in children is most likely to occur during the second half of the night? A) Confusional arousals B) Sleepwalking C) Sleep terrors D) Nightmares	Sleep problems. **08-196.** Nightmares occur in the second half of the night, when rapid eye movement (REM) sleep is most prominent. **ANS=D.** Parasomnias are disorders of arousal from non-REM (NREM) sleep. These are more common in children than adults because children spend more time in deep NREM sleep. Such disorders usually occur within 1–2 hours after sleep onset, and coincide with the transition from the first period of slow-wave sleep. These disorders include sleepwalking, confusional arousal, and sleep terrors.
08-216. +Mus+Cca. An overweight 13-year-old male presents with a 3-week history of right lower thigh pain. He first noticed the pain when jumping while playing basketball, but now it is present even when he is just walking. On examination he can bear his full weight without an obvious limp. There is no localized tenderness, and the patella tracks normally without subluxation. Internal rotation of the hip is limited on the right side compared to the left. Based on the examination alone, which one of the following is the most likely diagnosis? A) Avascular necrosis of the femoral head (Legg-Calvé-Perthes disease) B) Osteosarcoma C) Meralgia paresthetica D) Pauciarticular juvenile rheumatoid arthritis E) Slipped capital femoral epiphysis	Slipped capital femoral epiphysis. **08-216.** (SCFE). **ANS=E.** This is a classic presentation for SCFE in an adolescent male who has probably had a recent growth spurt. **Pain with activity is the most common presenting symptom, as opposed to the nighttime pain that is typical of malignancy.** Obese males are affected more often. **The pain is typically in the anterior thigh, but in a high percentage of patients the pain may be referred to the knee, lower leg, or foot.** Limited internal rotation of the hip, especially with the hip in 90° flexion, is a reliable and specific finding for SCFE and should be looked for in all adolescents with hip, thigh, or knee pain. **Meralgia paresthetica is pain in the thigh related to entrapment of the lateral femoral cutaneous nerve, often attributed to excessively tight clothing**. **Legg-Calvé-Perthes disease (avascular or aseptic necrosis of the femoral head) is more likely to occur between the ages of 4 and 8 years.** Juvenile rheumatoid arthritis typically is associated with other constitutional symptoms including stiffness, fever, and pain in at least one other joint, with the pain not necessarily associated with activity.
09-044. +Mus+Cca. A 13-year-old male presents with a 3-week history of left lower thigh and knee pain. There is no history of a specific injury, and his past medical history is negative. He has had no fevers, night sweats, or weight loss, and the pain does not awaken him at night. He tried out for the basketball team but had to quit because of the pain, which was worse when he tried to run. Which one of the following physical examination findings would be pathognomonic for	Slipped capital femoral epiphysis. **09-044.** (SCFE). Ans=C. Typically occurs in young adolescents during the growth spurt. Physical activity, obesity, and male gender are predisposing factors for the development of this condition, in which the femoral head is displaced posteriorly through the growth plate. There is pain with physical activity, most commonly in the upper thigh anteriorly, but one-third of patients present with referred lower thigh or knee pain, which can make accurate

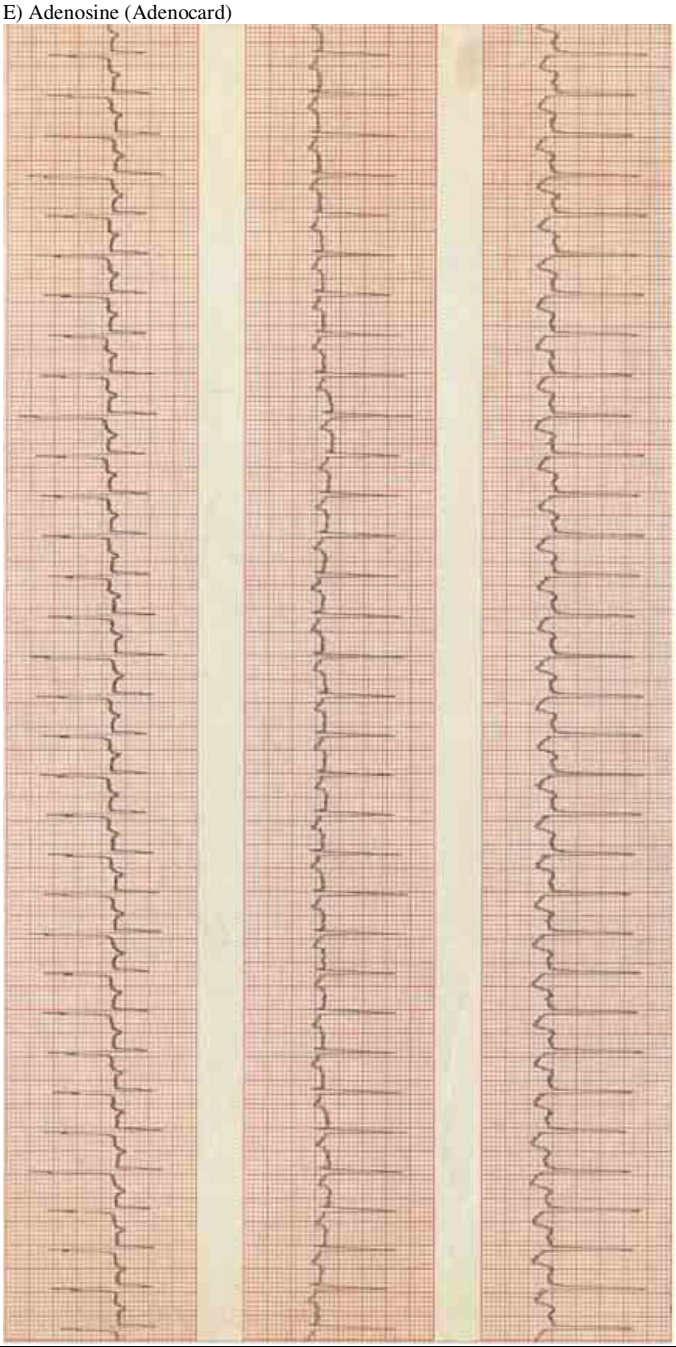
slipped capital femoral epiphysis? A) Excessive forward passive motion of the tibia with the knee flexed B) Lateral displacement of the patella with active knee flexion C) Limited internal rotation of the flexed hip D) Reduced hip abduction with the hip flexed E) Inability to extend the hip past the neutral position	and timely diagnosis more difficult. **The hallmark of SCFE on examination is limited internal rotation of the hip. Specific to SCFE is the even greater limitation of internal rotation when the hip is flexed to 90**°. No other pediatric condition has this physical finding, which makes the maneuver very useful in children with lower extremity pain. Orthopedic consultation is advised if SCFE is suspected. Hip extension and abduction are also limited in SCFE, but these findings are nonspecific. The knee findings in this patient are not associated with SCFE.  Internal rotation of the hip is measured by placing the child in the prone position with knees flexed 90 degrees and rotating the feet outward. Loss of internal rotation is a sensitive indicator of intraarticular hip pathology and is common in children with Legg disease and slipped capital femoral epiphysis. http://www.aafp.org/afp/2009/0201/p215.html
10-238. +Mus+Cca. Which one of the following best describes the condition seen in the radiograph in **Figure 6**? A) Osgood-Schlatter disease B) Legg-Calvé-Perthes disease C) Blount's disease D) Slipped capital femoral epiphysis E) A normal hip 	Slipped capital femoral epiphysis**. 10-238. ANS=D.** The radiograph shows a typical slipped capital femoral epiphysis, with the epiphysis displaced posteriorly and medially. The problem usually occurs in late childhood or adolescence. Osgood-Schlatter disease involves the anterior tibial tubercle. Legg-Calvé-Perthes disease is avascular necrosis of the femoral head. Blount's disease involves the medial portion of the proximal tibia. All of these conditions cause leg pain in children.
07-071. +Psy+Mhe. Which one of the following would be a major contraindication to using bupropion (Wellbutrin) for smoking cessation? A) A history of seizures B) Bipolar depression C) Hemolytic anemia D) Mitral valve prolapse E) Hypothyroidism	Smoking cessation. **07-071.** Bupropion. Medications to help patients with tobacco cessation are not without dangers. **ANS=A. Bupropion** has a good record of success in assisting patients to stop smoking. However, **major contraindications to its use include a history of seizures, an eating disorder, or recent MAO inhibitor use.** The other conditions listed should always be considered, but are not usually a major contraindication to bupropion use.
08-028. +Pbc+Adm. A 45-year-old male asks about using nicotine replacement therapy (NRT) to help him quit smoking. You tell him that recent evidence shows that A) NRT usually doubles a smoker's chance of quitting B) NRT must be tapered off C) NRT should be used for at least 6 months to be effective D) nicotine patches are the most effective form of NRT E) using combinations of NRT reduces the likelihood that a relapsed smoker will quit	Smoking cessation. **08-028. ANS=A.** A Cochrane meta-analysis of nicotine replacement therapy (NRT) found that it almost doubles a smoker's chances of quitting (SOR A). There was no benefit to tapering NRT as compared to abrupt discontinuation. Treatment for 8 weeks was as effective as a longer course. No one type of NRT is significantly more effective, but combining several types may aid a relapsed smoker in his or her next quit attempt.
10-223. +Res+Adm. A 42-year-old male seeks your advice regarding smoking cessation. You recommend a smoking cessation class, as well as varenicline (Chantix). You caution him that the most common side effect is A) dermatitis B) diarrhea C) edema	Smoking cessation. **10-223.** varenicline**. ANS=E.** The most common adverse event attributed to varenicline at a dosage of 1 mg twice a day is nausea, occurring in approximately 30%–50% of patients. Taking the drug with food lessens the nausea.

D) hirsutism E) nausea	
08-116. +Pbc+Mhe. Which one of the following is a significant side effect of varenicline (Chantix)? A) Facial hirsutism B) Paroxysmal dysrhythmias C) Pleurisy-like symptoms D) Suicidal ideation E) Insomnia	Smoking sesation. **08-116.** varenicline (Chantix). **ANS=D.** Education, support, and medications are all valuable tools in assisting patients with a smoking habit. Varenicline, a clinically effective smoking-cessation product, has been associated with patient mood changes following the initiation of therapy, including suicidal thoughts and aggressive and erratic behavior. The other problems listed have not been associated with varenicline use.
09-095. +Psy+Adm. A 52-year-old male requests "everything you've got" to help him stop smoking. You review common barriers to quitting and the benefits of cessation with him, and develop a plan that includes follow-up. He chooses to start varenicline (Chantix) to assist with his efforts, and asks about also using nicotine replacement. Which one of the following would be accurate advice? A) Combining these medications has not proven to be beneficial B) The addition of transdermal nicotine, but not nicotine gum, has proven benefits C) The combination is highly efficacious D) Nicotine replacement doses need to be doubled in a patient taking varenicline E) The combination of nicotine and varenicline is potentially lethal	Smoking sesation. **09-095. varenicline. ANS=A.** Varenicline works by binding to nicotine receptors in the brain, providing much lower stimulation than nicotine itself would. This has the effect of reducing the reinforcement and reward that smoking provides to the brain. However, this medication also blocks the benefit a patient would receive from nicotine replacement products. **Studies have shown that using nicotine replacement products concurrently with varenicline leads to an increase in nausea, headaches, dizziness, and fatigue.**
08-205. +Psy+Mhe. A 35-year-old female sees you because she has lost her voice. She has had no recent upper respiratory infection symptoms, cough, or heartburn, and she has not done anything that would strain her voice. Examination of the head and neck appear normal. A review of her chart shows this has happened before, but an ear, nose, and throat evaluation found no abnormalities. She also has been seen numerous times in the past few years for headaches, chest pains, abdominal pains, rectal pressure, and vaginal symptoms. Despite several workups and referrals, no definite cause has been found and the symptoms persist. Which one of the following would be the most reasonable plan of action? A) Test for food allergies B) Begin low-dose lorazepam (Ativan) C) Begin a 6-week trial of a proton pump inhibitor D) Schedule frequent office visits	Somatization disorders. **08-205.** Somatization disorders should be considered in patients who have a history of various complaints over a several-year period that involve multiple organ systems. **ANS=D.** There is no test to confirm this diagnosis. It is often intertwined in other psychiatric problems, including anxiety disorder, personality disorder, and depression. Treatment includes testing to make sure that there is nothing physically wrong, while building a trusting relationship with the patient. Once this is accomplished, it is reasonable to discuss the disorder with the patient. Cognitive therapy has been shown to be of value, as well as regularly scheduled office visits for monitoring and support. Medicines for coexisting psychiatric problems also are of benefit. In addition, referral for psychiatric consultation may be worthwhile. Food allergies can cause a variety of symptoms, but usually not to the extent seen with this patient, and testing for this might confuse the issue. Lorazepam may help the symptoms if there is a coexisting anxiety disorder, but it will not address the underlying problem. Laryngeal esophageal reflux can cause hoarseness and will respond to proton pump inhibitors, but given the repetitive nature of her symptoms and the previous negative workups, it is not consistent with the whole picture.
10-149. +Psy+Mhe. Which one of the following is most accurate regarding somatization disorder? A) Onset before age 40 is atypical B) It is a form of malingering C) Symptoms tend to resolve spontaneously within weeks of onset D) Symptoms are limited to one organ system or bodily function E) The incidence is increased among female first degree relatives of patients with the disorder	Somatization disorders. **10-149.** Somatization disorder is a psychological disorder characterized by the chronic presence of several unexplained symptoms beginning before the age of 30 years. **ANS=E.** It is diagnostically grouped with conversion disorder, hypochondriasis, and body dysmorphic disorder. By definition, the symptom complex must include a minimum of two symptoms relating to the gastrointestinal system, one neurologic complaint, one sexual complaint, and four pain complaints. The condition is more common in women than in men, and the incidence is increased as much as tenfold in female first degree relatives of affected patients.
07-190. +Pbc+Cca. The U.S. Preventive Services Task Force (USPSTF) makes which one of the following recommendations regarding screening for speech and language delay in preschool children using brief, formal screening instruments that are suitable for use in primary care? A) Screening is strongly recommended for all preschool children because good evidence exists for substantial benefit over harm B) Screening is not recommended because it is ineffective C) Screening is not recommended because the potential harm outweighs the potential benefits D) The evidence is insufficient to recommend for or against routine screening	Speech and language delay. **07-190.** Speech and language delay affects 5%–8% of preschool children. Recommendations; **ANS=D.** It often continues into the school years and may be connected to poor school performance and psychosocial problems. In reviewing the data, the U.S. Preventive Services Task Force (USPSTF) found insufficient evidence that brief, formal screening instruments that are suitable for use in primary care for assessing speech and language development can accurately identify children who would benefit from further evaluation and intervention. Therefore, the USPSTF makes an "I" recommendation—the evidence is insufficient to recommend for or against routinely providing the service. Fair evidence suggests that interventions can improve the results of short-term assessments of speech and language skills; however, no studies have assessed long-term outcomes. Furthermore, no studies have addressed benefits from the use of brief, formal screening compared to addressing only those problems identified from clinical or parental concerns. No studies have addressed the potential harms of screening or interventions for speech and language delays, such as labeling, parental anxiety, or unnecessary evaluation and intervention. The guidelines presented are based on the best available evidence at the time they are written. In cases where the evidence is insufficient to recommend for or against an intervention, physicians should base clinical decisions on the individual patient's situation.
07-046. +Gas+Euc. A 45-year-old female is hospitalized with fever and mild confusion. On examination she has ascites, and the liver edge is firm and irregular. Blood is drawn, and paracentesis is performed. Laboratory Findings Serum albumin.. . . . . 2.4 g/dL (N 3.1–4.3) Total protein. . . . . 4.7 g/dL (N 6.0–8.0) Ascitic fluid. . . . . cloudy yellow Cytology.. . . . . negative for malignant cells Albumin. . . . . 0.6 g/dL Protein.. . . . . 0.9 g/dL	Spontaneous bacterial peritonitis (SBP)**. 07-046. ANS=A.** The serum–ascitic fluid albumin gradient >1.1 indicates that this patient has ascites due to portal hypertension. The negative cytology and an ascitic fluid amylase level <100 U/L make peritoneal carcinomatosis and ascites secondary to pancreatitis unlikely. An ascitic fluid WBC count >500/mm3, with >50% polymorphonuclear leukocytes, points to bacterial peritonitis. Secondary bacterial peritonitis is usually polymicrobial, with ascitic fluid total protein levels >1.0 g/dL. With primary bacterial peritonitis a single organism is usually seen on a culture, with ascitic fluid total protein levels <1.0 g/dL. Ascites is diagnosed in the following manner: ■ Ultrasound and paracentesis: Check cell count, differential, albumin, and

