# American Board of Family Medicine

## 2010 IN-TRAINING EXAMINATION

## CRITIQUE BOOK

This book contains the answers to each question in the In-Training Examination, as well as a critique that provides a rationale for the correct answer. Bibliographic references are included at the end of each critique to facilitate any further study you may wish to do in a particular area.

**Item 1**

**ANSWER: 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.

Ref: Dias R, Cutts S, Massoud S: Frozen shoulder. *BMJ* 2005;331(7530):1453-1456. 2) Sheridan MA, Hannafin JA: Upper extremity: Emphasis on frozen shoulder. *Orthop Clin North Am* 2006;37(4):531-539. 3) Griffin LY (ed): *Essentials of Musculoskeletal Care*, ed 3. American Academy of Orthopaedic Surgeons, 2005, pp 184-186.

**Item 2**

**ANSWER: 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.

Ref: Guerrera MP, Volpe SL, Mao JJ: Therapeutic uses of magnesium. *Am Fam Physician* 2009;80(2):157-162.

**Item 3**

**ANSWER: 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.

Ref: Whitley HP, Lindsey W: Sex-based differences in drug activity. *Am Fam Physician* 2009;80(11):1254-1258.

**Item 4**

**ANSWER: A**

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. 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.

Ref: Evensen AE: Management of COPD exacerbations. *Am Fam Physician* 2010;81(5):607-613, 616.

**Item 5**

**ANSWER: 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.

Ref: O'Connor NR, McLaughlin MR, Ham P: Newborn skin: Part I. Common rashes. *Am Fam Physician* 2008;77(1):47-52.

**Item 6**

**ANSWER: D**

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.

Ref: Spindler KP, Wright RW: Anterior cruciate ligament tear. *N Engl J Med* 2008;359(20):2135-2142.

**Item 7**

**ANSWER: 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.

Ref: Kinney HC, Thach BT: The sudden infant death syndrome. *N Engl J Med* 2009;361(8):795-805.

**Item 8**

**ANSWER: 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.

Ref: Moghissi ES, Korytkowski MT, DiNardo M, et al: American Association of Clinical Endocrinologists and American Diabetes Association consensus statement on inpatient glycemic control. *Endocr Pract* 2009;15(4):353-369.

**Item 9**

**ANSWER: 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.

Ref: Dehmer GJ, Smith KJ: Drug-eluting coronary artery stents. *Am Fam Physician* 2009;80(11):1245-1253.

**Item 10**

**ANSWER: 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.

Ref: Gabbe SG, Niebyl JR, Simpson JL (eds): *Obstetrics: Normal and Problem Pregnancies*, ed 5. Churchill Livingstone, 2007, pp 1112-1113.

**Item 11**

**ANSWER: 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).

Ref: *Manual for the Surveillance of Vaccine-Preventable Diseases*, ed 4. Centers for Disease Control and Prevention, 2008, pp 10-8–10-9. 2) Mandell GL, Bennett JE, Dolin R (eds): *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, ed 7. Churchill Livingstone, 2009, pp 2959-2960. 3) Gregory DS: Pertussis: A disease affecting all ages. *Am Fam Physician* 2006;74(3):420-426.

**Item 12**

**ANSWER: E**

Tarsal coalition is the fusion of two or more tarsal bones. 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.

Ref: Malanga GA, Ramirez JA: Common injuries of the foot and ankle in the child and adolescent athlete. *Phys Med Rehabil Clin N Am* 2008;19(2):347-371.

**Item 13**

**ANSWER: D**

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. 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.

Ref: Esserman L, Shieh Y, Thompson I: Rethinking screening for breast cancer and prostate cancer. *JAMA* 2009;302(15):1685-1692.

**Item 14**

**ANSWER: 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.

Ref: Adams SM, Miller KE, Zylstra RG: Pharmacologic management of adult depression. *Am Fam Physician* 2008;77(6):785-792.

**Item 15**

**ANSWER: D**

Medicare pays for some preventive measures, including pneumococcal vaccine, influenza vaccine, annual mammography, and a Papanicolaou test every 3 years. 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.

Ref: Pompei P, Murphy JB (eds): *Geriatrics Review Syllabus: A Core Curriculum in Geriatric Medicine*, ed 6. American Geriatrics Society, 2006, book 1, pp 34, 67.

**Item 16**

**ANSWER: D**

The conditions that result in an absolute increase in lymphocytes are divided into primary causes (usually neoplastic hyperproliferation) and secondary or reactive causes. 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/μL. This infection is associated with classic symptoms that this patient does not have.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 1178, 1262-1263. 2) Mandell GL, Bennett JE, Dolin R (eds): *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, ed 7. Churchill Livingstone, 2009, p 1999.