WBCs. . . . . 525/mm3 with 75% polymorphonuclear leukocytes Amylase. . . . . 50 U/L Empiric therapy is started. The next day, gram-negative rods are noted in the ascitic fluid. Which one of the following is the most likely diagnosis? A) Spontaneous bacterial peritonitis B) Pancreatic ascites C) Peritoneal carcinomatosis D) Tuberculous peritonitis E) Bacterial peritonitis secondary to bowel rupture	bacterial cultures +/– acid-fast stain and +/– cytology. The etiology of the ascites can be further characterized as follows: ■ Related to portal hypertension (serum-ascites albumin gradient [SAAG] ≥ 1.1): Cirrhosis, heart failure, Budd-Chiari syndrome (hepatic vein thrombosis). ■ Unrelated to portal hypertension (SAAG < 1.1): Peritonitis (e.g., TB), cancer, pancreatitis, trauma, nephrotic syndrome. ■ If a patient with cirrhosis and established ascites presents with worsening ascites, fever, altered mental status, renal dysfunction, or abdominal pain, think of spontaneous bacterial peritonitis (SBP). **Uptodate:** TREATMENT — Empiric therapy of suspected SBP must be initiated as soon as possible to maximize the patient's chance of survival. The recommendations that follow are consistent with a 2009 guideline issued by the American Association for the Study of Liver Diseases. The main indication for empiric therapy is the otherwise unexplained presence of one or more of the following findings that are characteristically seen in SBP: •Temperature greater than 37.8ºC (100ºF) •Abdominal pain and/or tenderness •A change in mental status •Ascitic fluid PMN count ≥250 cells/mm3. Concerns about the safety of paracentesis should not prevent this crucial diagnostic procedure from being performed. Cefotaxime dose of 2 g Q8h or a similar third-generation cephalosporin is a reasonable choice for suspected SBP.
07-056. +Pbc+Com. Which one of the following is a contraindication to participation in contact sports? A) A single testicle B) Fever C) Documented scoliosis of 20 degrees D) Sickle cell trait	Sports Medicine. **07-056.** Contact sports participation**. ANS=B.** Having a single testicle is not a contraindication to contact sports, but it does necessitate a discussion regarding the potential risk, as well as the use of a protective cup. A single ovary is not a contraindication because it is well protected. Fever is a contraindication to participation since it increases cardiovascular effort, as well as the potential for heatstroke and orthostatic hypotension and dehydration. The rare possibility of an associated myocarditis also should be taken into account. Carditis may result in sudden death with exertion. Scoliosis should be looked into prior to allowing a child to participate in contact sports, but once the diagnosis is made it is rarely a contraindication unless the curvature is greater than 40 deg. Sickle cell trait is not a contraindication to contact sports, although sickle cell disease can be a contraindication to strenuous activities or sports associated with significant contact.
09-201. +Non+Adm. According to both the Centers for Disease Control and the American College of Sports Medicine, in order to burn fat stores obese patients should exercise A) a minimum of 30 minutes 3 days/week B) a minimum of 30 minutes at least 5 days/week C) a minimum of 20 minutes every day D) a minimum of 10 minutes at least 3 times daily	Sports Medicine. **09-201.** Obecity. **09-201. ANS=B.** Because glycogen is the primary energy source for muscles during the first 20 minutes of exercise, at least 30 minutes of exercise is necessary to begin burning fat stores. The CDC and the American College of Sports Medicine recommend a minimum of 30 minutes of exercise 5 days per week. Twenty minutes of exercise daily or three 10-minute sessions daily does improve cardiovascular fitness, but does not cause significant weight loss. Walking, on land or in water, and stationary biking are equivalent in benefit.
07-224. +Int+Adm. A 75-year-old white male presents with a nonhealing 2.5-cm ulcer on his neck. A 4-mm punch biopsy reveals a squamous cell carcinoma. Which one of the following would be most appropriate at this time? A) Cryosurgery B) Electrodesiccation and curettage C) Mohs' surgery D) Surgical excision with 6-mm margins E) Radiotherapy	Squamous cell carcinoma. **ANS=D.** For treatment of **squamous cell carcinoma ≥20 mm, surgical excision with 6-mm margins is the preferred treatment**. This will clear 95% or more of these tumors, and provides good cosmetic results. **Cryosurgery or electrodessication can be used for tumors <1 cm. Mohs' surgery would be appropriate if the tumor were high-risk** (e.g., if it were in a location associated with a high risk of metastasis.)
08-187. +Pbc+Cca. A 3-year-old female is brought to your office for a health maintenance examination, and her father expresses concern about her vision. Her visual acuity is 20/20 bilaterally on a "tumbling E" visual acuity chart. With both eyes uncovered during a cover/uncover test, the corneal light reflex in the right eye is medial to the pupil when focused on a fixed point, but the light reflex in the left eye is almost centered in the pupil. When the left eye is covered, the right eye moves quickly inward to focus on the fixed point, and the corneal light reflex is centered in the pupil. When the left eye is uncovered, the right eye returns to its original position. When you cover the right eye, no left eye movement is noted. Which one of the following is the most likely diagnosis? A) Strabismus B) Amblyopia C) Cataract D) Esotropia E) Heterophoria	Strabismus. **08-187.** Strabismus is an ocular misalignment that can be diagnosed on a cover/ uncover test when the corneal light reflex is deviated from its normal position slightly nasal to mid-pupil. **ANS=A**. The misaligned eye then moves to fixate on a held object when the opposite eye is covered. The eye drifts back to its original position when the opposite eye is uncovered. Amblyopia is a visual impairment from abnormal visual development—most often as a result of strabismus. Cataract is a less frequent cause of amblyopia. Esotropia is a type of strabismus with an inward or nasal deviation of the eye that would be evidenced by a corneal light reflex lateral to its normal position. (The outward eye deviation seen in this patient is exotropia.) Heterophoria, or latent strabismus, does not cause eye deviation when both eyes are uncovered. **See also 07-184: Amblyopia due to strabismus is the leading cause of monocular vision loss in children and young adults.**
10-077. +Pbc+Com. The Strength-of-Recommendation Taxonomy (SORT) is used to grade key recommendations in clinical review articles. Which one of the following grades indicates that a recommendation is based on consistent, good-quality, patient-oriented evidence? A) A B) B C) C D) X	Strength-of-Recommendation Taxonomy**. 10-077. ANS=A.** When possible, it is important for the family physician to base clinical decisions on the best evidence. Strength-of-Recommendation Taxonomy (SORT) grades in medical literature are intended to help physicians practice evidence-based medicine. SORT grades are only A, B, and C. These should not be confused with the U.S. Food and Drug Administration labeling categories for the potential teratogenic effects of medications on a fetus: pregnancy categories A, B, C, D, and X. Strength of Recommendation (SOR) A is a recommendation that is based on consistent, good-quality, patient-oriented evidence. SOR B is a recommendation that is based on limited-quality patient-oriented evidence. SOR C is a recommendation that is based on consensus, disease-oriented evidence, usual practice, expert opinion, or

	case series for studies of diagnosis, treatment, prevention, or screening.
09-047. +Neu+Cel. A 68-year-old white male with diabetes mellitus is hospitalized after suffering a right middle cerebral artery stroke. A nurse in the intensive-care unit calls to advise you that his blood pressure is 200/110 mm Hg. You should A) continue monitoring the patient B) administer labetalol (Trandate) C) administer nicardipine (Cardene) D) administer nitroprusside (Nitropress) E) administer nitroglycerin	Stroke. **09-047.** BP control. Ans=A. Current American Heart Association guidelines for blood pressure control in stroke patients advise monitoring with no additional treatment for patients with a systolic blood pressure <220 mm Hg or a diastolic blood pressure <120 mm Hg. The elevated blood pressure is thought to be a protective mechanism that increases cerebral perfusion, and lowering the blood pressure may increase morbidity.
10-218. +Neu+Euc.**?** A 60-year-old right-handed white male arrives in the emergency department with symptoms and signs consistent with a stroke. His past medical history is significant for tobacco abuse and chronic treated hypertension. He is alert and afebrile. His pulse rate is 100 beats/min, respirations 20/min, and blood pressure 190/95 mm Hg. He has a moderate right-sided hemiparesis and is aphasic. There are no other significant physical findings. While appropriate tests are being ordered, immediate management in the emergency department should include which one of the following? A) Monitoring oxygenation status with pulse oximetry B) Prompt lowering of systolic blood pressure to <140 mm Hg C) Beginning an intravenous heparin infusion D) Restricting fluid intake to 75 cc/hr E) Giving parenteral corticosteroids	Stroke. **10-218.** emergency management. **ANS=A. Maintaining adequate tissue oxygenation is an important component of the emergency management of stroke.** Hypoxia leads to anaerobic metabolism and depletion of energy stores, increasing brain injury. While there is no reason to routinely administer supplemental oxygen, the potential need for oxygen should be assessed using pulse oximetry or blood gas measurement. **Overzealous use of antihypertensive drugs is contraindicated, since this can further reduce cerebral perfusion**. **In general, these drugs should not be used unless mean blood pressure is >130 mm Hg or systolic blood pressure is >220 mm Hg.** Antithrombotic drugs such as heparin must be used with caution, and only after intracerebral hemorrhage has been ruled out by baseline CT followed by repeat CT within 48–72 hours. Hypovolemia can exacerbate cerebral hypoperfusion, so there is no need to restrict fluid intake. Optimization of cardiac output is a high priority in the immediate hours after a stroke. Based on data from randomized clinical trials, **corticosteroids are not recommended for the management of cerebral edema and increased intracranial pressure after a stroke.**
08-091. +Neu+Euc. A 36-year-old female presents with the sudden onset of severe headache, nausea, and photophobia. Her level of consciousness is progressively diminishing. Which one of the following would be the most appropriate next step? A) Head CT without contrast B) Head CT with contrast C) Head MRI D) Lumbar puncture E) CT angiography	Subarachnoid hemorrhage. **08-091.** The first study ordered in any patient with suspected subarachnoid hemorrhage should be a head CT without contrast. **ANS=A.** It will reveal subarachnoid hemorrhage in 100% of cases within 12 hours of the bleed, and it is useful for identifying other sources for the headache, for predicting the site of the aneurysm, and for predicting cerebral vasospasm and poor outcome. As blood is cleared from the affected area, CT sensitivity drops to 93% within 24 hours, and to 50% at 7 days. Patients with a positive CT result for subarachnoid hemorrhage should proceed directly to angiography and treatment. Patients with a suspected subarachnoid hemorrhage who have negative or equivocal results on head CT should have a lumbar puncture. MRI and CT with contrast are not used for the diagnosis of acute subarachnoid hemorrhage.
07-045. +Car+Cca. A 16-year-old high-school football player presents for a preparticipation evaluation. He is healthy and has no significant medical history. However, his brother died suddenly during football practice at age 15. Which one of the following is the most likely cause of the brother's death? A) Congenital long QT syndrome B) Congenital short QT syndrome C) Hypertrophic cardiomyopathy D) Wolff-Parkinson-White syndrome E) Aortic stenosis	Sudden death. **07-045.** Hypertrophic cardiomyopathy. **07-045.** Hypertrophic cardiomyopathy is the most common cause of sudden cardiac death in young athletes in the United States. **ANS=C.** It is autosomal dominant with variable penetrance. Subaortic stenosis is present in about 25% of cases (also known as idiopathic hypertrophic subaortic stenosis or asymmetric septal hypertrophy). Symptoms range from none to weakness, fatigue, exertional dyspnea, dizziness, chest pain, and syncope. A systolic ejection murmur increasing with the Valsalva maneuver is present in many cases. Long QT syndrome and aortic stenosis are also causes of sudden death in the young athlete, but are less common.
07-064. +Car+Adm. The most effective means of preventing sudden death in high-risk patients with asymptomatic hypertrophic cardiomyopathy is A) amiodarone (Cordarone) B) metoprolol (Lopressor) C) verapamil (Calan, Isoptin) D) chronic dual-chamber pacing E) an implantable cardioverter-defibrillator (ICD)	Sudden death. **07-064.** Hypertrophic cardiomyopathy. **07-064.** (HCM). **ANS=E.** Many patients with hypertrophic cardiomyopathy (HCM) never have any clinical signs or symptoms. The major cause of mortality is sudden death, which can occur in both asymptomatic and symptomatic patients, often after physical exertion. Patients with HCM should be counseled about the risk of competitive sports and dehydration. Medications such as verapamil, B-blockers, and diltiazem are used for symptom management, but do not decrease the risk of sudden death. Because of its effects on decreasing dysrhythmias, amiodarone may decrease the risk of sudden death, which is supported by anecdotal data. For most patients with HCM, the annual risk of dying is similar to that of the normal adult population, or 1% per year. Patients most at risk for sudden death include those with ventricular tachycardia on an ambulatory monitor, marked left ventricular hypertrophy, abnormal blood pressure response to exercise, syncope, and a family history of sudden death. At present, the implantable cardioverter-defibrillator (ICD) is the most effective modality for preventing sudden death in high-risk patients with asymptomatic HCM. Pacing does not reduce risk significantly.
07-116. +Car+Adm. A 55-year-old male with a 5-year history of type 2 diabetes mellitus comes to your office for follow-up. He has lost 9 kg (20 lb) in the past year and reports good control of his glucose levels. His examination is unremarkable, and his blood pressure is 130/80 mm Hg. Laboratory results reveal a normal CBC and blood chemistry, and his urine is negative for microalbumin. His hemoglobin A1c is 6.5%, while a lipid profile reveals an HDL level of 42 mg/dL, an LDL level of 98 mg/dL, and a triglyceride level of 148 mg/dL. This patient's risk of sudden death, myocardial infarction, and stroke can be decreased by adding A) niacin B) lisinopril (Prinivil, Zestril) C) metoprolol (Lopressor) D) hydrochlorothiazide E) simvastatin (Zocor)	Sudden death. **07-116. Statin use in high risk patients; Recommendations. ANS=E.** The Heart Protection Study demonstrated a **significant decrease in the rates of major vascular events (myocardial infarction, stroke, and death) when simvastatin was added to the medical regimen of individuals at high risk. Benefits for those with coronary artery disease, peripheral vascular disease, cerebrovascular disease, or diabetes mellitus, and for males older than 65 with hypertension, were significant regardless of lipid levels.**
08-169. +Car+Com. In a preadolescent athlete, sudden death from a blunt injury to the chest (commotio cordis) is most likely to occur in which one of the following situations? A) A pitcher is struck by a line drive B) A basketball player is struck by the ball C) A chest-to-chest collision occurs during a soccer game	Sudden death. **08-169.** Commotio cordis usually results from impact with a projectile in sports. **ANS=A.** Children and adolescents may have increased risk due to a compliant chest wall. Ventricular fibrillation is thought to result from the impact. Softer "safety" baseballs are one consideration in primary prevention. Older competitors are at less risk. Large blunt objects or body-to-body contact also carries less risk.

D) Hockey players skate into each other E) A football player is struck by the shoulder pad of a lineman	
09-028. +Car+Cca. A 17-year-old soccer player presents for a preparticipation examination. His family history is significant for the sudden death of his 12-year-old sister while playing basketball, and for his mother and maternal grandmother having recurrent syncopal episodes. His medical history and examination are completely normal. Prior to approving his participation in sports, which one of the following is recommended? A) A resting EKG B) A stress EKG C) An echocardiogram D) Pulmonary function testing E) No further evaluation	Sudden death. **09-028.** **Genetic long-QT syndrome; a family history of sudden death and recurrent syncope is highly suspicious** for it. It is best diagnosed with **a resting EKG that shows a QTc >460 msec in females and >440 msec in males.** This syndrome especially places young people at risk for sudden death. **Management may include B-blockers, an implantable cardioverter-defibrillator, and no participation in competitive sports.**
07-077. +Pbc+Cca. Which one of the following is associated with a reduction in risk for sudden infant death syndrome? A) Pacifier use B) A soft mattress C) Putting the baby to sleep in a prone position D) Putting the baby to sleep on his or her side	Sudden infant death syndrome (SIDS). **07-077. ANS=A.** Sleeping with a pacifier has been associated with a reduced risk for SIDS, which occurs most frequently between 2 and 4 months of age. Putting a baby to sleep in a prone position or on his or her side increases the risk of SIDS. Sleeping on soft bedding, or with comforters, quilts, or stuffed toys also increases the risk, as does sleeping with parents or siblings. Sleeping in a separate bed or crib in the same room with the parents may be a safer alternative.
10-007. +Non+Cca. Which one of the following is recommended to reduce the risk of sudden infant death syndrome (SIDS)? A) The use of home cardiorespiratory monitors B) The use of soft bedding materials C) Having the infant sleep in a prone position D) Having the infant sleep in a separate bed E) Maintaining a room temperature of 78°F–80°F when the infant is sleeping	Sudden infant death syndrome (SIDS). **10-007. ANS=D.** Home cardiorespiratory monitoring has not been shown to be effective for preventing sudden infant death syndrome (SIDS). The risk of SIDS increases with higher room temperatures and soft bedding. Placing the infant in a supine position will significantly decrease the risk of SIDS, and is probably the most important preventive measure that can be taken. Bed sharing has been shown to increase the risk of SIDS.
07-235. +Car+Adm. Which one of the following is true regarding supraventricular tachycardia (SVT)? A) Verapamil is useful for decreasing recurrences of SVT B) Hyperparathyroidism is a common cause of SVT C) Hyponatremia is a common cause of SVT D) Structural heart disease is often associated with SVT E) Excessive alcohol intake can suppress SVT	Supraventricular tachycardia. **07-235. ANS=A.** **The use of verapamil, propranolol, or digoxin reduces SVT episodes by 30%–50%.** There is no evidence that one is superior to the others. **Hypokalemia and hyperthyroidism can cause SVT**, but there is **no association with hyperparathyroid disease or hyponatremia**. Structural heart disease is a rare cause of supraventricular tachycardia, but still should be ruled out with echocardiography. **Excessive alcohol use can precipitate SVT**.
08-095. +Car+Euc. A 36-year-old white female presents to the emergency department with palpitations. Her pulse rate is 180 beats/min. An EKG reveals a regular tachycardia with a narrow complex QRS and no apparent P waves. The patient fails to respond to carotid massage or to two doses of intravenous adenosine (Adenocard), 6 mg and 12 mg. The most appropriate next step would be to administer intravenous A) amiodarone (Cordarone) B) digoxin (Lanoxin) C) flecainide (Tambocor) D) propafenone (Rhythmol) E) verapamil (Calan)	Supraventricular tachycardia. **08-095.** **If supraventricular tachycardia is refractory to adenosine or rapidly recurs, the tachycardia can usually be terminated by the administration of intravenous verapamil or a B-blocker**. **ANS=E. If that fails, intravenous propafenone or flecainide may be necessary**. It is also important to look for and treat possible **contributing causes such as hypovolemia, hypoxia, or electrolyte disturbances.** Electrical cardioversion may be necessary if these measures fail to terminate the tachyarrhythmia.  Supraventricular tachycardia is seen here at a rate of around 150 / min (RR interval 10 mm or 400 msec). The QRS is narrow in supraventricular tachycardia without any aberrant conduction as in this case. If there is aberrant conduction, it can be wide and usually shows a right bundle branch block pattern as aberrancy is more common in right bundle. The P waves are not very evident in this case and may be buried within the QRS complex. This can occur in AV nodal re-entrant tachycardia (AVNRT) and junctional tachycardia due to simultaneous activation of the atria and ventricles. When a supraventricular tachycardia at a rate of 150 per minute is seen, atrial flutter with 2:1 conduction should also be borne in mind as the flutter waves may not be evident in all leads. Carotid sinus massage may alter the AV conduction ratio to make the flutter waves evident, if they are within the QRS or T waves.
09-237. +Car+Adm. A hospitalized 55-year-old male has developed the tachyarrhythmia shown in **Figure**. He is alert and denies chest pain, although he complains of palpitations and is mildly dyspneic since the onset of this sustained dysrhythmia. His blood pressure is 116/76 mm Hg and pulse oximetry shows 93% saturation on 2L of oxygen. Which one of the following would be the best treatment for this patient? A) Synchronized DC cardioversion B) Metoprolol (Lopressor) C) Amiodarone (Cordarone) D) Adenosine (Adenocard) E) Atropine 	Supraventricular tachycardia. **09-237.** paroxysmal. **ANS=D.** The patient has paroxysmal supraventricular tachycardia (PSVT) with a heart rate of approximately 170 beats/min. Intravenous adenosine is the treatment of choice for PSVT. Because the patient is hemodynamically stable, DC cardioversion is not indicated. Metoprolol may slow the heart rate but likely will not convert it to sinus rhythm. **Amiodarone is indicated for hemodynamically stable ventricular tachycardia.** Atropine is contraindicated in this or any other tachyarrhythmia.
10-134. +Car+Euc.* A 20-year-old patient comes to the emergency department complaining of shortness of breath. On examination his heart rate is 180 beats/min, and his blood pressure is 122/68 mm Hg. An EKG reveals a narrow complex tachycardia with a regular rhythm. Which one of the following would be the most appropriate initial treatment? A) Amiodarone (Cordarone) B) Diltiazem (Cardizem)	Supraventricular tachycardia**. 10-134.** After vagal maneuvers are attempted in a stable patient with supraventricular tachycardia, the patient should be given a 6-mg dose of adenosine by rapid intravenous push. **ANS=C.** If conversion does not occur, a 12-mg dose should be given. This dose may be repeated once. If the patient is unstable, immediate synchronized cardioversion should be administered.

C) Adenosine (Adenocard) D) Magnesium E) Synchronized cardioversion	
10-235. +Car+Adm. Which one of the following medications is most effective for treating the arrhythmia shown in **Figure 3**? A) Atropine B) Bretylium tosylate (Bretylol) C) Lidocaine (Xylocaine) D) Procainamide (Pronestyl) E) Adenosine (Adenocard) 	Supraventricular tachycardia. **10-235.** Adenosine, an expensive intravenous drug, is highly effective in terminating many resultant supraventricular arrhythmias. **ANS=E.** Although it can cause hypotension or transient atrial fibrillation, adenosine is probably safer than verapamil because it disappears from the circulation within seconds. Because of its safety, many cardiologists now prefer adenosine over verapamil for treatment of hypotensive supraventricular tachycardia. Bretylium tosylate, procainamide, and lidocaine are used to treat ventricular arrhythmias. Atropine is indicated in the treatment of sinus bradycardia.
09-231. +Res+Cel. Sympathomimetic decongestants such as pseudoephedrine and phenylephrine can be problematic in elderly patients because they can A) decrease blood pressure B) cause bradycardia C) worsen existing urinary obstruction D) enhance the anticholinergic effects of other medications E) enhance the sedative effects of other medications	Sympathomimetic agents. **09-231.** Sympathomimetic agents can elevate blood pressure and intraocular pressure, may worsen existing urinary obstruction, and adversely interact with B-blockers, methyldopa, tricyclic antidepressants, and oral hypoglycemic agents and MAOIs. **ANS=C.** They also speed up the heart rate. First-generation nonprescription antihistamines can enhance the anticholinergic and sedative effects of other medications.
09-117. +Non+Euc. A 50-year-old male is brought to the emergency department because of a syncopal episode. Prior to the episode, he felt bad for 30 minutes, then developed nausea followed by vomiting. During a second bout of vomiting he blacked out and fell to the floor. His wife did not observe any seizure activity, and he was unconscious only for a few seconds. His history is otherwise negative,	Syncope. **09-117. ANS=E.** The workup of patients with syncope begins with a history and a physical examination to identify those at risk for a poor outcome. Patients who have a prodrome of 5 seconds or less may have a cardiac arrhythmia. Patients with longer prodromes, nausea, or vomiting are likely to have vasovagal syncope, which is a benign process. Patients who pass out after standing for 2

his past medical history is unremarkable, and he currently takes no medications. A physical examination is normal. Which one of the following would be the most helpful next step? A) CT of the head B) Carotid Ultrasonography C) A CBC and complete metabolic profile D) Echocardiography E) An EKG	minutes are likely to have orthostatic hypotension. In most cases, the recommended test is an EKG. If the EKG is normal, dysrhythmias are not a likely cause of the syncopal episode. Laboratory testing and advanced studies such as CT or echocardiography are not necessary unless there are specific findings in either the history or the physical examination.
09-162. +Car+Cel. A 75-year-old otherwise healthy white female states that she has passed out three times in the last month while walking briskly during her daily walk with the local senior citizens mall walkers' club. This history would suggest which one of the following as the etiology of her syncope? A) Vasovagal syncope B) Transient ischemic attack C) Orthostatic hypotension D) Atrial myxoma E) Aortic stenosis	Syncope. **09-162.** Syncope with exercise is a manifestation of organic heart disease in which cardiac output is fixed and does not rise (or even fall) with exertion. **ANS=E.** Syncope, commonly on exertion, is reported in up to 42% of patients with severe aortic stenosis. Vasovagal syncope is associated with unpleasant stimuli or physiologic conditions, including sights, sounds, smells, sudden pain, sustained upright posture, heat, hunger, and acute blood loss. Transient ischemic attacks are not related to exertion. Orthostatic hypotension is associated with changing from a sitting or lying position to an upright position. Atrial myxoma is associated with syncope related to changes in position, such as bending, lying down from a seated position, or turning over in bed.
07-137. +Nep+Adm. A 75-year-old white female presents with hyponatremia, with a serum level of 118 mEq/L, a urine osmolality >100 mOsm/kg H2 O, and a serum osmolality of 242 mOsm/kg H2O. She complains of some fatigue, but is alert and oriented. Her blood pressure is 136/82 mm Hg. She has normal thyroid, adrenal, cardiac, hepatic, and renal function. You admit her to the hospital for treatment and observation. Which one of the following is the most appropriate initial treatment? A) Administration of 3% normal saline B) Administration of normal saline C) Free water restriction D) Demeclocycline (Declomycin)	Syndrome of inappropriate antidiuresis. **07-137.** Syndrome of inappropriate secretion of antidiuretic hormone (SIADH). **ANS=C.** This patient probably has the SIADH. SIADH can be caused by CNS tumors, various infections such as meningitis, and pneumonia. Several drugs can cause this condition, including amiodarone, carbamazepine, SSRIs, and chlorpromazine. In this fairly asymptomatic patient, initial management should be free water restriction. As she is hemodynamically stable, she does not need normal saline. Moreover, administration of normal saline may exacerbate the hyponatremia, as the sodium may be rapidly excreted while the water is retained. If she had a rapid onset and neurologic symptoms such as seizures, hypertonic saline could be given. Correction should be slow, with a goal of no more than a 1–2 mmol/L/hr increase in the sodium level; a normal sodium level should not be reached within the first 48 hours of treatment. Demeclocycline is appropriate for patients who cannot adhere to the requirement for fluid restriction, or who have recalcitrant hyponatremia despite restriction.
08-215. +End+Adm. You see a patient with a serum sodium level of 122 mEq/L (N 135–145) and a serum osmolalityof 255 mOsm/kg H 2 O (N 280–295). Which one of the following would best correlate with a diagnosis of syndrome of inappropriate antidiuresis? A) Fractional excretion of sodium <1% B) Elevated urine osmolality C) Elevated serum glucose D) Elevated BUN E) Low plasma arginine vasopressin	Syndrome of inappropriate antidiuresis. **08-215.** (SIAD, formerly SIADH) is related to a variety of pulmonary and central nervous system disorders in which hyponatremia and hypo-osmolality are paradoxically associated with an inappropriately concentrated urine. **ANS=B**. Most, but not all, cases are associated with increased levels of the antidiuretic hormone arginine vasopressin (AVP). For a diagnosis of SIAD to be made, the patient must be euvolemic and not on diuretics (within 24–48 hours), and the urine osmolality must be high in conjunction with both low serum sodium and low osmolality. The BUN is normal or low and the fractional excretion of sodium is >1%. Fluid restriction (<800 cc/24 hours) over several days will correct the hyponatremia/hypo-osmolality, but definitive treatment requires eliminating the underlying cause, if possible. In the case of severe, acute hyponatremia with symptoms (e.g., confusion, obtundation, seizures), hypertonic (3%) saline can be slowly infused intravenously but can have dangerous neurologic side effects. Elevated serum glucose levels give rise to a factitious hyponatremia, but not SIAD.
09-091. +Mus+Cca. A 3-year-old male is carried into the office by his mother. Yesterday evening he began complaining of pain around his right hip. Today he has a temperature of 37.6°C (99.7°F), cries when bearing weight on his right leg, and will not allow the leg to be moved in any direction. A radiograph of the hip is normal. Which one of the following would be most appropriate at this time? A) A CBC and an erythrocyte sedimentation rate B) A serum antinuclear antibody level C) Ultrasonography of the hip D) MRI of the hip E) In-office aspiration of the hip	Synovitis, transient vs. septic arthritis. **09-091. ANS=A.** This presentation is typical of either transient synovitis or septic arthritis of the hip. Because the conditions have very different treatment regimens and outcomes, it is important to differentiate the two. It is recommended that after plain films, the first studies to be performed should be a CBC and an erythrocyte sedimentation rate (ESR). Studies have shown that septic arthritis should be considered highly likely in a child who has a fever over 38.7°C (101.7°F), refuses to bear weight on the leg, has a WBC count >12,000 cells/mm , and has an ESR >40 mm3/hr. If several or all of these conditions exist, aspiration of the hip guided by ultrasonography or fluoroscopy should be performed by an experienced practitioner. MRI may be helpful in cases that are unclear based on standard data, or if other etiologies need to be excluded.
09-135. +Non+Adm. A 24-year-old African-American male presents with a history of several weeks of dyspnea, cough productive of bloody streaks, and malaise. His examination is normal except for bilateral facial nerve palsy. A CBC and urinalysis are normal. A chest radiograph reveals bilateral lymph node enlargement. This presentation is most consistent with A) polyarteritis nodosa B) Goodpasture's syndrome C) sarcoidosisD) pulmonary embolus	Systemic autoimmune diseases. **09-135.** Sarcoidosis is a disease of unknown etiology, affects young to middle-age adults (predominantly 20–29 years old). **ANS=C**. In the U.S. it is more common in African-Americans. It is asymptomatic in 30%–50% of patients, and is often diagnosed on a routine chest film. About one-third of cases will present with fever, malaise, weight loss, cough, and dyspnea. The pulmonary system is the main organ system affected, and findings may include bilateral hilar lymphadenopathy and discrete, noncaseating epithelial granulomas. Facial nerve palsy is seen in <5% of patients, and usually occurs late in the process. Before Lyme disease was recognized, bilateral facial nerve palsy was almost always due to sarcoidosis. Hemoptysis does not generally occur until late in the course of sarcoidosis, and is usually related to *Aspergillus* infection or cavitation. Renal involvement rarely results in significant proteinuria or hematuria. Polyarteritis nodosa may involve the lungs. Although pneumonic episodes may be associated with hemoptysis in a small percentage of patients, the chest radiograph is more likely to reveal granulomatous lesions rather than patchy infiltrates. Goodpasture's syndrome is characterized by pulmonary hemorrhage, glomerulonephritis, and antiglomerular basement membrane antibodies. Hemoptysis, pulmonary alveolar infiltrates, dyspnea, and iron-deficiency anemia

	are frequent presenting features. Within days or weeks, the pulmonary findings are generally followed by hematuria, proteinuria, and the rapid loss of renalfunction. Pulmonary embolus is an acute event, and would present with dyspnea and possibly hemoptysis, but not hilar lymphadenopathy.
10-166. +Sen+Adm.* A 44-year-old female presents with a complaint of increasingly dry eyes over the past 3–4 months, and says she can no longer wear contacts due to the discomfort and itching. She also apologizes for chewing gum during the visit, explaining that it helps keep her mouth moist. On examination you note decreased tear production, decreased saliva production, and new dental caries. She stopped taking a daily over-the-counter allergy medication about 1 month ago. Which one of the following is the most likely diagnosis? A) Sarcoidosis B) Sjögren's syndrome C) Ocular rosacea D) Allergic conjunctivitis E) Medication side effect	Systemic autoimmune diseases. **10-166.** Sjögren's syndrome is one of the three most common systemic autoimmune diseases. It results from lymphocytic infiltration of exocrine glands and leads to acinar gland degeneration, necrosis, atrophy, and decreased function. **ANS=B.** A positive anti-SS-A or anti-SS-B antigen test or a positive salivary gland biopsy is a criterion for classification of this diagnosis. In addition to ocular and oral complaints, clinical manifestations include arthralgias, thyroiditis, pulmonary disease, and GERD. Most patients with sarcoidosis present with shortness of breath or skin manifestations, and patients with lupus generally have fatigue and joint pain. Ocular rosacea causes eye symptoms very similar to those of Sjögren's syndrome, but oral findings would not be expected. Drugs such as anticholinergics can cause a dry mouth, but this would be unlikely a month after the medication was discontinued (SOR B).
07-142. +Car+Adm. Which one of the following studies is the diagnostic procedure of choice to detect giant-cell arteritis? A) Biopsy of the temporalis muscle B) Biopsy of the temporal artery C) CT scan of the temporal artery D) MRI of the temporal artery E) An erythrocyte sedimentation rate	Temporal arteritis. **07-142.** Giant-cell arteritis**. ANS=B.** A definite diagnosis of giant-cell arteritis requires histomorphologic examination of arterial tissue. Considering the lack of specificity of the clinical and laboratory markers and the important therapeutic implications of prolonged corticosteroid therapy, histologic confirmation of the diagnosis should be sought whenever possible. Thus, biopsy of the temporal artery would be most efficacious in diagnosing giant-cell arteritis.
09-193. +Car+Cel. A 75-year-old female presents with a 2-month history of bilateral headache, diffuse myalgias, and diplopia. On examination she has substantially diminished vision in her left eye, but no other neurologic findings. A moderately tender, cordlike structure is palpable just anterior to her ear and extending up to her lateral scalp. Blood tests show a markedly elevated erythrocyte sedimentation rate. Which one of the following would be most appropriate at this point? A) Clopidogrel (Plavix) B) High-dose corticosteroids C) NSAIDs D) Dipyridamole/aspirin (Aggrenox)	Temporal arteritis**. 09-193. ANS=B.** The clinical findings in this patient are consistent with temporal arteritis: age over 50, new-onset headache, abnormalities of the temporal artery, and an elevated erythrocyte sedimentation rate. A temporal artery biopsy is needed to confirm the diagnosis, but when the findings are this compelling, corticosteroids should be started even before a biopsy, to prevent further vision loss. Temporal arteritis is the most common clinical pattern of giant cell arteritis, which can also involve other branches of the carotid artery.
08-073. +Mus+Adm. Which one of the following is true regarding temporomandibular joint disorder? A) Dental splints are the treatment of choice B) Mandibular "clicking" is an essential diagnostic element C) Ultrasonic phonophoresis with cortisone is the treatment of choice D) The majority of cases resolve without treatment E) MRI is preferred over CT to confirm the diagnosis	Temporomandibular joint (TMJ) disorders. **08-073.** Temporomandibular joint (TMJ) disorders occur in a large number of adults. **ANS=D.** The etiology is varied, but includes dental malocclusion, bruxism (teeth grinding), anxiety, stress disorders, and, rarely, rheumatoid arthritis. Dental occlusion problems, once thought to be the primary etiology, are not more common in persons with TMJ disorder. While dental splints have been commonly recommended, the evidence for and against their use is insufficient to make a recommendation either way. Physical therapy modalities such as iontophoresis or phonophoresis may benefit some patients, but there is no clearly preferred treatment. Radiologic imaging is unnecessary in the vast majority of patients, and should therefore be reserved for chronic or severe cases. In fact, the majority of patients with TMJ disorders have spontaneous resolution of symptoms, so noninvasive symptomatic treatments and "tincture of time" are the best approach for most.
09-196. +Rem+Euc. The test of choice for immediate evaluation of an acutely swollen scrotum is A) a pelvic radiograph B) radionuclide imaging C) color Doppler ultrasonography D) CT E) MRI	Testicles, scrotal mass. **09-196. ANS=C.** Any patient with a new scrotal mass should be evaluated immediately because of the risk of potential emergencies, such as testicular torsion, or of life-threatening diseases such as testicular carcinoma. Color Doppler ultrasonography is the test of choice for immediate evaluation of scrotal masses (SOR B) because it can be done quickly and has a high sensitivity (86%–88%) and specificity (90%–100%) for detecting testicular torsion, which is a surgical emergency. Radionuclide imaging is also accurate in diagnosing testicular torsion, but involves too much of a time delay to be useful. CT and MRI should be used only if ultrasonography is inconclusive or carcinoma is suspected, and are particularly useful for staging testicular tumors. Pelvic radiographs are not recommended for evaluation of scrotal masses.
07-061. +End+Adm. A 67-year-old male presents with symptoms of decreased libido and erectile dysfunction. An evaluation reveals that he has primary testosterone deficiency, and you consider testosterone replacement therapy. Which one of the following is true regarding this therapy? A) Liver toxicity is common B) It decreases the rate of bone fractures C) The risk of prostate cancer is increased D) HDL cholesterol levels typically increase E) Erythrocytosis is a potential side effect	Testosterone**. 07-061.** When testosterone is taken at usual physiologic doses, liver toxicity is unusual. **ANS=E.** Testosterone replacement therapy may stop bone loss and increase bone density, but many studies have been equivocal, and none have reported a decreased rate of fractures. Although prostate cancer is thought to be stimulated by testosterone, no studies have shown convincing evidence of an increased risk of prostate cancer associated with testosterone therapy. Studies indicate that **testosterone therapy either has no effect on HDL cholesterol or reduces HDL cholesterol levels**. **Testosterone stimulates erythropoiesis in 3%–18% of men receiving testosterone therapy. Since polycythemia is a potential issue, hemoglobin levels should be monitored.**
08-113. +End+Adm. Which one of the following is associated with testosterone supplementation in men with hypogonadism? A) Muscle wasting B) Polycythemia C) Osteoporosis D) An increased risk of benign prostatic hypertrophy	Testosterone**. 08-113.** Testosterone increases hematocrit and can cause polycythemia. **ANS=B.** In patients receiving testosterone supplementation, hematocrit should be monitored every 6 months for the first 18 months, then annually. Testosterone should be discontinued if there is more than a 50% rise in hematocrit. Testosterone also causes an increase in lean body mass, and may increase bone density.
08-136. +Hem+Adm. A 31-year-old healthy female is admitted to the hospital from the emergency department after presenting with aching in her right shoulder and swelling in the ipsilateral forearm and hand. The only precipitating event that she can recall is digging strenuously in the back yard to put in a new garden. Ultrasonography is remarkable for a thrombus in the axillosubclavian vein. She	Thromboembolism**. 08-136.** Thrombosis of the upper extremity accounts for about 10% of all venous thromboembolism (VTE) cases. **ANS=B.** However, axillosubclavian vein thrombosis (ASVT) is becoming more frequent with the increased use of indwelling subclavian vein catheters. **Spontaneous ASVT (not catheter related) is seen most commonly in young, healthy individuals. The**