**Item 17**

**ANSWER: 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.

Ref: Katz JN, Harris MB: Clinical practice: Lumbar spinal stenosis. *N Engl J Med* 2008;358(8):818-825. 2) Yuan PS, Albert TJ: Managing degenerative lumbar spinal stenosis. *J Musculoskel Med* 2009;26(6):222-231. 3) Halter JB, Ouslander JG, Tinetti ME, et al (eds): *Hazzard's Geriatric Medicine and Gerontology*, ed 6. McGraw-Hill Medical, 2009, pp 1471-1477.

**Item 18**

**ANSWER: E**

The effects of short-acting inhaled β-agonists begin within 5 minutes and last 4–6 hours. In the past, giving inhaled β-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. β-Blockers do diminish the effectiveness of inhaled β-agonists, but this effect is not severe enough to contraindicate using these drugs together. Oral β-agonists are less potent than inhaled forms. Similarly, anticholinergic drugs cause less bronchodilation than inhaled β-agonists and are not recommended as first-line therapy.

Ref: Fanta CH: Asthma. *N Engl J Med* 2009;360(10):1002-1014.

**Item 19**

**ANSWER: B**

NSAIDs are prescribed commonly and many are available over the counter. 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.

Ref: Risser A, Donovan D, Heintzman J, Page T: NSAID prescribing precautions. *Am Fam Physician* 2009;80(12):1371-1378.

**Item 20**

**ANSWER: 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.

Ref: Nwosu BU, Lee MM: Evaluation of short and tall stature in children. *Am Fam Physician* 2008;78(5):597-604.

**Item 21**

**ANSWER: 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, $pCO_2$, 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.

Ref: Krumholz A: Nonepileptic seizures: Diagnosis and management. *Neurology* 1999;53(5 Suppl 2):S76-S83. 2) Alsaadi TM, Marquez AV: Psychogenic nonepileptic seizures. *Am Fam Physician* 2005;72(5):849-856.

**Item 22**

**ANSWER: A**

Herpangina is a febrile disease caused by coxsackieviruses and echoviruses. Vesicles and subsequent ulcers develop in the posterior pharyngeal area (SOR C). 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.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, p 2518. 2) Mandell GL, Bennett JE, Dolin R (eds): *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, ed 7. Churchill Livingstone, 2009, pp 817-818, 2355-2356.

**Item 23**

**ANSWER: E**

Rosacea is a relatively common condition seen most often in women between the ages of 30 and 60. 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 β-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.

Ref: Blount BW, Pelletier AL: Rosacea: A common, yet commonly overlooked, condition. *Am Fam Physician* 2002;66(3):435-440. 2) Habif TP: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy*, ed 5. Mosby Elsevier, 2010, pp 256-258.

**Item 24**

**ANSWER: 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.

Ref: Sexually transmitted diseases treatment guidelines 2006. *MMWR* 2006;55(RR-11):83-85.

**Item 25**

**ANSWER: B**

The most common pathogens in previously untreated acute superficial foot infections in diabetic patients are aerobic gram-positive *Staphylococcus aureus* and β-hemolytic streptococci (groups A, B, and others). Previously treated and deep infections are often polymicrobial.

Ref: Bader MS: Diabetic foot infection. *Am Fam Physician* 2008;78(1):71-79.

**Item 26**

**ANSWER: 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.

Ref: Young GB: Neurologic prognosis after cardiac arrest. *N Engl J Med* 2009;361(6):605-611.

**Item 27**

**ANSWER: 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 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.

Ref: Carroll MF, Schade DS: A practical approach to hypercalcemia. *Am Fam Physician* 2003;67(9):1959-1966. 2) Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 1899-1902.

**Item 28**

**ANSWER: 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 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.

Ref: Hauck FR, Neese BH, Panchal AS, El-Amin W: Identification and management of latent tuberculosis infection. *Am Fam Physician* 2009;79(10):879-886.

**Item 29**

**ANSWER: 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.

Ref: Kliegman RM, Behrman RE, Jenson HB, Stanton BF (eds): *Nelson Textbook of Pediatrics*, ed 18. Saunders, 2007, pp 1627-1628.

**Item 30**

**ANSWER: E**

Amiodarone is one of the most frequently prescribed antiarrhythmic medications in the U.S. 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.

Ref: Vassallo P, Trohman RG: Prescribing amiodarone: An evidence-based review of clinical indications. *JAMA* 2007;298(11):1312-1322.

**Item 31**

**ANSWER: 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.

Ref: Predey TA, Sewall LE, Smith SJ: Percutaneous vertebroplasty: New treatment for vertebral compression fractures. *Am Fam Physician* 2002;66(4):611-615. 2) Old JL, Clavert M: Vertebral compression fractures in the elderly. *Am Fam Physician* 2004;69(1):111-116. 3) Duthie EH Jr, Katz PR, Malone ML (eds): *Practice of Geriatrics*, ed 4. Saunders Elsevier, 2007, pp 519-520.