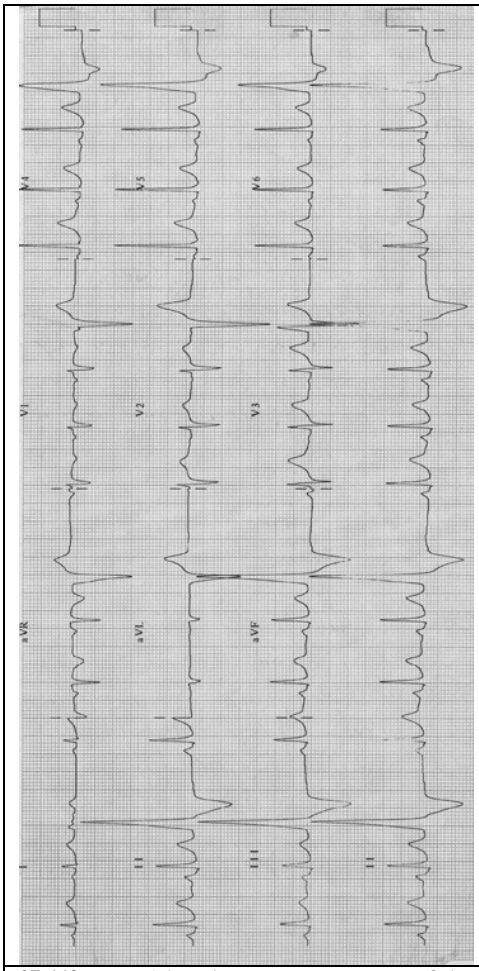
has no prior history of clotting, takes no medications, and has no previous history of medical or surgical procedures involving this extremity. The most likely etiology for this patient's condition is A) a hypercoagulable state B) a compressive anomaly in the thoracic outlet C) use of injection drugs D) Budd-Chiari syndrome	**most common associated etiologic factor is the presence of a compressive anomaly in the thoracic outlet.** These anomalies are often bilateral, and the other upper extremity at similar risk for thrombosis. While a hypercoagulable state also may contribute to the thrombosis, it is much less common. **Budd-Chiari syndrome refers to thrombosis in the intrahepatic, suprahepatic, or hepatic veins.** It is not commonly associated with spontaneous upper-extremity thrombosis. **Epocrates:** International expert panels have agreed that "Budd-Chiari syndrome" should be used as an eponym for "hepatic venous outflow tract obstruction", independent of the level or mechanism of obstruction. Asymptomatic: 1st anticoagulation Asymptomatic patients require anticoagulation as underlying prothrombotic states are often present, unless there are contraindications. Use low molecular weight heparin or heparin (in the absence of known allergy). Shift to oral anticoagulation targeting an INR of 2-3 as soon as possible. Warfarin is started on the same day as heparin unless there is a very high risk for bleeding or active bleeding. Recent improvements in the prognosis of BCS have been seen with generalized use of anticoagulation. Primary Options: enoxaparin : 40 mg subcutaneously once daily or dalteparin : 5000 units subcutaneously once daily -- AND -- warfarin : 2-5 mg orally once daily for 2-5 days initially, adjust dose according to target INR of 2-3. OR heparin : 5000 units subcutaneously every 8-12 hours and warfarin : 2-5 mg orally once daily for 2-5 days initially, adjust dose according to target INR of 2-3. * adjunct specific treatment of predisposing thrombophilia Treatment of the underlying predisposing thrombophilic condition should be treated as per standard care, for example, hydroxyurea and aspirin in myeloproliferative disease. A specific treatment with eculizumab has been shown to reduce the incidence of hemolytic and thrombotic episodes in paroxysmal nocturnal hemoglobinuria.
09-124. +Car+Adm. Risk factors for venous thromboembolism include which one of the following? A) Anemia B) The use of oral ypoglycemic agents C) Being underweight D) Young age E) Spinal cord injury	Thromboembolism**. 09-124. ANS=E.** There are many risk factors for thromboembolism, including polycythemia vera, oral contraceptive use, obesity, advanced age, and spinal cord injury. Spinal cord injury induces immobility, as do obesity and advanced age. Oral contraceptives make blood more coagulable, particularly in patients with clotting factor abnormalities such as factor V Leiden. Polycythemia vera increases sludging of blood cells and increases the risk of forming clots. Clot risk is not increased by oral hypoglycemic agents, low BMI, youth, or anemia.
07-227. +Mus+Adm. Which one of the following is the most accurate and cost-effective screening procedure for thyroid disease in geriatric patients? A) Serum T3 B) Serum free T4 C) Radioactive iodine (RAIU) uptake D) Serum TSH E) Radioallergosorbent test (RAST)	Thyroid disease. **07-227.** Geriatric patients**. ANS=D.** Physicians should consider periodic screening for biochemical abnormalities in elderly patients, because a clinical presentation of thyroid disease is not reliable in this age group. The most effective way to screen for thyroid dysfunction is to order a TSH level with third-generation assays using an immunoradiometric assay (IRMA). The RAST test is used for allergy testing. Notably, the American College of Physicians recommends periodic screening only for women age 50 and older. Other organizations have varying guidelines.
07-170. +End+Euc. A 60-year-old white female is in the intensive-care unit for respiratory failure secondary to community-acquired pneumonia. She smokes 2 packs of cigarettes per day, but has no other significant medical or personal history. A medical student is making rounds with you and asks if the patient's thyroid function should be tested. Which one of the following is true regarding thyroid testing in this situation? A) Most patients who are critically ill should be tested for occult hypothyroidism B) Serum TSH is a good screening test for thyroid disease in critically ill patients C) A low TSH level in this patient would indicate hyperthyroidism D) A low T4 level is a frequent finding in patients hospitalized in the intensive-care unit E) A low T3 level should be treated with thyroid replacement in hospitalized critically ill patients	Thyroid function test. **07-170. ANS=D.** Many patients hospitalized with nonthyroid illness in the intensive care unit have abnormalities on thyroid testing. Low serum concentrations of both thyroxine (T4) and triiodothyronine (T3) are common, and TSH may be decreased as well. Thyroid function should not be assessed in seriously ill patients unless a thyroid problem is strongly suspected. Measurement of serum TSH alone is inadequate for the evaluation of thyroid function in critically ill patients.
10-086. +End+Adm.* A 62-year-old male is admitted to the hospital for urosepsis. His medical history is significant only for hypertension. On examination he has a temperature of 36.5°C (97.7°F), a TSH level of 0.2 uU/mL (N 0.4–5.0), and a free T4 level of 0.4 ng/dL (N 0.6–1.5). Which one of the following is the most likely explanation for these findings? A) Pituitary adenoma B) Graves' disease C) Subacute thyroiditis D) Subclinical hypothyroidism E) Euthyroid sick syndrome	Thyroid function test. **10-086. E**uthyroid sick syndrome. **ANS=E.** The euthyroid sick syndrome refers to alterations in thyroid function tests seen frequently in hospitalized patients, and decreased thyroid function tests may be seen early in sepsis. These changes are statistically much more likely to be secondary to the euthyroid sick syndrome than to unrecognized pituitary or hypothalamic disease (SOR C). Graves' disease generally is a hyperthyroid condition associated with low TSH and elevated free T4 . Subclinical hypothyroidism is diagnosed by high TSH and normal free T4 levels. Subacute thyroiditis most often is a hyperthyroid condition.
08-014. +End+Adm. A 45-year-old white male undergoes a health screening at his church. He has a carotid Doppler study, abdominal ultrasonography, heel densitometry, and a multiphasic blood panel. He receives a report indicating that all of the studies are normal, but a 0.7-cm thyroid nodule was noted. The TSH level is normal. He schedules a visit with you and brings you the report. A neck examination and ENT examination are normal, and you do not detect a nodule. You recommend	Thyroid nodule. **08-014. ANS=C.** This is a classic incidentaloma. Nodules are detected in up to 50% of thyroid sonograms and carry a low risk of malignancy (<5%). If the TSH level is normal, nuclear scanning and further thyroid studies are not necessary. Nodules smaller than 1 cm are difficult to biopsy and thyroid surgery is not indicated for what is almost certainly benign disease. It is reasonable to follow small nodules with clinical examinations and periodic sonograms.

A) a radionuclide thyroid scan B) T3, T4 , and calcitonin levels C) repeat ultrasonography in 6–12 months D) a fine-needle biopsy E) hemithyroidectomy	
10-183. +End+Adm. A 42-year-old female is found to have a thyroid nodule during her annual physical examination. Her TSH level is normal. Ultrasonography of her thyroid gland shows a solitary nodule measuring 1.2 cm. Which one of the following would be most appropriate at this point? A) A radionuclide thyroid scan B) A fine-needle aspiration biopsy of the nodule C) Partial thyroidectomy D) Total thyroidectomy E) Reassurance	Thyroid nodule. **10-183. ANS=B.** All patients who are found to have a thyroid nodule on a physical examination should have their TSH measured. Patients with a suppressed TSH should be evaluated with a radionuclide thyroid scan; nodules that are "hot" (show increased isotope uptake) are almost never malignant and fine-needle aspiration biopsy is not needed. For all other nodules, the next step in the workup is a fine-needle aspiration biopsy to determine whether the lesion is malignant (SOR B).
07-036. +End+Adm. A 45-year-old Hispanic female presents with diffuse, tender swelling in her anterior neck. These symptoms were preceded by a prodrome of sore throat, low-grade fever, myalgias, and fatigue. On examination she has a tender, enlarged thyroid gland. Laboratory tests reveal 4 elevated free T and low TSH. Which one of the following is indicated at this time to determine appropriate treatment? A) Fine-needle aspiration of the thyroid gland B) Radioactive iodine uptake (RAIU) at 24 hours C) Immediate initiation of oral prednisone, 40–60 mg/day D) Antibiotics that cover *Streptococcus pyogenes*, *Streptococcus aureus*, and *Streptococcus pneumoniae* E) A CT scan of the neck	Thyroiditis**. 07-036.** Subacute granulomatous thyroiditis is the most common cause of thyroid pain. **ANS=B.** It is four times more common in women, most often occurs at 40–50 years of age, and is usually attributed to a viral infection. Symptoms and signs of this disorder include a prodrome of myalgias, pharyngitis, low-grade fever, and fatigue, followed by a tender, diffuse goiter and neck pain that often radiates up to the ear. Hyperthyroidism is seen in half of affected individuals, and must be differentiated from that found with Graves' disease to determine appropriate treatment. In patients with subacute thyroiditis the RAIU at 24 hours is low (<5%), whereas in those with Graves' disease it is elevated. Treatment consists of relieving the thyroid pain and tenderness with NSAIDs. If no improvement occurs in a week, prednisone may be given in a dosage of 40–60 mg/day, tapered off over 4–6 weeks. Suppurative thyroiditis is an extremely rare form of thyroiditis caused by bacterial, fungal, mycobacterial, or parasitic infection of the thyroid gland. Predisposing factors include congenital abnormalities such as persistent thyroglossal duct or piriform sinus fistula, greater age, and immunosuppression. Patients commonly present with acute unilateral anterior neck pain and erythema of the skin overlying an exquisitely tender thyroid. Fever, dysphagia, and dysphonia are also present. Thyroid function most often is normal, but hyper- or hypothyroidism may be present. The erythrocyte sedimentation rate is elevated, and the WBC count shows a marked increase with a left shift. Fine-needle aspiration with a Gram stain and culture is the most useful diagnostic test.
07-159. +End+Cfp+Mac. A 28-year-old female presents 2 weeks post partum complaining of palpitations, diarrhea, weight loss, and being "jumpy." Her examination is normal except for a slightly enlarged and tender thyroid gland. Her TSH level is 0.02 :U/mL (N 0.5–5.5), with a higher than normal level of free T3. Which one of the following would be the most appropriate treatment? A) Levothyroxine (Synthroid) B) Prednisone C) Propranolol (Inderal) D) Propylthiouracil E) Radioactive iodine	Thyroiditis. **07-159. P**ostpartum. **ANS=C.** This patient presents with signs, symptoms, and laboratory evidence of postpartum thyroiditis. This is an autoimmune attack of the thyroid gland that occurs in 5%–10% of all mothers within a year of delivery. The transient increase of thyroid hormone that results is often unnoticed but can cause clinical hyperthyroidism. A B-blocker is recommended to reduce heart irregularities and other symptoms related to high levels of circulating thyroid hormone. Propylthiouracil prevents the production of new thyroid hormone and is not indicated because this condition results only in a release of thyroid hormone that has already been created. Up to one-third of women with this condition will become chronically hypothyroid and will require regular thyroid replacement. This patient is not currently hypothyroid, so she would not benefit from replacement with levothyroxine.
09-141. +End+Adm. A 45-year-old female had myalgias, a sore throat, and a fever 2 weeks ago. She now has anterior neck tenderness and swelling, with pain radiating up to her ears. An examination reveals a tender goiter. Which one of the following would support a diagnosis of subacute granulomatous thyroiditis? A) Pretibial myxedema B) Exophthalmos C) A thyroid bruit D) Low radioactive iodine uptake (<5%)	Thyroiditis. **09-141.** Subacute granulomatous thyroiditis is the most common cause of thyroid pain. **ANS=D.** Free T4 is elevated early in the disease, as it is in Graves' disease; however, later in the disease T4 becomes depressed and then returns to normal as the disease resolves. Pretibial myxedema, exophthalmos, and a thyroid thrill or bruit can all be found in Graves' disease, but not in subacute granulomatous thyroiditis. Patients with subacute granulomatous thyroiditis will have a low radioactive iodine uptake (RAIU) at 24 hours, but patients with Graves' disease will have an elevated RAIU (SOR C).
10-079. +End+Adm.**?*** A 42-year-old male presents with anterior neck pain. His thyroid gland is markedly tender on examination, but there is no overlying erythema. He also has a bilateral hand tremor. His erythrocyte sedimentation rate is 82 mm/hr (N 1–13) and his WBC count is 11,500/mm3 (N 4300–10,800). His free T4 is elevated, TSH is suppressed, and radioactive iodine uptake is abnormally low. Which one of the following treatment options would be most helpful at this time? A) Levothyroxine (Synthroid) and NSAIDs B) Propylthiouracil C) Prednisone D) Nafcillin E) Thyroidectomy	Thyroiditis**. 10-079. P**ainful subacute. **ANS=C.** This patient has signs and symptoms of painful subacute thyroiditis, including a painful thyroid gland, hypothyroidism, and an elevated erythrocyte sedimentation rate. It is unclear whether there is a viral etiology to this self-limited disorder. Thyroid function returns to normal in most patients after several weeks, and may be followed by a temporary hypothyroid state. Treatment is symptomatic. Although NSAIDs can be helpful for mild pain, high-dose glucocorticoids provide quicker relief for the more severe symptoms. Levothyroxine is not indicated in this hyperthyroid state. Neither thyroidectomy nor antibiotics is indicated for this problem.
07-139. +Int+Adm. A 25-year-old female presents to your office with a tick embedded in the skin on her abdomen. It was likely acquired the previous evening when she was hiking in the woods near her home. She is currently asymptomatic. Appropriate management at this point would be to A) apply a hot match to the body of the tick B) cover the tick with petroleum jelly C) remove the tick with blunt angled forceps D) use topical lidocaine on the site E) prescribe a 3-week course of doxycycline	Tick-borne illnesses. **07-139.** Tick-borne illnesses may be prevented by removal of the parasite within 24–48 hours after attachment to the host. **ANS=C.** Blunt, medium-tipped, angled forceps or commercially available devices (but not tweezers) should be used. The tick should be grasped gently and vertical traction applied until it dislodges. Using improper technique can leave a portion of the tick behind, resulting in infection or granuloma formation. Other methods, such as applying a hot match to the tick, applying or injecting lidocaine, or passing a