**Item 32**

**ANSWER: 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).

Ref: Brooks DD, Winawer SJ, Rex DK, et al: Colonoscopy surveillance after polypectomy and colorectal cancer resection. *Am Fam Physician* 2008;77(7):995-1002, 1003, 1004.

**Item 33**

**ANSWER: 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 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.

Ref: Radosh L: Drug treatments for polycystic ovary syndrome. *Am Fam Physician* 2009;79(8):671-676.

**Item 34**

**ANSWER: B**

Compared to nebulizers, MDIs with spacers have been shown to lower pulse rates, provide greater improvement in peak-flow rates, lead to greater 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.

Ref: Newman KB, Milne S, Hamilton C, Hall K: A comparison of albuterol administered by metered-dose inhaler and spacer with albuterol by nebulizer in adults presenting to an urban emergency department with acute asthma. *Chest* 2002;121(4):1036-1041. 2) Miller KE: Metered-dose inhalers vs. nebulizers in treating asthma. *Am Fam Physician* 2002;66(7):1311. 3) *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma*. National Asthma Education and Prevention Program, NIH pub no 07-4051, 2007.

**Item 35**

**ANSWER: 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.

Ref: Feierabend RH, Malik SN: Hoarseness in adults. *Am Fam Physician* 2009;80(4):363-370.

**Item 36**

**ANSWER: E**

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.

Ref: Richmond J, Hunter D, Irrgang J, et al: Treatment of osteoarthritis of the knee (nonarthroplasty). *J Am Acad Orthop Surg* 2009;17(9):591-600.

**Item 37**

**ANSWER: 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 β-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.

Ref: Ortiz DD: Chronic pelvic pain in women. *Am Fam Physician* 2008;77(11):1535-1542, 1544.

**Item 38**

**ANSWER: 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 β-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.

Ref: Choby BA: Diagnosis and treatment of streptococcal pharyngitis. *Am Fam Physician* 2009;79(5):383-390.

**Item 39**

**ANSWER: 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 β-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 $FEV_1$ and normal FVC would be consistent with asthma.

Ref: Deckert J, Deckert L: Vocal cord dysfunction. *Am Fam Physician* 2010;81(2):156-159, 160.

**Item 40**

**ANSWER: E**

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.

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.

Ref: Simpson MR, Howard TM: Tendinopathies of the foot and ankle. *Am Fam Physician* 2009;80(10):1107-1114.

**Item 41**

**ANSWER: 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.

Ref: Dworkin LD, Cooper CJ: Renal-artery stenosis. *N Engl J Med* 2009;361(20):1972-1978.

**Item 42**

**ANSWER: 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.

Ref: Konstantinides S: Acute pulmonary embolism. *N Engl J Med* 2008;359(26):2804-2813.

**Item 43**

**ANSWER: D**

Late pregnancy bleeding may cause fetal morbidity and/or mortality as a result of uteroplacental insufficiency and/or 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.

Ref: Sakornbut E, Leeman L, Fontaine P: Late pregnancy bleeding. *Am Fam Physician* 2007;75(8):1199-1206. 2) Toppenberg KS, Block WA Jr: Uterine rupture: What family physicians need to know. *Am Fam Physician* 2002;66(5):823-828.

**Item 44**

**ANSWER: 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.

Ref: Bayard M, Avonda T, Wadzinski J: Restless legs syndrome. *Am Fam Physician* 2008;78(2):235-240.

**Item 45**

**ANSWER: 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.

Ref: Jacobs DO: Diverticulitis. *N Engl J Med* 2007;357(20):2057-2066.

**Item 46**

**ANSWER: B**

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. 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.

Ref: Glass RI, Parashar UD, Estes MK: Norovirus gastroenteritis. *N Engl J Med* 2009;361(18):1776-1785.

**Item 47**

**ANSWER: B**

The *patient-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. 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.

Ref: *2008 Physician Practice Connections—Patient-Centered Medical Home Standards and Guidelines*. National Committee for Quality Assurance, 2008, item no 30004-301-08.

**Item 48**

**ANSWER: 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.

Ref: Targeted tuberculin testing and treatment of latent tuberculosis infection. *MMWR* 2000;49(RR-6):23-25. 2) Mandell GL, Bennett JE, Dolin R (eds): *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, ed 7. Churchill Livingstone, 2009, pp 3136-3138.

**Item 49**

**ANSWER: A**

HIPAA regulations set a minimum standard for privacy protection. 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.

Ref: Annas GJ: HIPAA regulations: A new era of medical-record privacy? *N Engl J Med* 2003;348(15):1486-1490.

**Item 50**

**ANSWER: 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 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.

Ref: Wilson PWF, D'Agostino RB, Levy D, et al: Prediction of coronary heart disease using risk factor categories. *Circulation* 1998;97(18):1837-1847. 2) US Preventive Services Task Force: Screening for coronary heart disease: Recommendation statement. Agency for Healthcare Research and Quality, 2004.

**Item 51**

**ANSWER: C**

Hiccups are caused by a respiratory reflex that originates from the phrenic and vagus nerves, as well as the thoracic sympathetic chain. Hiccups that last a matter of hours are usually benign and self-limited, and may be 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.

Ref: Tintinalli JE, Kelen GD, Stapczynski JS (eds): *Emergency Medicine: A Comprehensive Study Guide*, ed 6. McGraw-Hill, 2004, pp 442-444. 2) Doyle D, Hanks G, Cherny NI, et al (eds): *Oxford Textbook of Palliative Medicine*, ed 3. Oxford University Press, 2005, pp 499-510.

**Item 52**

**ANSWER: 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.

Ref: Wilkins T, Baird C, Pearson AN, Schade RR: Diverticular bleeding. *Am Fam Physician* 2009;80(9):977-983.

**Item 53**

**ANSWER: D**

This patient needs prompt evaluation and treatment for probable heparin-induced thrombocytopenia (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.

Ref: Warkentin TE, Greinarcher A, Koster A, et al: Treatment and prevention of heparin-induced thrombocytopenia: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th edition). *Chest* 2008;133(6 suppl):340S-380S.

**Item 54**

**ANSWER: 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.

Pharmacotherapy alone does not lead to sustained benefits. SSRIs can cause insomnia, as can alcohol.

Ref: Harsora P, Kessmann J: Nonpharmacologic management of chronic insomnia. *Am Fam Physician* 2009;79(2):125-130, 131-132.

**Item 55**

**ANSWER: D**

The $CHADS_2$ 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 mellitus (D). Two points are assigned for a previous stroke or TIA ($S_2$).

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.

Ref: Gage BF, Waterman AD, Shannon W, et al: Validation of clinical classification schemes for predicting stroke: Results from the National Registry of Atrial Fibrillation. *JAMA* 2001;285(22):2864-2870. 2) Go AS, Hylek EM, Chang Y, et al: Anticoagulation therapy for stroke prevention in atrial fibrillation: How well do randomized trials translate into clinical practice? *JAMA* 2003;290(20):2685-2692. 3) Dickerson LM, Carek PJ, Quattlebaum RG: Prevention of recurrent ischemic stroke. *Am Fam Physician* 2007;76(3):382-388.

**Item 56**

**ANSWER: C**

An elevation in serum methylmalonic acid is both sensitive and specific for cellular vitamin $B_{12}$ deficiency.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, p 1639.

**Item 57**

**ANSWER: C**

Hypertension and diabetes mellitus are very common, both separately and in combination. 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.

Ref: Chobanian AV, Bakris GL, Black HR, et al: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure—The JNC 7 Report. National Heart Lung and Blood Institute (NHLBI), 2003, p 43. 2) The ACCORD Study Group: Effects of intensive blood-pressure control in type 2 diabetes mellitus. *N Engl J Med* 2010;362(17):1575-1585.

**Item 58**

**ANSWER: 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.

Ref: Vancomycin dosing and monitoring. *Med Lett Drugs Ther* 2009;51:25.

**Item 59**

**ANSWER: 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.

Ref: Kuhlman GS, Domb BG: Hip impingement: Identifying and treating a common cause of hip pain. *Am Fam Physician* 2009;80(12):1429-1434.

**Item 60**

**ANSWER: E**

Pyelonephritis is the most common medical complication of pregnancy. 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 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.

Ref: Macejko AM, Schaeffer AJ: Asymptomatic bacteriuria and symptomatic urinary tract infections during pregnancy. *Urol Clin North Am* 2007;34(1):35-42. 2) Gabbe SG, Niebyl JR, Simpson JL (eds): *Obstetrics: Normal and Problem Pregnancies*, ed 5. Churchill Livingstone, 2007, pp 965-967.

**Item 61**

**ANSWER: A**

Dextromethorphan is commonly found in cough and cold remedies, and is associated with serotonin syndrome. 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.

Ref: Ables AZ, Nagubilli R: Prevention, recognition, and management of serotonin syndrome. *Am Fam Physician* 2010;81(9):1139-1142.

**Item 62**

**ANSWER: D**

Brain-type natriuretic peptide (BNP) is synthesized, stored, and released by the ventricular myocardium in response to volume expansion and pressure overload. 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.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, p 353. 2) Piña IL, O'Connor C: BNP-guided therapy for heart failure. *JAMA* 2009;301(4):432-434.

**Item 63**

**ANSWER: 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.

Ref: Beckett NS, Peters R, Fletcher AE, et al: Treatment of hypertension in patients 80 years of age or older. *N Engl J Med* 2008;358(18):1887-1898.