	needle through the tick, are not recommended. If no symptoms follow the tick bite, antibiotic therapy is not recommended.
08-043. +Int+Adm. Which one of the following skin infections should initially be treated with oral antifungal therapy? A) Tinea capitis B) Tinea corporis C) Tinea cruris D) Erythrasma E) Mycosis fungoides	Tinea. **08-043. C**orporis. **ANS=A.** Most tinea infections respond to topical therapy, but oral therapy is required for tinea capitis so that the drug will penetrate the hair shafts (SOR B). Tinea corporis may require oral therapy in severe cases, but usually responds to topical therapy (SOR A). Oral therapy has a higher likelihood of side effects. Erythrasma and mycosis fungoides are not fungal diseases.
08-032. +Sen+Euc. A 35-year-old male with a toothache presents to a local clinic for uninsured patients. On examination you find a decayed left lower molar that is tender when tapped lightly, and surrounding gingival inflammation and tenderness. There is no obvious mandibular swelling, but he does have a tender submandibular lymph node. The earliest available dental appointment is in 1 week. He has no allergies to medications. Which one of the following would be the best antibiotic treatment for this patient? A) Doxycycline B) Trimethoprim/sulfamethoxazole (Bactrim, Septra) C) Clindamycin (Cleocin) D) Ciprofloxacin (Cipro) E) Cephalexin (Keflex)	Toothache. **08-032. A**naerobic oral bacteria treatment. **ANS=C.** This patient most likely has periodontitis of the tooth's roots with cellulitis, complicated by an apical abscess. This infection is caused by anaerobic oral bacteria. Clindamycin or amoxicillin /clavulanate is preferred for antibiotic treatment. Doxycycline, trimethoprim /sulfamethoxazole, ciprofloxacin, and cephalexin have limited effectiveness against anaerobes and would not be indicated.
07-053. +Car+Euc. Which one of the following can be used to treat torsades de pointes? A) Atropine B) Procainamide (Procanbid, Pronestyl) C) Magnesium D) Disopyramide (Norpace) E) Quinidine	Torsades de pointes. **07-053.** Torsades de pointes, a special form of ventricular tachycardia (VT), causes a gradual alteration in the amplitude and direction of electrical activity. **ANS=C. Torsades requires different treatment than the other VTs. Recent reports have demonstrated that magnesium sulfate can effectively abolish runs of torsades de pointes.** Quinidine and other drugs that prolong repolarization (procainamide, phenothiazines, tricyclic antidepressants, disopyramide) are contraindicated because they can exacerbate torsades. Atropine is indicated for treatment of symptomatic bradycardia.
10-002. +Car+Euc. Intravenous magnesium is used to correct which one of the following arrhythmias? A) Wenckebach second-degree heart block B) Complete heart block C) Idioventricular rhythm D) Reentrant supraventricular tachycardia E) Ventricular tachycardia of torsades de pointes	Torsades de pointes**. 10-002. ANS=E.** A well-known use of intravenous magnesium is for correcting the uncommon ventricular tachycardia of torsades de pointes. Results of a meta-analysis suggest that 1.2–10.0 g of intravenous magnesium sulfate also is a safe and effective strategy for the acute management of rapid atrial fibrillation.
09-032. +Non+Mac. A 26-year-old gravida 1 para 0 presents for a prenatal examination. She has two cats and expresses concern about toxoplasmosis. Which one of the following would be most appropriate for this patient? A) Recommend that she avoid directly handling the cats' litter box B) Immunize the patient against toxoplasmosis C) Prophylactically treat the cats with antibiotics D) Screen the patient's urine for *Toxoplasma* antigens E) Screen the patient's serum for *Toxoplasma* antibody *Note:* ***Tx option (UpToDate): 3 wk course of pyrimethamine (50 mg qd PO or 25 mg bid) and sulfadiazine (3 g/day PO divided into 2 to 3 doses), alternating with a three-week course of spiramycin (1 g PO tid) until delivery.***	Toxoplasmosis**. 09-032.** ANS=A. There is **no immunization against it**, and the **use of antibiotics is limited to cases in which there is known maternal infection with the protozoa.** Screening pregnant women for seroconversion (not with urine antigen testing) is controversial, and recommendations by various professional groups differ. Currently, the **American College of Obstetrics and Gynecology does not recommend routine screening except in patients who are known to be HIV positive.** However, because the infection is thought to be passed primarily from undercooked meat or through infected animal feces, it is universally recommended that pregnant women avoid direct contact with cats' litter boxes. If avoidance is not possible, wearing gloves when handling a litter box is recommended.
09-139. +Res+Adm. The preferred site for an emergency airway is A) the thyrohyoid membrane B) the cricothyroid membrane C) immediately below the cricoid cartilage D) through the first and second tracheal rings E) at the level of the thyroid isthmus	Tracheotomy. **09-139. E**mergency. **ANS=B.** Fortunately, emergency tracheotomy is not often necessary, but should one be necessary the best site for the incision is directly above the cricoid cartilage, through the cricothyroid membrane. Strictly speaking, this is not a tracheotomy, because it is actually above the trachea. However, it is below the vocal cords and bypasses any laryngeal obstruction. The thyrohyoid membrane lies well above the vocal cords, making this an impractical site. The area directly below the cricoid cartilage—which includes the second, third, and fourth tracheal rings, as well as the thyroid isthmus—is the preferred tracheotomy site under controlled circumstances, but excessive bleeding and difficulty finding the trachea may significantly impede the procedure in an emergency.
10-140P. +Gas+Com.>L**?*** A 47-year-old male is preparing for a 3-day trip to central Mexico to present the keynote address for an international law symposium. He asks you for an antibiotic to be taken prophylactically to prevent bacterial diarrhea. Which one of the following would you recommend? A) Trimethoprim/sulfamethoxazole (Bactrim, Septra) B) Rifaximin (Xifaxan) C) Doxycycline D) Ciprofloxacin (Cipro)	Traveler, prophylaxis. **10-140P. ANS=B.** While prophylactic antibiotics are not generally recommended for prevention of traveler's diarrhea, they may be useful under special circumstances for certain high-risk hosts, such as the immunocompromised, or for those embarking on critical short trips for which even a short period of diarrhea might cause undue hardship. **Rifaximin, a nonabsorbable antibiotic, has been shown to reduce the risk for traveler's diarrhea by 77%. Trimethoprim/sulfamethoxazole and doxycycline are no longer considered effective antimicrobial agents against enteric bacterial pathogens.** Increasing resistance to the fluoroquinolones, especially among *Campylobacter* species, is limiting their use as prophylactic agents.
09-134. +Neu+Adm. Which one of the following is most likely to be of benefit in patients with essential tremor of the hand? A) Isoniazid B) Diazepam (Valium) C) Topiramate (Topamax) D) Clonidine (Catapres) E) Gabapentin (Neurontin)	Tremor, essential. **09-134. ANS=C.** Treatments likely to be beneficial for essential tremor of the hands include propranolol and topiramate. Topiramate has been shown to improve tremor scores after 2 weeks of treatment, but is associated with appetite suppression, weight loss, and paresthesias. **ANS=C.** Medications with unknown effectiveness include benzodiazepines, b-blockers other than propranolol, calcium channel blockers, clonidine, gabapentin, and isoniazid.

07-048. +Res+Com+Adm. A 36-year-old male who recently immigrated from Rwanda presents with a several-month history of cough accompanied by hemoptysis and weight loss. He is afebrile, and a lung examination is normal. A chest radiograph shows a cavitary lesion in his left upper lobe. He is admitted to the hospital and placed in respiratory isolation. A tuberculin test is positive, but three induced sputum smears are negative for acid-fast bacillus. Cultures are still pending. Which one of the following INITIAL treatment regimens is most appropriate? A) No treatment until culture results are available B) Isoniazid for 9 months C) Rifampin and pyrazinamide for 8 weeks D) Rifampin and/or isoniazid for 18 weeks E) Rifampin, isoniazid, ethambutol, and pyrazinamide for 8 weeks	Tuberculosis. **07-048.** INITIAL treatment regimens. **ANS=E.** Nearly one third of the world's population is infected with *Mycobacterium tuberculosis*. The highest per capita incidence occurs in sub-Saharan Africa. Although a positive acid-fast bacillus smear or culture for *M. tuberculosis* is needed to confirm active disease, treatment should begin without delay in patients for whom the clinical suspicion is high, as in this case. Because of relatively high rates of resistance to isoniazid, four drugs are necessary in the initial phase to be maximally effective. Thus, the initial treatment regimen for all adults with previously untreated tuberculosis should consist of 8 weeks of therapy with rifampin, isoniazid, ethambutol, and pyrazinamide. Most patients will require an 18-week continuation phase after initiation. If the likelihood of active tuberculosis is low, treatment can be deferred until the results of mycobacterial cultures are known. In low-risk patients who are not initially treated, one of the other treatment regimens for latent tuberculosis is acceptable if cultures are negative, a tuberculin skin test is positive, and a chest radiograph is unchanged after 2 months. However, the 8-week regimen of rifampin and pyrazinamide should be used only in patients who are not likely to complete a longer course of therapy and who can be monitored closely because of an increased risk of hepatotoxicity.
07-228. +Non+Adm. A 26-year-old female nurse has had recent contact with patients with AIDS and tuberculosis (TB), and now has a positive tuberculin skin test. Her test was negative a year ago. She has no other medical complaints. Testing to exclude which one of the following is most important before starting latent TB therapy with isoniazid (INH)? A) Active TB B) Previous hepatitis C) Diabetes mellitus D) Neuropathy E) Pregnancy **Epocrates:** no comorbidity nonpregnant: induction therapy: Expert consultation is obtained. Antituberculous therapy is initiated based on clinical suspicion after optimal diagnostic samplings.While awaiting that information, an expanded empiric regimen may be used. The final regimen will be based on the results of drug-susceptibility testing. Single new drugs are not added to a failing regimen and intermittent therapy is not an option. All medications should be administered together. Induction therapy should continue for 2 months, with the ultimate duration to be determined on the basis of eventual drug susceptibilities and expert consultation. If drug resistance is suspected, additional antibiotics should be used.Primary Options: isoniazid : 5 mg/kg orally once daily, maximum 300 mg/day and rifampin : 10 mg/kg orally once daily, maximum 600 mg/day and pyrazinamide : body weight 40-55kg: 1000 mg orally once daily; body weight 56-75kg: 1500 mg orally once daily; body weight 76-90kg: 2000 mg orally once daily and ethambutol : body weight 40-55kg: 800 mg orally once daily; body weight 56-75kg: 1200 mg orally once daily; body weight 76-90kg: 1600 mg orally once daily	Tuberculosis. **07-228.** Active TB**. ANS=A.** It is **essential to exclude active tuberculosis infection through a screening chest radiograph before instituting therapy for latent tuberculosis. Failure to do so increases the risk of developing drug resistance**. Patients who have had hepatitis in the past require monitoring of liver function but can usually be treated. Diabetics, who have a higher risk of developing tuberculosis, should be treated. Pyridoxine (vitamin B6) is often given to patients with neuropathy. Pregnancy is not a contraindication for INH prophylaxis when there is documentation of a valid indication such as conversion to a positive PPD within the past 2 years. **In addition to INH, pregnant patients should be treated with pyridoxine. In otherwise healthy individuals, pyridoxine supplementation is unnecessary.** -**Additional antibiotics may be given in cases of suspected drug resistance**, especially if the patient is seriously ill. Drug resistance in newly diagnosed TB may be suspected in patients who have previously been treated with antituberculous drugs (especially if that treatment was intermittent) or on the basis of previous contact with a known drug-resistant case or of living in an area where drug resistance is common. Primary Options: moxifloxacin : 400 mg orally/intravenously once daily or levofloxacin : 500-1000 mg orally/intravenously once daily -- AND -- capreomycin: 15 mg/kg intramuscularly/intravenously once daily, maximum 1000 mg/day or amikacin : 15 mg/kg intramuscularly/intravenously once daily, maximum 1000 mg/day or kanamycin : 15 mg/kg intramuscularly/intravenously once daily, maximum 1000 mg/day -adjunct pyridoxine Patients at risk of neuropathy (including HIV-positive patients, those with diabetes mellitus, malnourished patients, and those who abuse alcohol) should receive pyridoxine as an adjunct to isoniazid. Primary Options: pyridoxine : 25-50 mg orally once daily - **Adjunctive corticosteroid therapy** is used for TB meningitis and pericarditis. It has been shown to reduce mortality, especially in patients with a decreased level of consciousness. Dexamethasone is preferred in meningitis, while prednisone is preferred in pericarditis. The CDC recommends that the initial dose of dexamethasone is given for 3 weeks and then decreased gradually during the following 3 weeks, and that the initial dose of prednisone is given for 4 weeks and then decreased gradually over 7 weeks. Primary Options: dexamethasone : children <25 kg: 8 mg/day orally for 3 weeks, then taper gradually; children >25 kg and adults: 12 mg/day orally for 3 weeks, then taper gradually prednisone : 60 mg/day orally for 4 weeks, then taper gradually over 7 weeks
09-068. +Res+Adm. A healthy 48-year-old bookkeeper who works in a medical office has a positive PPD on routine yearly screening. Which one of the following would be most appropriate at this point? A) A chest radiograph B) A repeat PPD C) Treatment with isoniazid and one other antituberculous drug for 12 months D) Anergy testing	Tuberculosis. **09-068.** PPD positive. **ANS=A.** Clinical evaluation and a chest radiograph are recommended in asymptomatic patients with a positive PPD (SOR C). A two-step PPD is performed on those at high risk whose initial test is negative. Asymptomatic patients with a positive PPD and an abnormal chest film should have a sputum culture for TB, but a culture is not required if the chest film is negative. Persons with a PPD conversion should be encouraged to take INH for 9 months with proper medical supervision. Patients with a negative PPD who are still at high risk for TB, especially HIV-positive patients, could be evaluated for anergy, but it is not recommended at this time.
10-028. +Non+Adm.**?* (This was deleted and excluded from scoring for content reasons)** A 40-year-old male who recently immigrated from central Africa presents to a public health clinic where you are working. He was referred by a physician in the local emergency department, who made a diagnosis of type 2 diabetes mellitus. The patient has no history of fever or night sweats, weight loss, or cough. He does have a history of receiving bacilli Calmette-Guérin (BCG)	Tuberculosis. **10-028. (This was deleted and excluded from scoring for content reasons) ANS=C.** In vitro interferon-gamma release assays (IGRAs) are a new way of screening for latent tuberculosis infection. Currently, **the QuantiFERON-TB Gold test is the only IGRA approved by the FDA. One of the advantages of IGRA is that it targets antigens specific to *Mycobacterium tuberculosis*.** These proteins are absent from the BCG vaccine strains and from commonly

vaccine in the past. Screening tests for HIV and hepatitis performed in the emergency department were negative. Which one of the following is true regarding screening for latent tuberculosis infection by in vitro interferon-gamma release assay (IGRA) compared to screening by the traditional targeted tuberculin skin test (TST) in this patient? A) Both tests require subjective interpretation B) BCG interferes with IGRA results C) IGRA differentiates *Mycobacterium tuberculosis* from nontuberculous mycobacteria D) IGRA results are valid if the sample is analyzed within 24 hours E) IGRA should be done in tandem with TST	encountered nontuberculous mycobacteria. Unlike skin testing, the results of IGRA are objective. It is unnecessary for IGRA to be done in tandem with skin testing, and it eliminates the need for two-step testing in high-risk patients. IGRAs are labor intensive, however, and the blood sample must be received by a qualified laboratory and incubated with the test antigens within 12 hours of the time it was drawn.
10-048. +Res+Adm.>L* Which one of the following Mantoux tuberculin skin test results should be read as NEGATIVE for latent tuberculosis infection? A) 7 mm induration on an individual having recent household contact with a tuberculosis patient B) 8 mm induration on an HIV-positive individual who has no documented previous test result C) 10 mm induration on a nursing-home resident D) 12 mm induration on a homeless individual E) 9 mm induration on a hospital-based nurse who had a test with 2 mm induration 1 year ago	Tuberculosis. **10-048. T**uberculin skin test**. ANS=E.** Three different cutoff levels defining a positive reaction on a tuberculin skin test are recommended by the CDC, each based on the level of risk and consideration of immunocompetence. For those who are at highest risk and/or immunocompromised, including HIV-positive patients, transplant patients, and household contacts of a tuberculosis patient, an induration ≥5 mm is considered positive. For those at low risk of exposure, a screening test is not recommended, but if one is performed, induration ≥15 mm is considered positive. For those who have an increased probability of exposure or risk, an induration ≥10 mm should be read as positive. This group includes children; employees or residents of nursing homes, correctional facilities, or homeless shelters; recent immigrants; intravenous drug users; hospital workers; and those with chronic illnesses. For individuals who are subject to repeated testing, such as health-care workers, an increase in induration of 10 mm or more within a 2-year period would be considered positive and an indication of a recent infection with *Mycobacterium tuberculosis*. A nurse with a 9-mm induration would be considered to have a negative PPD.
10-154. +Res+Adm. A 51-year-old immigrant from Vietnam presents with a 3-week history of nocturnal fever, sweats, cough, and weight loss. A chest radiograph reveals a right upper lobe cavitary infiltrate. A PPD produces 17 mm of induration, and acid-fast bacilli are present on a smear of induced sputum. While awaiting formal laboratory identification of the bacterium, which one of the following would be most appropriate? A) Observation only B) INH only C) INH and ethambutol (Myambutol) D) INH, ethambutol, and pyrazinamide E) INH, ethambutol, rifampin (Rifadin), and pyrazinamide	Tuberculosis. **10-154. S**uspected. **ANS=E.** Leading authorities, including experts from the American Thoracic Society, CDC, and Infectious Diseases Society of America, mandate aggressive initial four-drug treatment when tuberculosis is suspected. Delays in diagnosis and treatment not only increase the possibility of disease transmission, but also lead to higher morbidity and mortality. Standard regimens including INH, ethambutol, rifampin, and pyrazinamide are recommended, although one regimen does not include pyrazinamide but extends coverage with the other antibiotics. Treatment regimens can be modified once culture results are available.
07-237. +Car+Adm. An asymptomatic 41-year-old male is having a life insurance physical. He is reasonably active and has no chest pain or palpitations. An EKG, his first, is shown. There is no family history of vascular disease. He has never had any health problems other than a couple of sports-related injuries. His blood pressure is 118/60 mm Hg, height 178 cm (70 in), and weight 70 kg (154 lb). A chest radiograph is normal. Which one of the following would be most appropriate at this time? A) An exercise stress test B) Holter monitoring C) Electrophysiologic mapping D) Cardiac catheterization E) No further evaluation	Unifocal premature contractions. **07-237.** The EKG demonstrates unifocal premature contractions. **ANS=E. Prospective studies of large populations of ambulatory men have not shown increased mortality on long-term follow up**. Regardless of the presence and persistence of ventricular ectopy, the patients have a prognosis no different than that of other healthy people, and above all, there is no increased risk of sudden death. In the absence of angina, a history of heart failure, cardiomegaly on a chest radiograph, left ventricular hypertrophy, bundle branch block, or hypertension, further diagnostic evaluation is unwarranted.