**Item 64**

**ANSWER: A**

A single morning serum cortisol level $>13$ μg/dL reliably excludes adrenal insufficiency. If the morning cortisol level is lower than this, further evaluation with a 1-μg 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.

Ref: Kazlauskaite R, Evans AT, Villabona CV, et al: Corticotropin tests for hypothalamic-pituitary-adrenal insufficiency: A metaanalysis. *J Clin Endocrinol Metab* 2008;93(11):4245-4253. 2) Satre TJ, Kovach F: Clinical inquiries. What's the most practical way to rule out adrenal insufficiency? *J Fam Pract* 2009;58(5):281a-281b.

**Item 65**

**ANSWER: E**

Healthy women may continue combination birth control pills into their fifties, and this patient has no contraindications. 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.

Ref: Kaunitz AM: Hormonal contraception in women of older reproductive age. *N Engl J Med* 2008;358(12):1262-1270.

**Item 66**

**ANSWER: E**

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.

Ref: Salvarani C, Cantini F, Hunder GG: Polymyalgia rheumatica and giant-cell arteritis. *Lancet* 2008;372(9634):234-245.

**Item 67**

**ANSWER: 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.

Ref: Branson BM, Handsfield HH, Lampe MA, et al: Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR Recomm Rep* 2006;55(RR-14):1-17.

**Item 68**

**ANSWER: D**

Glycopyrrolate does not cross the blood-brain barrier, and is therefore least likely to cause central nervous system effects such as sedation. The other medications listed do cross the blood-brain barrier.

Ref: Bruera E, Higginson IJ, Ripamonti C, von Gunten C (eds): *Textbook of Palliative Medicine*. Hodder Arnold, 2006, p 670.

**Item 69**

**ANSWER: D**

Body dysmorphic disorder is an increasingly recognized somatoform disorder that is clinically distinct from obsessive-compulsive disorder, eating disorders, and depression. 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.

Ref: Hunt TJ, Thienhaus O, Ellwood A: The mirror lies: Body dysmorphic disorder. *Am Fam Physician* 2008;78(2):217-222.

**Item 70**

**ANSWER: C**

In patients with no known coronary artery disease (CAD), the presence of frequent premature ventricular contractions (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).

Ref: Preliminary report: Effect of encainide and flecainide on mortality in a randomized trial of arrhythmia suppression after myocardial infarction. *N Engl J Med* 1989;321(6):406-412. 2) European Heart Rhythm Association, Heart Rhythm Society, Zipes DP, et al: ACC/AHA/ESC 2006 guidelines for management of patients with ventricular arrhythmias and the prevention of sudden cardiac death. *J Am Coll Cardiol* 2006;48(5):e247-e346. 3) Nobles MB, Langlois JP, Stigleman S, Lochner J: Clinical inquiries: Should you evaluate for CAD in seniors with premature ventricular contractions? *J Fam Pract* 2008;57(5):325-326.

**Item 71**

**ANSWER: 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.

Ref: Black WS, Becker JA: Common forearm fractures in adults. *Am Fam Physician* 2009;80(10):1096-1102.

**Item 72**

**ANSWER: B**

Metformin is the only hypoglycemic agent shown to reduce mortality rates in patients with type 2 diabetes mellitus. 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 α-glucosidase inhibitors reduce the risk of cardiovascular events in patients with impaired glucose tolerance.

Ref: Chiasson J, Josse RG, Gomis R, et al: Acarbose treatment and the risk of cardiovascular disease and hypertension in patients with impaired glucose tolerance: The STOP-NIDDM trial. *JAMA* 2003;290(4):486-494. 2) Ripsin CM, Kang H, Urban RJ: Management of blood glucose in type 2 diabetes mellitus. *Am Fam Physician* 2009;79(1):29-36, 42.

**Item 73**

**ANSWER: E**

Primary hyperaldosteronism is relatively common in patients with stage 2 hypertension (160/100 mm Hg or higher) or treatment-resistant hypertension. 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.

Ref: Funder JW, Carey RM, Fardella C, et al: Case detection, diagnosis, and treatment of patients with primary aldosteronism: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* 2008;93(9):3266-3281. 2) Viera AJ, Hinderliter AL: Evaluation and management of the patient with difficult-to-control or resistant hypertension. *Am Fam Physician* 2009;79(10):863-869.

**Item 74**

**ANSWER: E**

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. 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.

Ref: Endsley S, Baker G, Kershner BA, Curtin K: What family physicians need to know about pay for performance. *Fam Pract Manag* 2006;13(7):69-74. 2) American Academy of Family Physicians policy statement on pay-for-performance. 2009.

**Item 75**

**ANSWER: 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).

Ref: Last AR, Hulbert K: Chronic low back pain: Evaluation and management. *Am Fam Physician* 2009;79(12):1067-1074. 2) Chou R, Qaseem A, Snow V, et al; Clinical Efficacy Assessment Subcommittee of the American College of Physicians; American College of Physicians; American Pain Society Low Back Pain Guidelines Panel: Diagnosis and treatment of low back pain: A joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Intern Med* 2007;147(7):478-491.

**Item 76**

**ANSWER: 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.

Ref: Onusko E: Statins and elevated liver tests: What's the fuss? *J Fam Pract* 2008;57(7):449-452.

**Item 77**

**ANSWER: 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.

Ref: SORT: The Strength-of-Recommendation Taxonomy. *Am Fam Physician* 2004;69(8):1845-1846. 2) Ebell MH, Siwek J, Weiss BD, et al: Strength of recommendation taxonomy (SORT): A patient-centered approach to grading evidence in the medical literature. *Am Fam Physician* 2004;69(3):548-556.

**Item 78**

**ANSWER: 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.

Ref: Wilkins T, Zimmerman D, Schade RR: Hepatitis B: Diagnosis and treatment. *Am Fam Physician* 2010;81(8):965-972.

**Item 79**

**ANSWER: 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.

Ref: Pearce EN, Farwell AP, Braverman LE: Thyroiditis. *N Engl J Med* 2003;348(26):2646-2655. 2) Rakel RE, Bope ET, Kellerman R (eds): *Conn's Current Therapy 2010*. Saunders Elsevier, 2010, pp 687-688.

**Item 80**

**ANSWER: 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.

Ref: Qaseem A, Snow V, Shekelle P, et al: Clinical Efficacy Assessment Subcommittee of the American College of Physicians: Diagnosis and management of stable chronic obstructive pulmonary disease: A clinical practice guideline from the American College of Physicians. *Ann Intern Med* 2007;147(9):633-638. 2) Hoeper MM, Baberà JA, Channick RN, et al: Diagnosis, assessment, and treatment of non-pulmonary arterial hypertension pulmonary hypertension. *J Am Coll Cardiol* 2009;54(1 Suppl):S85-S96.

**Item 81**

**ANSWER: E**

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. 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 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.

Ref: Mandell GL, Bennett JE, Dolin R (eds): *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, ed 7. Churchill Livingstone, 2009, pp 976-979.

**Item 82**

**ANSWER: 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%.

Ref: Keay L, Lindsley K, Teisch J, et al: Routine preoperative medical testing for cataract surgery. *Cochrane Database Syst Rev* 2009;15(2):CD007293.

**Item 83**

**ANSWER: 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.

Ref: National Asthma Education and Prevention Program: Expert panel report 3: Guidelines for the diagnosis and management of asthma. Summary report 2007. National Heart, Lung, and Blood Institute, 2007, pub no 08-5846, p 52.

**Item 84**

**ANSWER: 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).

Ref: Ford AC, Talley NJ, Veldhuyzen van Zanten SJ, et al: Will the history and physical examination help establish that irritable bowel syndrome is causing this patient's lower gastrointestinal tract symptoms? *JAMA* 2008;300(15):1793-1805.

**Item 85**

**ANSWER: 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/m$^2$ 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 $A_{1c}$ ≥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.

Ref: American Diabetes Association: Standards of medical care in diabetes—2010. *Diabetes Care* 2010;33(Suppl 1):S11-S61. 2) Patel P, Macerollo A: Diabetes mellitus: Diagnosis and screening. *Am Fam Physician* 2010;81(7):863-870.

**Item 86**

**ANSWER: 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 $T_4$. Subclinical hypothyroidism is diagnosed by high TSH and normal free $T_4$ levels. Subacute thyroiditis most often is a hyperthyroid condition.

Ref: Sakharova OV, Inzucchi SE: Endocrine assessments during critical illness. *Crit Care Clin* 2007;23(3):467-490. 2) Adler SM, Wartofsky L: The nonthyroidal illness syndrome. *Endocrinol Metab Clin North Am* 2007;36(3):657-672.

**Item 87**

**ANSWER: 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 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.

Ref: Sawyer JR, Kapoor M: The limping child: A systematic approach to diagnosis. *Am Fam Physician* 2009;79(3):215-224.

**Item 88**

**ANSWER: 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 $< -2$.

Ref: Choby B, Trubey C, Jenkinson D: *Sports Related Conditions*. FP Essentials monograph series, American Academy of Family Physicians, 2009, no 364, pp 31-35.

**Item 89**

**ANSWER: 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.

Ref: Ramakrishnan K, Sparks RA, Berryhill WE: Diagnosis and treatment of otitis media. *Am Fam Physician* 2007;76(11):1650-1658.

**Item 90**

**ANSWER: 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.

Ref: Wilkins T, Baird C, Pearson AN, Schade RR: Diverticular bleeding. *Am Fam Physician* 2009;80(9):977-983.