07-110. +Res+Adm. The most common cause of chronic cough in adults is
A) gastroesophageal reflux disease
B) asthma
C) upper airway cough syndrome (postnasal drip)
D) nonasthmatic eosinophilic bronchitis
E) ACE inhibitor use

First generation antihistamines are preferred over second generation ones (eg, cetirizine, fexofenadine, loratadine) due to the stronger anticholinergic effect, but concern over the sedating effects may limit their use [9]. Improvement in the cough should lead to further evaluation for the cause of the rhinitis (eg, allergic, nonallergic, or rhinosinusitis) and optimization of the long-term treatment. Lack of improvement in cough after one to two weeks of empiric therapy for UACS is evidence that UACS is not the cause of the cough. However, in the presence of nasal symptoms or signs, a sinus CT scan should be performed before completely excluding the possibility of UACS as a cause of cough.

A 2001 decision analysis provides support for the strategy of treating chronic cough empirically. **Since the most common cause for chronic cough is UACS (with an assumed prevalence of 44%) due to rhinosinus conditions, an empiric trial of a first-generation antihistamine/decongestant is a reasonable option.** Further treatment choices are based on the response to this regimen.

Upper airway cough syndrome. 07-110. Causes of chronic cough in the adult patient are often somewhat obscure, as the onset may be vague and there are no consistently reliable defining characteristics. **ANS=C.** Further complicating this diagnostic challenge is the possibility that the cough may be due to multiple concurrent conditions that must each be addressed before the cough will resolve. Each of the options listed may cause chronic cough and must be considered. **In order, the three most common causes of chronic cough are Upper airway cough syndrome (UACS), asthma, and gastroesophageal reflux disease.** Nonasthmatic eosinophilic bronchitis is frequent enough to warrant consideration as well.

Uptodate: Upper airway cough syndrome (**UACS; previously known as postnasal drip syndrome** but revised to include all upper airway abnormalities causing cough) has a number of different etiologies, including allergic, nonallergic, and vasomotor rhinitis, acute nasopharyngitis, and sinusitis [9]. When an environmental precipitant for allergic rhinitis can be identified, exposure to this precipitant should be eliminated if at all possible.Practice parameters for the diagnosis and management of rhinitis have been published [10]. These guidelines describe high-quality evidence that intranasal glucocorticoids are the most effective therapy for symptoms of allergic rhinitis (table 1). In addition, intranasal glucocorticoids are effective for several types of nonallergic rhinitis, including nonallergic rhinitis with eosinophilia (NARES) and vasomotor rhinitis. For patients with cough due to allergic rhinitis, intranasal glucocorticoids are generally effective in reducing cough within the first few days, but may take up to two weeks to achieve maximal effect. If the patient responds, therapy is continued for approximately three months. Among patients without evidence for allergic rhinitis in whom nonallergic rhinitis may be more likely, our approach is to perform a diagnostic trial with an oral first generation antihistamine (eg, brompheniramine, chlorpheniramine, clemastine) or a combined antihistamine-decongestant (eg, brompheniramine- pseudoephedrine) [1,4,11].

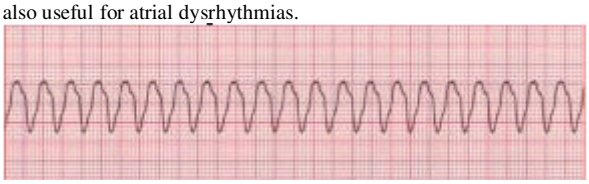
07-089. +Nep+Adm. A 50-year-old female presents with a history of small amounts of urine leakage with coughing, sneezing, and exercising over the past few months. She denies any nocturia, urinary urgency, or frequency. A urinalysis is normal. Of the following, the most effective treatment for this patient's problem would be
A) Kegel exercises
B) estrogen

Urinary incontinence**. 07-089. S**tress. **ANS=A.** The symptoms presented describe stress incontinence. This condition is commonly confused with urge incontinence, which would be highly unlikely without accompanying urge, frequency, nocturia, and large amounts of urine leakage. **Urge incontinence may be treated with oxybutynin or tolterodine, but these are not effective for treating stress incontinence.** Estrogen was at one time touted as a therapy for this condition also, but now is not considered an effective treatment (level B evidence). Of the options

C) oxybutynin (Ditropan) D) tolterodine (Detrol) Other associated symptoms may include weak urinary stream, dribbling, intermittency, hesitancy, frequency, and nocturia. Stress-related leakage may be apparent, reflecting an otherwise intact sphincter mechanism overwhelmed by the large bladder volume. Bladder outlet obstruction is uncommon in women, occurring in approximately 3 percent of a referral population of incontinent women [18]. Obstruction in women may be caused by scarring from prior anti-incontinence surgery or significant pelvic organ prolapse, when the prolapsed bladder or uterus kinks the urethra. Patients with suprasacral spinal cord injury can develop neurological obstruction from detrusor-sphincter dyssynergia, in which interruption of spinal pathways leads to sphincter contraction during bladder contraction; these patients are at high risk for hydronephrosis. Detrusor underactivity sufficient to cause overflow urinary incontinence and urinary retention occurs in about 5 to 10 percent of older persons and is less frequent in younger individuals [19]. Etiologies of detrusor underactivity include smooth muscle damage, fibrosis, low estrogen, aging, peripheral neuropathy (due to diabetes mellitus, vitamin B12 deficiency, Parkinson disease, alcoholism, tabes dorsalis), and damage to the spinal detrusor efferents by disc herniation, spinal stenosis, tumor, or congenital abnormalities. "Detrusor hyperactivity with impaired contractility" (DHIC), representing incontinence due to a combination of detrusor underactivity and overactivity, may occur in frail elderly persons [15]. "Neurogenic bladder" is a nonspecific term used to refer to conditions ranging from areflexic noncontractile bladder to detrusor overactivity; we prefer to avoid this terminology. Neurogenic lower urinary tract dysfunction can be diagnosed only in the presence of neurological pathology, and the type of dysfunction should be specified (figure 2) [20,21].	given, the only effective treatment for stress incontinence is Kegel exercises. Other effective treatments include surgery and a pessary. **Uptodate: Lower urinary tract causes** — There are **four major clinical types** of urinary incontinence **associated with lower urinary tract dysfunction**: **urge incontinence, stress incontinence, mixed incontinence, and "overflow incontinence."** **Urge incontinence** — The etiology of urge urinary incontinence and the overactive bladder syndrome is **presumed to be uninhibited bladder contractions (called detrusor overactivity, DO).** Detrusor overactivity, however, may also be found in healthy, continent elderly individuals, suggesting that overactivity alone is not sufficient to cause incontinence [12]. Research suggests an important role of afferent sensory nerve pathways in the development of detrusor overactivity [13]. Urge leakage symptoms may also be due to factors outside of the lower urinary tract. Failure of compensatory mechanisms in the lower urinary tract, and impairments in the functional requirements for continence may be important. In many cases, detrusor overactivity may be idiopathic. (See 'Incontinence related to reversible conditions' below and "Epidemiology, risk factors, and pathogenesis of urinary incontinence".) Urge urinary incontinence **in younger women may be due to interstitial cystitis.** This condition is **characterized by urgency and frequent voiding of small amounts of urine, often with dysuria or pain; not all affected persons are incontinent** [14]. Treatment is hampered by an incomplete understanding of its pathophysiology. (See "Clinical features and diagnosis of painful bladder syndrome/interstitial cystitis" and "Treatment of painful bladder syndrome/interstitial cystitis".) Urge urinary incontinence **in frail older persons frequently coexists with impaired detrusor contractility, a condition termed detrusor hyperactivity with impaired contractility (DHIC)** [15]. DHIC is characterized by urgency and an elevated postvoid residual in the absence of outlet obstruction. DHIC can be misdiagnosed as stress urinary incontinence if the detrusor overactivity is triggered by a stress maneuver, or as outlet obstruction and detrusor weakness, since it shares the same symptoms [16]. Patients with DHIC may be more prone to urinary retention when bladder relaxants or other anticholinergic medications are used, although clear evidence of this is lacking. **Stress incontinence** — Stress leakage **occurs when increases in intraabdominal pressure overcome sphincter closure mechanisms in the absence of a bladder contraction.** Stress urinary incontinence is the most common cause of urinary incontinence in younger women, second most common cause in older women [17]. Stress incontinence often coexists with urge incontinence in middle-aged and older women. (See 'Mixed incontinence' below.) **Mixed incontinence** — Mixed incontinence is **the most common type of urinary incontinence in women.** Although generally **thought to represent the overlap of two mechanisms, detrusor overactivity and impaired urethral sphincter function, the precise pathophysiology of mixed urinary incontinence is still under investigation.** **Incomplete emptying (overflow incontinence)** — "Overflow incontinence" is a term **used to describe the dribbling and/or continuous leakage associated with incomplete bladder emptying, due to impaired detrusor contractility and/or bladder outlet obstruction.** This term is felt to be confusing and lacks a precise definition. A preferred description is "incomplete bladder emptying" and optimally should list the specific symptoms and any associated pathophysiology (such as bladder outlet obstruction) [1].
08-017. +Nep+Cfp. A 44-year-old female is distressed because of incontinence. She reports frequent episodes of an immediate need to urinate, which cannot always be deferred. She admits to urinating more than 10 times a day, but denies any urine leakage with coughing, laughing, or straining. Which one of the following is the most appropriate initial treatment for this patient? A) Solifenacin (Vesicare) B) Oxybutynin (Ditropan XL) C) Tamsulosin (Flomax) D) Phenazopyridine (Pyridium) E) Pelvic floor muscle training and bladder training	Urinary incontinence. **08-017. O**veractive bladder. Nonpharmacologic therapy is recommended for all patients with an overactive bladder. **ANS=E. Pelvic floor muscle training (e.g., Kegel exercises) and bladder training are proven effective in urge incontinence or overactive bladder, as well as in stress and mixed incontinence.** In motivated patients, training may be more effective than medications such as oxybutynin and newer muscarinic receptor antagonists such as solifenacin. Tamsulosin is used in benign prostatic hypertrophy and phenazopyridine is a urinary tract anesthetic that has not been recommended for treating overactive bladder.
09-024. +Nep+Cel. A 70-year-old white female complains of two episodes of urinary incontinence. On both occasions she was unable to reach a bathroom in time to prevent loss of urine. The first episode occurred when she was in her car and the second while she was in a shopping mall. She is reluctant to go out because of this problem. The most likely cause of her problem is A) overflow	Urinary incontinence. **09-024. In the neurologically intact individual the most common subtypes are: stress incontinence,** which **occurs with coughing or lifting**; **urge incontinence**, which **occurs when patients sense the urge to void but are unable to inhibit leakage long enough to reach the toilet**; and **overflow incontinence**, which **occurs when the bladder cannot empty normally and**

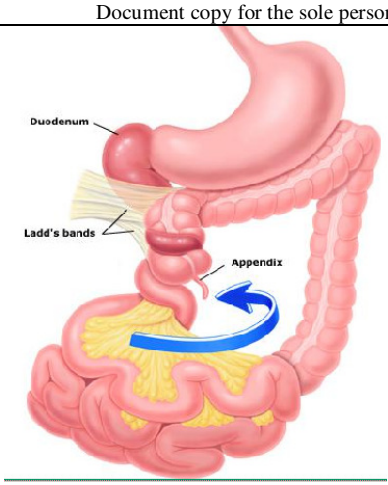
incontinence B) stress incontinence C) urge incontinence D) functional incontinence	**becomes overdistended.** The term ***functional incontinence*** **is applied to those cases where lower urinary tract function is intact but other factors such as immobility and severe cognitive impairment lead to incontinence.** This patient has mild urge incontinence. **The first approach to this problem should be behavioral.** In a mild case such as this, a cure can be expected, with success rates of 30%–90% in published studies. For **more severe cases,** various pharmacologic agents, including **anticholinergics, are useful. Failure of these modalities** should **lead to urodynamic testing and consideration of surgery. Ans=C.**
09-199. +Nep+Cfp. A 55-year-old female sees you because of a constant leakage of small amounts of urine. Her obstetric/gynecologic history includes two pregnancies, with vaginal deliveries. Her current medications include hydrochlorothiazide, metformin (Glucophage), and glyburide (DiaBeta). On examination she has mild diabetic retinopathy, decreased sensation to monofilament testing on her feet, and suprapubic fullness. The most appropriate initial treatment for this problem would be A) tolterodine (Detrol LA) B) duloxetine (Cymbalta) C) estrogen replacement therapy D) bladder neck needle suspension E) a set schedule for urination	Urinary incontinence. **09-199. Types in women.** There are **four types of urinary incontinence in women**: **functional incontinence**, which **occurs when the patient's inability to ambulate or transfer results in loss of urine**; **urinary stress incontinence**, which **is a result of pelvic relaxation and is manifested as involuntary loss of urine with increases in abdominal pressure such as that which occurs with laughing, sneezing, or coughing**; **detrusor instability or overactive bladder**, which **is when the urge to urinate is quickly followed by loss of urine, usually a large volume**; and **neurogenic bladder**, which **is marked by constant leakage of small amounts of urine. Neurogenic bladder can be caused by diabetes mellitus, multiple sclerosis, or spinal cord injury, and is usually initially treated with a strict voluntary urination schedule, which may be coupled with Crede's maneuver. It can be treated further by adding bethanechol to the regimen.** Many patients have to be taught intermittent self-catheterization of the bladder. Ultimately, the patient may require resection of the internal sphincter of the bladder neck. **ANS=E.**
10-139. +Nep+Cel. A 77-year-old white male complains of urinary incontinence of more than one year's duration. The incontinence occurs with sudden urgency. No association with coughing or positional change has been noted, and there is no history of fever or dysuria. He underwent transurethral resection of the prostate (TURP) for benign prostatic hypertrophy a year ago, and he says his urinary stream has improved. A rectal examination reveals a smoothly enlarged prostate without nodularity, and normal sphincter tone. No residual urine is found with post-void catheterization. Which one of the following is the most likely cause of this patient's incontinence? A) Detrusor instability B) Urinary tract infection C) Overflow D) Fecal impaction E) Recurrent bladder outlet obstruction	Urinary incontinence. **10-139. D**etrusor instability. **ANS=A.** In elderly patients, detrusor instability is the most common cause of urinary incontinence in both men and women. Incontinence may actually become worse after surgical relief of obstructive prostatic hypertrophy. Infection is unlikely as the cause of persistent incontinence in this patient in the absence of fever or symptoms of urinary tract infection. Overflow is unlikely in the absence of residual urine. Impaction is a relatively rare cause of urinary incontinence, and associated findings would be present on rectal examination. Normalization of the urinary stream and the absence of residual urine reduce the likelihood of recurrent obstruction. The prostate would be expected to remain enlarged on rectal examination after transurethral resection of the prostate (TURP).
08-040. +Nep+Adm. A 65-year-old male presents with a 1-month history of problems passing urine. He says that his bladder will feel full when he needs to urinate, but the urine stream is weak and his bladder does not feel as if it has emptied completely. The symptoms have become increasingly severe over the past week. Other symptoms include upper respiratory congestion for 3 days which he has treated with an over-the-counter decongestant with some relief, constipation with no passage of stool in the past 9 days, and increasing low back pain incompletely relieved with ibuprofen, with associated weakness in both legs. Examination shows a healthy-appearing male who is moderately overweight. He is afebrile and vital signs are normal. There is no abdominal tenderness and no masses are detected. A rectal examination reveals a large amount of hard stool in the rectum; a markedly enlarged (4+), boggy, tender prostate gland; laxity of the anal sphincter; and numbness in the perianal area. Urinalysis shows trace protein and 10–20 WBCs/hpf. Ultrasonography shows a post-void residual volume of 250 mL (normal for age <100). Which one of the following must be done urgently in this patient? A) Foley catheterization B) Hospitalization for intravenous antibiotics C) Digital disimpaction of the rectum, and Fleet enemas until clear D) MRI of the lumbosacral spine	Urinary retention**. 08-040. E**lderly**. ANS=D.** The differential diagnosis of urinary retention in the elderly is broad. While most causes are benign and readily treated, the physician must be vigilant in looking for conditions that require urgent intervention. This patient presents with many possible causes of urinary retention, with the most common being benign prostatic hyperplasia. Acute prostatitis, especially in a male with an enlarged prostate, is another relatively common reason for obstructive symptoms. This patient's physical examination and abnormal urinalysis support this diagnosis, but his normal vital signs and lack of fever suggest he can be treated with an oral fluroquinolone and does not require hospital admission for intravenous therapy. Medications such as oral decongestants can contribute to urinary retention in men with enlarged prostate glands, and should be used with caution and discontinued if obstructive symptoms occur. Obstipation with stool impaction is another relatively common reason for urinary retention in the elderly and can be treated with manual disimpaction and enemas. In this patient, the presence of increasing low back pain and leg weakness, and the findings of anal sphincter laxity and numbness in the perianal area on examination, suggest the presence of a serious neurologic etiology such as cauda equina syndrome. Urgent diagnosis and treatment are necessary to reduce morbidity, and MRI should be performed immediately. The presence of a mildly elevated post-void residual is not an indication for urgent decompression with a Foley catheter.
09-218. +Nep+Mac. A 32-year-old primipara is ready to be discharged after a full-term vaginal delivery that was complicated by a prolonged second stage of labor. She required a second-degree posterior vaginal repair, but had no periurethral trauma. A transurethral catheter was removed a few hours after delivery, but 48 hours later she complained of abdominal pain and a persistent need to urinate. The catheter was replaced and yielded approximately 2000 cc of straw-colored urine. Urinary symptoms quickly resolved, but the patient continues to be unable to void on her own. A perineal examination is normal, as is a urinalysis. Which one of the following would be the most appropriate management at this time? A) Oxybutynin (Ditropan), 10 mg daily B) Prednisone, starting with 60 mg/day and tapering quickly over 7 days C) Urgent vaginal Ultrasonography D) Urology consultation for cystoscopy E) Discharge with a catheter in place and close follow-up	Urinary retention. **09-218.** Postpartum urinary retention (PUR) is often defined as a post-void bladder residual of at least 150 cc that is present 6 hours or more after delivery. **ANS=E.** This patient suffers from (PUR). This condition is more likely to occur in patients who are primiparous, have a prolonged first or second stage of labor, have instrumented vaginal deliveries, or require a cesarean section for failure to progress. The question of whether epidural anesthesia promotes the condition is still debated. Most cases of PUR will resolve 2–6 days after delivery, but some can take up to several weeks. The use of intermittent self-catheterization or a transurethral catheter is recommended until the patient's ability to spontaneously micturate returns. Imaging studies and referrals to a specialist are rarely necessary, and no medication has been proven helpful.
09-004. +Ref+Cfp. A 30-year-old female with dysfunctional uterine bleeding asks about treatment options. An examination is normal and blood testing is negative. She is unmarried and is undecided about having children. Which one of the following would be the most appropriate treatment for this patient? A) A	Uterine bleeding, dysfunctional. **09-004.** NSAIDs, oral contraceptive pills, and danazol have not been shown to have sufficient evidence of effect. **Ans: A.** Progestin is effective when used on a 21-day cycle, but not if used only during the luteal phase. Hysterectomy and ablation are very effective, but both destroy

levonorgestrel-releasing intrauterine device B) Endometrial ablation C) Hysterectomy D) Oral progestin during the luteal phase	fertility. **In a young woman unsure about having children, the levonorgestrel-releasing IUD is most effective and preserves fertility.**
10-113. +Ref+Cfp. A 28-year-old white female consults you with a complaint of irregular heavy menstrual periods. A general physical examination, pelvic examination, and Papanicolaou test are normal and a pregnancy test is negative. A CBC and chemistry profile are also normal. The next step in her workup should be A) endometrial aspiration B) dilatation and curettage C) LH and FSH assays D) administration of estrogen E) cyclic administration of progesterone for 3 months	Uterine bleeding, dysfunctional. **10-113.** Abnormal uterine bleeding is a relatively common disorder that may be due to functional disorders of the hypothalamus, pituitary, or ovary, as well as uterine lesions. **ANS=E.** However, the patient who is younger than 30 years of age will rarely be found to have a structural uterine defect. **Once pregnancy, hematologic disease, and renal impairment are excluded, administration of intramuscular or oral progesterone will usually produce definitive flow and control the bleeding.** No further evaluation should be necessary unless the bleeding recurs. Endometrial aspiration, dilatation and curettage, and other diagnostic procedures are appropriate for recurrent problems or for older women. **Estrogen would only increase the problem, which is usually due to anovulation with prolonged estrogen secretion, producing a hypertrophic endometrium.**
08-106. +Ref+Cfp. A 35-year-old female is planning a second pregnancy. Her last pregnancy was complicated by placental abruption caused by a large fibroid tumor of the uterus, which is still present. Which one of the following would be the most appropriate treatment for the fibroid tumor? A) Myomectomy B) Myolysis with endometrial ablation C) Uterine artery embolization D) Observation	Uterine fibroids**. 08-106. ANS=A.** There are numerous options for the treatment of uterine fibroids. When pregnancy is desired, myomectomy offers the best chance for a successful pregnancy when prior pregnancies have been marked by fibroid-related complications. Endometrial ablation eliminates fertility, and there is a lack of long-term data on fertility after uterine artery embolization. Observation without treatment would not remove the risk for recurrent complications during subsequent pregnancies.
09-099. +Non+Cca. A 12-year-old male presents for a routine physical examination prior to entering middle school. He has received all childhood vaccines at the recommended time. Other than influenza vaccine, he has not received any vaccines since entering kindergarten at age 6. Which one of the following is recommended at this time? A) Tdap, quadrivalent meningococcal conjugate vaccine (MCV4), and quadrivalent HPV vaccine B) Td and MCV4 C) Tdap and MCV4 D) Tdap only E) No vaccinations are recommended at this age	Vaccines, in children. **09-099. ANS=C. Three vaccines are recommended for adolescents ages 11–12 years: Tdap, quadrivalent meningococcal conjugate vaccine (MCV4), and quadrivalent HPV**. However, the **HPV vaccine is recommended and FDA approved only for females.**
10-058. +Non+Adm. A hospitalized patient is being treated with vancomycin for an infection due to methicillin-resistant *Staphylococcus aureus* (MRSA). Which one of the following is most important to monitor? A) Hepatic function B) Trough serum levels C) Peak serum levels D) Audiograms	Vancomycin efficacy. **10-058. ANS=B.** The best predictor of vancomycin efficacy is the trough serum concentration, which should be over 10 mg/L to prevent development of bacterial resistance. Peak serum concentration is not a predictor of efficacy or toxicity. Monitoring for ototoxicity is not currently recommended. Older vancomycin products had impurities, which apparently caused the ototoxicity seen with these early formulations of the drug.
07-088. +Pbc+Com. Which one of the following patients should receive a second dose of varicella vaccine? A) A 3-year-old vaccinated at 12 months of age B) A 13-year-old who had varicella at age 4 C) A 14-year-old immigrant who received his first dose of vaccine 1 month ago D) A pregnant 16-year-old vaccinated at age 5 E) An HIV-positive nurse born in the U.S. in 1978	Varicella vaccine. **07-088. recommendation. ANS=C.** Two doses of varicella vaccine are now recommended for almost everyone. The **first dose should be given at 12–15 months of age, and a second dose at 4–6 years of age.** All unvaccinated **people over 13 years of age without evidence of immunity should receive two doses of vaccine given 4–8 weeks apart.** The vaccine is not recommended for pregnant women or immunocompromised patients.
07-211. +Neu+Cel. A 63-year-old female presents for a routine evaluation. She asks if she and her husband, age 69, would benefit from the herpes zoster vaccine. You advise her that A) the vaccine is more than 90% effective in preventing herpes zoster B) postherpetic pain reduction is the greatest benefit of the vaccine C) the efficacy of the vaccine decreases after age 70 D) the vaccine is more effective for reducing occurrences than for reducing postherpetic neuralgia	Varicella vaccine. **07-211.** postherpetic pain reduction. **ANS=B.** The live attenuated varicella-zoster vaccine has been shown to reduce outbreaks of herpes zoster by 51% in vaccinated individuals. The **greatest benefit is the reduction in the severity and duration of postherpetic neuralgia.** Efficacy does not decrease after age 70, the age group at greatest risk for postherpetic neuralgia.
07-124. +Hem+Cca. The presence of nonthrombocytopenic palpable purpura, colicky abdominal pain, and arthritis is most consistent with which one of the following? A) Kawasaki disease B) Takayasu arteritis C) Wegener granulomatosis D) Polyarteritis nodosa E) Henoch-Schönlein purpura	Vasculitis. **07-124.** Henoch-Schönlein purpura**. ANS=E. The most common pediatric vasculitis is Henoch-Schönlein purpura. It is an IgA-mediated small-vessel vasculitis that classically presents with the triad of nonthrombocytopenic palpable purpura, colicky abdominal pain, and arthritis**. **Kawasaki disease is manifested by conjunctival injection, mucosal erythema, rash, and lymphadenopathy**. Takayasu arteritis has numerous manifestations, including night sweats, fatigue, weight loss, myalgia, and arthritis. Later findings may include hypertension, skin lesions, and cardiac disorders. Wegener granulomatosis causes constitutional symptoms also, including weight loss and fatigue, with later findings including respiratory problems, ophthalmologic lesions, neuropathies, glomerulonephritis, and skin lesions. Polyarteritis nodosa is another disease that causes constitutional symptoms such as fatigue, fever, and myalgias. It also causes skin lesions, gastrointestinal symptoms such as postprandial abdominal pain, and cardiac lesions.
10-186. +Hem+Non+Cca.**?*** An 8-year-old female is brought to your office with a 3-day history of bilateral knee pain. She has had no associated upper respiratory symptoms. On examination she is afebrile. Her knees have full range of motion and no effusion, but she has a purpuric papular rash on both lower extremities. Which one of the following is the most likely cause of her symptoms? A) Henoch-Schönlein purpura B) Rocky Mountain spotted fever C) Juvenile rheumatoid arthritis D) Lyme disease E) Rheumatic fever	Vasculitis. **10-186.** Henoch-Schönlein purpura**. ANS=A.** The combination of arthritis with a typical palpable purpuric rash is consistent with a diagnosis of Henoch-Schönlein purpura. This most often occurs in children from 2 to 8 years old. Arthritis is present in about two-thirds of those affected. Gastrointestinal and renal involvement are also common. Rocky Mountain spotted fever presents with a rash, but arthralgias are not typical. These patients are usually sick with a fever and headache. Juvenile rheumatoid arthritis is associated with a salmon-pink maculopapular rash, but not purpura. The rash associated with Lyme disease is erythema migrans, which is a bull's-eye lesion at the site of a tick bite. The rash associated with rheumatic fever is erythema marginatum, which is a pink, raised, macular rash with sharply demarcated borders.
10-091. +Car+Euc.>L**?*** Which one of the following should be used first for	Ventricular fibrillation**. 10-091. Persistent. ANS=D. For persistent ventricular**

ventricular fibrillation when an initial defibrillation attempt fails? A) Amiodarone (Cordarone) B) Lidocaine (Xylocaine) C) Adenosine (Adenocard) D) Vasopressin (Pitressin) E) Magnesium	**fibrillation (VF), in addition to electrical defibrillation and CPR, patients should be given a vasopressor, which can be either epinephrine or vasopressin**. Vasopressin may be substituted for the first or second dose of epinephrine. **Amiodarone should be considered for treatment of VF unresponsive to shock delivery, CPR, and a vasopressor (but, remember it is the first-line drug in Ventricular Tachycardia).** Lidocaine is an alternative antiarrhythmic agent, but should be used only when amiodarone is not available. Magnesium may terminate or prevent torsades de pointes in patients who have a prolonged QT interval during normal sinus rhythm. Adenosine is used for the treatment of narrow complex, regular tachycardias and is not used in the treatment of ventricular fibrillation.
07-200. +Car+Adm. Which one of the following is considered first-line treatment for shock-resistant ventricular tachycardia? A) Amiodarone (Cordarone) B) Vasopressin (Pitressin) C) Lidocaine (Xylocaine) D) Procainamide (Pronestyl) E) Magnesium	Ventricular tachycardia. **07-200. S**hock-resistant. **ANS=B (now A).** The treatment of shock-resistant ventricular tachycardia (VT) has changed in recent years. **Amiodarone is now the first-line drug, rather than vasopressin or epinephrine.** Lidocaine is less effective than other agents for terminating VT, but has a use in patients with stable VT with preserved ventricular function. Procainamide and lidocaine may be used in similar situations, but procainamide is also useful for atrial dysrhythmias.  VT (regular, wide complex tachycardia). VT in the presence of a stable blood pressure does not warrant cardioversion. The best treatment is loading with amiodarone (drug of choice).
10-030. +Car+Adm. Amiodarone (Cordarone) is most useful for which one of the following? A) Prophylactic perioperative use for emergency surgery B) Primary prevention of nonischemic cardiomyopathy C) Treatment of atrial flutter D) Treatment of multi-focal premature ventricular contractions following acute myocardial infarction E) Treatment of sustained ventricular tachyarrhythmias in patients with poor hemodynamic stability	Ventricular tachycardia. **10-030. Amiodarone is one of the most frequently prescribed antiarrhythmic medications in the U.S. ANS=E.** It is **useful in the acute management of sustained ventricular tachyarrhythmias, regardless of hemodynamic stability**. **Amiodarone is appropriate first-line treatment for atrial fibrillation only in symptomatic patients with left ventricular dysfunction and heart failure.** It has a very limited role in the treatment of atrial flutter. **The only role for prophylactic amiodarone is in the perioperative period of cardiac surgery**. The use of prophylactic antiarrhythmic agents in the face of "warning dysrhythmias" or after myocardial infarction is no longer recommended. Prophylactic amiodarone is not indicated for primary prevention in patients with nonischemic cardiomyopathy.
07-062. +Sen+Adm. A 42-year-old African-American male recently traveled to the Caribbean for a scuba diving trip. Since his return he has noted brief intermittent episodes of vertigo not associated with nausea or vomiting. He is concerned, however, because these episodes occurred after sneezing or coughing and then a couple of times after straining while lifting something. He has had no hearing loss, and no vertigo with positional changes such as bending over or turning over in bed. The most likely cause of this patient's vertigo is A) vestibular neuronitis B) Meniere's disease C) benign paroxysmal positional vertigo D) a perilymphatic fistula E) multiple sclerosis triggered by a rapid change in climate	Vertigo/ Dizziness. **07-062. ANS=D.** A perilymphatic fistula between the middle and inner ear may be caused by barotrauma from scuba diving, as well as by direct blows, heavy weight bearing, and excessive straining (e.g., with sneezing or bowel movements.) This patient's recent trip involved two of these potential factors. Vestibular neuronitis is a more sudden, unremitting syndrome. Meniere's disease is manifested by episodes of vertigo, associated with hearing loss and often with nausea and vomiting. Benign paroxysmal positional vertigo is more likely in older individuals, and is associated with postural change. Multiple sclerosis requires symptoms in multiple areas and is not thought to be provoked by climate change.
08-049. +Neu+Adm. Dizziness is most likely to have a serious etiology when it A) is associated with diplopia B) is associated with intense nausea and vomiting C) occurs when the patient rolls over in bed D) occurs when the patient first arises in the morning E) occurs after 2 minutes of hyperventilation	Vertigo/ Dizziness. **08-049.** Dizziness**. 08-049. ANS=A.** Diplopia, along with other neurologic symptoms such as weakness or difficulty with speech, suggests a central cause of vertigo and requires a complete workup. Dizziness on first arising, dizziness with rolling over in bed, and dizziness with nausea and vomiting are consistent with peripheral causes of vertigo, such as benign positional vertigo. Dizziness that occurs after a couple of minutes of hyperventilation suggests a psychogenic cause.
07-001. +Res+Cca. A 5-month-old infant is brought to your office by his mother, who states that he has experienced 2 days of nasal congestion and cough. The child is in no distress. After a thorough history and examination you arrive at the diagnosis of viral upper respiratory infection. Which one of the following is recommended as both safe and effective for patients this age? A) Amoxicillin B) Azithromycin (Zithromax) C) Dextromethorphan D) Nasal bulb suction E) Pseudoephedrine	Viral infection**. 07-001.** Prescribing antibiotics for viral upper respiratory infections is inappropriate and is discouraged by all evidence-based recommendations. **ANS=D.** Over-the-counter medications have often been recommended as an alternative to antibiotics, but recently concerns have been raised about their use in young children. Early in 2007 the Centers for Disease Control (CDC) released a report about the use of over-the-counter cold medications in children less than 2 years of age. The report reminds practitioners that the Food and Drug Administration (FDA) has not approved any dosing regimens for these medications in young children, since their effectiveness has not been proven and the risks for toxicity are not adequately known in this age group. It was reported that 1519 children were treated in U.S. emergency departments in 2005 for adverse events related to these medications, including some overdoses and at least three deaths. The 2007 CDC report adds to similar warnings on the use of over-the-counter cold medications in young children from the American Academy of Pediatrics and the American College of Chest Physicians. As an alternative, parents and other caregivers are encouraged to use rubber suction bulbs, saline nose drops, and cool-mist humidifiers.

10-016. +Non+Adm. A 24-year-old female presents to your clinic with a 5-day history of fever to 103°F. She has no localizing symptoms or overt physical findings. Initial testing shows an elevated WBC count with a disproportionate number of reactive lymphocytes. Which one of the following conditions is the most likely cause of these findings? A) Bacterial infection B) Connective tissue disease C) Lymphoma D) Viral infection	Viral infection**. 10-016.** The conditions that result in an absolute increase in lymphocytes are divided into primary causes (usually neoplastic hyperproliferation) and secondary or reactive causes. **ANS=D.** The presence of reactive lymphocytes will often be reported on a manual differential, since they have a distinctive appearance. The most common conditions that produce a reactive lymphocytosis are viral infections. Most notable are Epstein-Barr virus, infectious mononucleosis, and cytomegalovirus. Other viral infections known to cause this finding include herpes simplex, herpes zoster, HIV, hepatitis, and adenovirus. Connective tissue disease can infrequently cause a reactive lymphocytosis, but other signs or symptoms are usually present. Bacterial infections more commonly result in an increase in neutrophils. One exception to this is *Bordetella pertussis*, which has been known to cause absolute lymphocyte counts of up to 70,000/_L. This infection is associated with classic symptoms that this patient does not have.
10-056. +Hem+Adm. An elevation of serum methylmalonic acid is both sensitive and specific for a cellular deficiency of which vitamin? A) Vitamin A B) Vitamin B6 C) Vitamin B12 D) Vitamin D E) Folate	Vitamin B12. **10-056. ANS=C.** An elevation in serum methylmalonic acid is both sensitive and specific for cellular vitamin B12 deficiency.
07-186. +End+Cel. A 62-year-old white female complains of bone and muscle pain in both legs for several years. She denies any joint pain or swelling. Her only medication is occasional acetaminophen for pain. She denies taking vitamins or supplements, although she eats a serving of yogurt every day. On examination the patient weighs 61 kg (134 lb) and is 157 cm (62 in) tall. Her height has not changed in the past 2 years. The remainder of the examination is unremarkable. Laboratory evaluation reveals that her CBC, erythrocyte sedimentation rate, and creatinine, protein, albumin, alkaline phosphatase, and TSH levels are all within normal limits. Her serum calcium level is 9.1 mg/dL (N 8.5–10.5) and her 25-OH vitamin D level is 16 ng/mL (N 25–80). What is the best initial treatment for this patient? A) Calcium carbonate, 500 mg twice daily, and vitamin D2, 400 IU/day B) Calcium carbonate, 500 mg 3 times daily, and vitamin D2, 800 IU/day C) Calcium gluconate, 600 mg/day, and vitamin D2, 800 IU/day D) Vitamin D2, 800 IU/day E) Vitamin D2, 50,000 IU once a week for 8–12 weeks	Vitamin D. **07-186. ANS=E.** This patient has vitamin D deficiency and requires replacement doses. **The amount of vitamin D needed to correct a deficiency is higher than the dosage recommended for prevention of osteoporosis (800 IU/day) or the recommended daily allowance (200 IU/day)**. It is **typically given as a weekly dose of 50,000 IU of vitamin D2 for 8–12 weeks** (evidence level C). After this, a **25-OH vitamin D level should be repeated**. Daily doses of vitamin D2 up to 10,000 IU are also considered to be effective and safe for treatment of vitamin D deficiency.
08-101. +Pbc+Adm. The daily intake of vitamins and minerals recommended by the Food and Nutrition Board varies according to sex, age, and condition. The recommended daily allowance of vitamin D is greatest for which one of the following? A) A 15-year-old nonpregnant female B) A 25-year-old pregnant female C) A 35-year-old lactating female D) A 55-year-old female E) A 75-year-old female	**Vitamin D. 08-101. ANS=E.** The current Dietary Reference Intake (DRI) recommendation for vitamin D is 200 IU/day for all women between the ages of 9 and 50 years; pregnancy or lactation does not affect the recommendation. The DRI doubles to 400 IU daily for women age 51–70 and triples to 600 IU daily for women over the age of 70. The maximum daily oral intake of vitamin D thought to be safe is 2000 IU/day for all females over the age of 12 months. Uptodate: REQUIREMENTS — Estimates of vitamin D requirements vary and depend in part on sun exposure and the standards used to define a deficient state. A minimum consumption of 200 IU (5 micrograms) daily of vitamin D per day is recommended by the National Research Council [23], and this is also the "adequate intake" estimated by the Institute of Medicine (table 2) [22]. Due to increasing evidence of adverse health effects of subclinical vitamin D deficiency, vitamin D intakes above the "Adequate Intake" estimates are often recommended. **For pregnant and lactating mothers with minimal sun exposure, intake of 10 micrograms (400 IU) often is recommended**, and some studies suggest that considerably higher intakes may be necessary to maintain normal levels of 25OHD [24,25]. **Intake of 20 micrograms (800 IU) of vitamin D daily often is recommended in older adults and appear to be necessary to minimize fracture risk.** The best laboratory indicator of vitamin D adequacy is the serum 25-OH vitamin D concentration. The lower limit of 25OHD levels varies depending on the geographic location and sunlight exposure of the reference population (range 8 to 15 ng/ml). However, there is no consensus on the optimal 25OHD concentration for skeletal or extraskeletal health. Many agree that a minimum level of 30 ng/ml (75 nmol/L) is necessary. The serum parathyroid hormone (PTH) level typically is inversely related to 25-OH vitamin D levels, and is a useful secondary indicator of vitamin D insufficiency.
09-015. +Non+Adm. Which one of the following is the best diagnostic test for vitamin D deficiency? A) Ionized calcium B) Serum phosphorus C) 24-hour urine for calcium D) 1,25-hydroxyvitamin D E) 25-hydroxyvitamin D	Vitamin D. **09-015.** Vitamin D deficiency is not uncommon, and **25-hydroxyvitamin D is the barometer for vitamin D status**. Vitamin D deficiency is defined by most experts as a 25-hydroxyvitamin D level of <20 ng/mL (50 nmol/L). **1,25-dihydroxy-vitamin D is not usually used** to determine vitamin D status **because it has a short half-life** of 15 hours and is tightly regulated by parathyroid hormone, calcium, and phosphate.
10-136. +Mus+Adm. A patient complains of throbbing bone pain in her lower back and legs. She also has felt weaker recently. Which one of the following tests would confirm a vitamin D deficiency? A) 25-hydroxyvitamin D B) 1,25-dihydroxyvitamin D C) Ergocalciferol (vitamin D2) D) Cholecalciferol (vitamin D3)	Vitamin D**. 10-136. ANS=A.** Serum 25-hydroxyvitamin D should be obtained in any patient with suspected vitamin D deficiency because it is the major circulating form of vitamin D (SOR A). 1,25-Dihydroxyvitamin D is the most active metabolite, but levels can be increased by secondary hyperparathyroidism. In persons with vitamin D deficiency, ergocalciferol (vitamin D2) or cholecalciferol (vitamin D3) can be used to replenish stores (SOR B).