**Item 91**

**ANSWER: D**

For persistent ventricular 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. 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.

Ref: Field JM (ed): *Advanced Cardiovascular Life Support Provider Manual*. American Heart Association, 2006, pp 45, 50.

**Item 92**

**ANSWER: 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.

Ref: Goldfarb DS: In the clinic: Nephrolithiasis. *Ann Intern Med* 2009;151(3):ITC2-2–ITC2-14.

**Item 93**

**ANSWER: 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).

Ref: Albert RH, Russell JJ: Evaluation of the solitary pulmonary nodule. *Am Fam Physician* 2009;80(8):827-831, 834.

**Item 94**

**ANSWER: 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 α-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.

Ref: Grimard BH, Larson JM: Aortic stenosis: Diagnosis and treatment. *Am Fam Physician* 2008;78(6):717-724, 725.

**Item 95**

**ANSWER: D**

Gastroesophageal reflux disease (GERD) is one of the most common causes of chronic cough. 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.

Ref: Irwin RS: Chronic cough due to gastroesophageal reflux disease: ACCP evidence-based clinical practice guidelines. *Chest* 2006;129(1 suppl):80S-94S. 2) Heidelbaugh JJ, Gill AS, Van Harrison R, et al: Atypical presentations of gastroesophageal reflux disease. *Am Fam Physician* 2008;78(4):483-488.

**Item 96**

**ANSWER: D**

Psoriasis is a genetic inflammatory condition that has been associated with a significant risk of cardiovascular morbidity and mortality. 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.

Ref: Gelfand JM, Troxel AB, Lewis JD, et al: The risk of mortality in patients with psoriasis: Results from a population-based study. *Arch Dermatol* 2007;143(12):1493-1499. 2) Menter A, Gottlieb A, Feldman SR, et al: Guidelines of care for the management of psoriasis and psoriatic arthritis. *J Am Acad Dermatol* 2008;58(5):826-850. 3) Wolff K, Goldsmith L, Katz SL, et al (eds): *Fitzpatrick's Dermatology in General Medicine*, ed 7. McGraw-Hill, 2008, chap 18.

**Item 97**

**ANSWER: 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.

Ref: Abalovich M, Amino N, Barbour LA, et al: Management of thyroid dysfunction during pregnancy and postpartum: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* 2007;92(8 Suppl):S1-S47.

**Item 98**

**ANSWER: A**

Surgery for rotator cuff tears is most beneficial in young, active patients. 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.

Ref: The diagnosis and management of soft tissue shoulder injuries and related disorders. New Zealand Guidelines Group, 2004. 2) Matsen FA III: Rotator-cuff failure. *N Engl J Med* 2008;358(20):2138-2147.

**Item 99**

**ANSWER: 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 $\leq 4$ 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.

Ref: Ebell MH: Diagnosis: Making the best use of medical data. *Am Fam Physician* 2009;79(6):478-480.

**Item 100**

**ANSWER: E**

ACE inhibitors such 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). β-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.

Ref: Chavey WE, Bleske BE, Harrison RV, et al: Pharmacologic management of heart failure caused by systolic dysfunction. *Am Fam Physician* 2008;77(7):957-964.

**Item 101**

**ANSWER: 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 β-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 β-agonist.

Ref: National Asthma Education and Prevention Program Expert Panel Report 3: *Guidelines for the Diagnosis and Management of Asthma*. National Heart, Lung, and Blood Institute, 2007, NIH pub no 08-5846, pp 326-362.

**Item 102**

**ANSWER: A**

Metformin is contraindicated in patients with chronic kidney disease. 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.

Ref: Ripsin CM, Kang H, Urban RJ: Management of blood glucose in type 2 diabetes mellitus. *Am Fam Physician* 2009;79(1):29-36.

**Item 103**

**ANSWER: B**

Lichen sclerosus is a chronic, progressive, inflammatory skin condition found in the anogenital region. 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.

Ref: O'Connell TX, Nathan LS, Satmary WA, Goldstein AT: Non-neoplastic epithelial disorders of the vulva. *Am Fam Physician* 2008;77(3):321-326, 330.

**Item 104**

**ANSWER: 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.

Ref: Elsawy B, Higgins KE: Physical activity guidelines for older adults. *Am Fam Physician* 2010;81(1):55-59.

**Item 105**

**ANSWER: 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).

Ref: US Preventive Services Task Force: Aspirin for the prevention of cardiovascular disease: US Preventive Services Task Force recommendation statement. *Ann Intern Med* 2009;150(6):396-404.

**Item 106**

**ANSWER: 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.

Ref: Biagioli F: Child safety seat counseling: Three keys to safety. *Am Fam Physician* 2005;72(3):473-478.