10-211. +Non+Cca.>L**?*** For a healthy 1-month-old, daily vitamin D intake should be A) 50 IU B) 100 IU C) 200 IU D) 400 IU E) 800 IU	Vitamin D**. 10-211. ANS=D.** It is **now recommended** that **all infants and children, including adolescents, have a minimum daily intake of 400 IU of vitamin D, beginning soon after birth.** The current recommendation ***replaces the previous recommendation of a minimum daily intake of 200 IU/day of vitamin D supplementation beginning in the first 2 months after birth and continuing through adolescence.*** These revised guidelines for vitamin D intake for healthy infants, children, and adolescents are based on evidence from new clinical trials and the historical precedent of safely giving 400 IU of vitamin D per day in the pediatric and adolescent population. **New evidence supports a potential role for vitamin D in maintaining innate immunity and preventing diseases such as diabetes mellitus and cancer.**
09-058. +Non+Cel. According to the U.S. Preventive Services Task Force, multivitamin supplements in the geriatric age group A) are not recommended for prevention of any disorder B) should be prescribed to reduce elevated homocysteine levels C) decrease coronary atherosclerosis D) decrease the incidence of lung cancer E) decrease the incidence of colon cancer	**Vitamins & minerals**. **09-058. ANS=A.** The U.S. Preventive Services Task Force makes no specific recommendations for vitamins or antioxidants to prevent cancer or cardiovascular disease. Moreover, it makes no specific recommendations for vitamin supplements for any condition.
09-069. +Mus+Adm. Which one of the following decreases the absorption of orally administered calcium supplements? A) Taking calcium carbonate with meals B) Taking calcium citrate with meals C) Vitamin D supplementation D) Proton pump inhibitors	**Vitamins & minerals**. **09-069.** Calcium supplement absorption. **ANS=D. Long-term histamine H2-blocker or proton pump inhibitor use is associated with decreased absorption of calcium carbonate**. **Patients taking these medications who require calcium supplementation should use calcium citrate to improve absorption**. Calcium carbonate preparations should be given with a meal to improve absorption. Vitamin D is important in calcium absorption.
10-039. +Res+Adm.**?** A 24-year-old female with a 2-year history of dyspnea on exertion has been diagnosed with exercise-induced asthma by another physician. Which one of the following findings on pulmonary function testing would raise concerns that she actually has vocal cord dysfunction? A) A good response to an inhaled B-agonist B) Flattening of the inspiratory portion of the flow-volume loop, but a normal expiratory phase C) Flattening of the expiratory portion of the flow-volume loop, but a normal inspiratory phase D) Flattening of both the inspiratory and expiratory portion of the flow-volume loop E) A decreased FEV1 and a normal FVC	Vocal cord dysfunction. **10-039. ANS=B.** The diagnosis of vocal cord dysfunction should be considered in patients diagnosed with exercise-induced asthma who do not have a good response to B-agonists before exercise. Pulmonary function testing with a flow-volume loop typically shows a normal expiratory portion but a flattened inspiratory phase (SOR C). A decreased FEV1 and normal FVC would be consistent with asthma.
08-168. +Gas+Cca. A 3-week-old male is brought to your office because of a sudden onset of bilious vomiting of several hours' duration. He is irritable and refuses to breastfeed, but stools have been normal. He was delivered at term after a normal pregnancy, and has had no health problems to date. A physical examination shows a fussy child with a distended abdomen. Radiography of the abdomen shows a "double bubble" sign. Which one of the following is the most likely diagnosis? A) Infantile colic B) Necrotizing enterocolitis C) Hypertrophic pyloric stenosis D) Intussusception E) Midgut volvulus	Volvulus. **08-168.** Volvulus may present in one of three ways: as a sudden onset of bilious vomiting and abdominal pain in a neonate; as a history of "feeding problems" with bilious vomiting that appears to be a bowel obstruction; or less commonly, as failure to thrive with severe feeding intolerance. **ANS=E.** The **classic finding on abdominal plain films is the "double bubble" sign**, which shows a paucity of gas (airless abdomen) with two air bubbles, one in the stomach and one in the duodenum. However, the plain film can be entirely normal. **The upper gastrointestinal contrast study is considered the gold standard for diagnosing volvulus.** Infantile colic usually begins during the second week of life and typically occurs in the evening. It is characterized by screaming episodes and a distended or tight abdomen. Its etiology has yet to be determined. There are no abnormalities on physical examination and ancillary studies, and symptoms usually resolve spontaneously around 12 weeks of age. Necrotizing enterocolitis is typically seen in the distressed neonate in the intensive-care nursery, but it may occasionally be seen in the healthy neonate within the first 2 weeks of life. The child will appear ill, with symptoms including irritability, poor feeding, a distended abdomen, and bloody stools. Abdominal plain films will show pneumatosis intestinalis, caused by gas in the intestinal wall, which is diagnostic of the condition. Hypertrophic pyloric stenosis is a narrowing of the pyloric canal caused by hypertrophy of the musculature. It usually presents during the third to fifth weeks of life. Projectile vomiting after feeding, weight loss, and dehydration are common. The vomitus is always nonbilious, because the obstruction is proximal to the duodenum. If a small olive-size mass cannot be felt in the right upper or middle quadrant, Ultrasonography will confirm the diagnosis. Intussusception is seen most frequently between the ages of 3 months and 5 years, with 60% of cases occurring in the first year and a peak incidence at 6–11 months of age. The disorder occurs predominantly in males. The classic triad of intermittent colicky abdominal pain, vomiting, and bloody, mucous stools is encountered in only 20%–40% of cases. At least two of these findings will be present in approximately 60% of patients. The abdomen may be distended and tender, and there may be an elongated mass in the right upper or lower quadrants. Rectal examination may reveal either occult blood or frankly bloody, foul-smelling stool, classically described as "currant jelly." An air enema using fluoroscopic guidance is useful for both diagnosis and treatment.

	 Uptodate: Volvulus occurs because the narrow mesenteric base, which develops as a result of malrotation, allows the small bowel to twist around the superior mesenteric artery. This leads to vascular compromise of large portions of the midgut.
07-105. +Pbc+Com. A 76-year-old male has fallen twice as a result of buckling of the left knee during ambulation. Neither fall resulted in injury, and he is advised to use an offset walking cane. The patient is left hand–dominant and has normal strength in all four extremities. Crepitus is present in both knees, but is much more pronounced in the left knee. Which one of the following describes the best method for use of a cane by this patient? A) Place the cane in the left hand and advance it at the same time as the left leg B) Place the cane in the left hand and advance it at the same time as the right leg C) Place the cane in the right hand and advance it at the same time as the left leg D) Place the cane in the right hand and advance it at the same time as the right leg E) Switch the cane between hands at intervals of several hours to distribute the load equally	Walking cane, best method. **07-105. ANS=C.** The standard walking cane generally is designed as a tool to aid in balance and, to a lesser degree, reduce weight bearing on a specific leg. The offset cane design results in the downward force vector being placed directly over the shaft, making this choice ideal where improved balance and reduction of weight bearing on a particular leg is desired. Mechanical advantage produces maximum benefit when the cane is placed in the hand opposite the most severely affected leg, and the movement of the cane tracks the movement of the affected leg, consistent with normal gait.
08-225. +Pbc+Cel. A 72-year-old male presents with unintentional weight loss of 25 lb over the last 6 months. His history, including a nutritional assessment, is unremarkable, as is his physical examination. His current medications include mirtazapine (Remeron) for depression and hydrochlorothiazide for hypertension. Which one of the following would be the most appropriate next step? A) Order a CBC, chemistry panel, stool for occult blood, and TSH B) Refer for immediate colonoscopy and esophagogastroduodenoscopy C) Schedule CT of the chest, abdomen, and pelvis D) Start megestrol (Megace) to promote weight gain E) Discontinue mirtazapine	Weight loss. **08-225. I**n the elderly. **ANS=A.** There should be a rational approach to evaluating weight loss in an elderly patient. The workup should be directed by findings in the history and physical examination, with special emphasis given to neurologic and psychosocial aspects. Unless the history or physical examination point in a specific direction, standard tests should be performed first, including a CBC, chemistry panel, stool for occult blood, and TSH level. Although the etiology of unintentional weight loss in the elderly is malignancy in 16%–36% of such cases, specific tests are not indicated before CT. Medications, including SSRIs, NSAIDs, bupropion, digoxin, and metformin can cause weight loss; however, amitriptyline often leads to weight gain. Mirtazapine has been shown to increase appetite and promote weight gain. Megestrol has been used successfully to treat cachexia in patients with AIDS or cancer. When given in a dosage of at least 320 mg/day, megestrol has produced weight gain, but side effects of edema, constipation, and delirium may limit its usefulness. Lower dosages may be effective for stimulating weight gain in frail elderly patients, although this approach needs to be tested in randomized, controlled trials. In the patient described, a workup seeking the etiology of the weight loss should begin promptly.
08-056. +Car+Euc. A 75-year-old male presents to the emergency department with a several-hour history of back pain in the interscapular region. His medical history includes a previous myocardial infarction (MI) several years ago, a history of cigarette smoking until the time of the MI, and hypertension that is well controlled with hydrochlorothiazide and lisinopril (Prinivil, Zestril). The patient appears anxious, but all pulses are intact. His blood pressure is 170/110 mm Hg and his pulse rate is 110 beats/min. An EKG shows evidence of an old inferior wall MI but no acute changes. A chest radiograph shows a widened mediastinum and a normal aortic arch, and CT of the chest shows a dissecting aneurysm of the descending aorta that is distal to the proximal abdominal aorta but does not involve the renal arteries. Which one of the following would be the most appropriate next step in the management of this patient? A) Immediate surgical intervention B) Arteriography of the aorta C) Intravenous nitroprusside (Nitropress) D) A nitroglycerin drip E) Intravenous labetalol (Trandate)	Widened mediastinum. **08-056.** Dissecting aneurysm. Patients with thoracic aneurysms often present without symptoms. **ANS=E.** With dissecting aneurysms, however, the presenting symptom depends on the location of the aneurysm. Aneurysms can compress or distort nearby structures, resulting in branch vessel compression or embolization of peripheral arteries from a thrombus within the aneurysm. Leakage of the aneurysm will cause pain, and rupture can occur with catastrophic results, including severe pain, hypotension, shock, and death. Aneurysms in the ascending aorta may present with acute heart failure brought about by aortic regurgitation from aortic root dilatation and distortion of the annulus. Other presenting findings may include hoarseness, myocardial ischemia, paralysis of a hemidiaphragm, wheezing, coughing, hemoptysis, dyspnea, dysphagia, or superior vena cava syndrome. This diagnosis should be suspected in individuals in their sixties and seventies with the same risk factors as those for coronary artery disease, particularly smokers. A chest radiograph may show widening of the mediastinum, enlargement of the aortic knob, or tracheal displacement. Transesophageal echocardiography can be very useful when dissection is suspected. CT with intravenous contrast is very accurate for showing the size, extent of disease, pressure of leakage, and nearby pathology. Angiography is the preferred method for evaluation and is best for evaluation of branch vessel pathology. MR angiography provides noninvasive multiplanar image reconstruction, but does have limited availability and lower resolution than traditional contrast angiography. Acute dissection of the ascending aorta is a

	surgical emergency, but dissections confined to the descending aorta are managed medically unless the patient demonstrates progression or continued hemorrhage into the retroperitoneal space or pleura. Initial management should reduce the systolic blood pressure to 100–120mm Hg or to the lowest level tolerated. The use of a B-blocker such as propranolol or labetalol to get the heart rate below 60 beats/min should be first-line therapy. If the systolic blood pressure remains over 100 mm Hg, intravenous nitroprusside should be added. Vasodilation will induce reflex activation of the sympathetic nervous system, causing increased ventricular contraction and increased shear stress on the aorta. For descending dissections, surgery is indicated only for complications such as occlusion of a major aortic branch, continued extension or expansion of the dissection, or rupture (which may be manifested by persistent or recurrent pain).
10-109. +Car+Adm. A chest radiograph of the driver of an automobile involved in a head-on collision shows a widened mediastinum. This suggests A) myocardial contusion B) spontaneous rupture of the esophagus C) rupture of a bronchus D) partial rupture of the thoracic aorta E) acute heart failure	Widened mediastinum**. 10-109.** Transection of the aorta**. ANS=D.** Deceleration-type blows to the chest can produce partial or complete transection of the aorta. A chest radiograph shows an acutely widened mediastinum and/or a pleural effusion when the condition is severe. The other conditions listed would produce mediastinal emphysema (esophageal or bronchial rupture), a widened heart, or pulmonary edema (acute heart failure, myocardial contusion).
09-073. +Int+Adm. An otherwise healthy 37-year-old male presents to your office with a 2-week history of redness and slight irritation in his groin. On examination a tender erythematous plaque with mild scaling is seen in his right crural fold. The area fluoresces coral-red under a Wood's light. Which one of the following would be the most appropriate treatment at this time? A) Amoxicillin B) Erythromycin C) Ketoconazole D) Nystatin (Mycostatin) E) Triamcinolone (Kenalog)	*Wood's fluorescence.* **09-073.** coral-red fluorescence. **ANS=B.** The characteristics of this lesion, including coral-red fluorescence under a Wood's light, suggests *Corynebacterium* infection, which is associated with erythrasma. Tinea cruris caused by *Microsporum* infection fluoresces green, while intertrigo and tinea cruris caused by *Epidermophyton* or *Trichophyton* infections do not fluoresce. **Erythromycin, either systemic or topical, is the treatment of choice**.
08-051. +Int+Cel. A 72-year-old white male in otherwise good health complains of generalized pruritus that worsens in the winter. The itching is most intense after he bathes. He recently noticed a rash on his abdomen and legs as well. On examination you note poorly defined red, scaly plaques with fine fissures on the abdomen. No eruption is present at other pruritic sites. Which one of the following is the most likely cause of this problem? A) Stasis dermatitis B) Lichen simplex chronicus C) Xerosis D) Rosacea E) Candidiasis	Xerosis. **08-051.** Xerosis is a pathologic dryness of the skin that is especially prominent in the elderly. **ANS=C.** It is probably caused by minor abnormalities in maturation of the epidermis that lead to decreased hydration of the superficial portion of the stratum corneum. Xerosis often intensifies in winter, because of the lower humidity and cold temperatures. Stasis dermatitis, due to chronic venous insufficiency, appears as a reddish-brown discoloration of the lower leg. Lichen simplex chronicus, the end result of habitual scratching or rubbing, usually presents as isolated hyperpigmented, edematous lesions, which become scaly and thickened in the center. Rosacea is most often seen on the face as an erythematous, acneiform eruption, which flushes easily and is surrounded by telangiectasia. Candidiasis is an opportunistic infection favoring areas that are warm, moist, and macerated, such as the perianal and inguinal folds, inframammary folds, axillae, interdigital areas, and corners of the mouth.