**Item 107**

**ANSWER: 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.

Ref: Chakrabarty S, Zoorob R: Fibromyalgia. *Am Fam Physician* 2007;76(2):247-254. 2) Carville SF, Arendt-Nielsen S, Bliddal H, et al: EULAR evidence-based recommendations for the management of fibromyalgia syndrome. *Ann Rheum Dis* 2008;67(4):536-541. 3) Häuser W, Bernardy K, Üçeyler N, Sommer C: Treatment of fibromyalgia syndrome with antidepressants: A meta-analysis. *JAMA* 2009;301(2):198-209.

**Item 108**

**ANSWER: A**

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. Effective treatments include aspirin, β-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.

Ref: Young C (ed): *BMJ Clinical Evidence Handbook*. BMJ Publishing Group, summer 2007, pp 40-41.

**Item 109**

**ANSWER: 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).

Ref: Marx JA (ed): *Rosen's Emergency Medicine: Concepts and Clinical Practice*, ed 7. Mosby Elsevier, 2010, pp 407-408.

**Item 110**

**ANSWER: 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.

Ref: Glass C: Role of the primary care physician in Hodgkin lymphoma. *Am Fam Physician* 2008;78(5):615-622.

**Item 111**

**ANSWER: B**

The treatment of foot problems in the 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.

Ref: Frontera WR, Silver JK, Rizzo TD Jr (eds): *Essentials of Physical Medicine and Rehabilitation: Musculoskeletal Disorders, Pain, and Rehabilitation*, ed 2. Saunders Elsevier, 2008, pp 453-457.

**Item 112**

**ANSWER: D**

Hantavirus pulmonary syndrome results from exposure to rodent droppings, mainly the deer mouse in the southwestern U.S. 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.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, p 2529.

**Item 113**

**ANSWER: E**

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. 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.

Ref: Albers JR, Hull SK, Wesley RM: Abnormal uterine bleeding. *Am Fam Physician* 2004;69(8):1915-1926. 2) Speroff L, Fritz MA: *Clinical Gynecologic Endocrinology and Infertility*, ed 7. Lippincott Williams & Wilkins, 2005, chap 15.

**Item 114**

**ANSWER: 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.

Ref: Passik SD: Issues in long-term opioid therapy: Unmet needs, risks, and solutions. *Mayo Clinic Proc* 2009;84(7):593-601. 2) Jackman RP, Purvis JM, Mallett BS: Chronic nonmalignant pain in primary care. *Am Fam Physician* 2008;78(10):1155-1162.

**Item 115**

**ANSWER: 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 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.

Ref: Swain GR, Ward GK, Hartlaub PP: Death certificates: Let's get it right. *Am Fam Physician* 2005;71(4):652-655.

**Item 116**

**ANSWER: 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.

Ref: American Academy of Pediatrics Subcommittee on Diagnosis and Management of Bronchiolitis: Diagnosis and management of bronchiolitis. *Pediatrics* 2006;118(4):1774-1793. 2) Huntzinger A: AAP publishes recommendations for the diagnosis and management of bronchiolitis. *Am Fam Physician* 2007;75(2):265-267.

**Item 117**

**ANSWER: B**

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. 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.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 1910-1913. 2) Rakel RE, Bope ET, Kellerman R (eds): *Conn's Current Therapy 2010.* Saunders Elsevier, 2010, pp 622-625.

**Item 118**

**ANSWER: 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.

Ref: Public Health Advisory: FDA recommends that over-the-counter (OTC) cough and cold products not be used for infants and children under 2 years of age. US Food and Drug Administration, 2008.

**Item 119**

**ANSWER: 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.

Ref: Eggebeen AT: Gout: An update. *Am Fam Physician* 2007;76(6):801-808, 811-812.

**Item 120**

**ANSWER: 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.

Ref: American Geriatrics Society Panel on Pharmacological Management of Persistent Pain in Older Persons: Pharmacological management of persistent pain in older persons. *J Am Geriatr Soc* 2009;57(8):1331-1346.

**Item 121**

**ANSWER: B**

The diagnosis of melanoma should be made by simple excision with clear margins. A shave biopsy should be avoided because 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.

Ref: Rager EL, Bridgeford EP, Ollila DW: Cutaneous melanoma: Update on prevention, screening, diagnosis, and treatment. *Am Fam Physician* 2005;72(2):269-276.

**Item 122**

**ANSWER: 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.

Ref: Kavan MG, Elsasser GN, Barone EJ: Generalized anxiety disorder: Practical assessment and management. *Am Fam Physician* 2009;79(9):785-791.

**Item 123**

**ANSWER: 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.

Ref: Ramakrishnan K, Sparks RA, Berryhill WE: Diagnosis and treatment of otitis media. *Am Fam Physician* 2007;76(11):1650-1658. 2) American Academy of Pediatrics Subcommittee on Management of Acute Otitis Media: Diagnosis and management of acute otitis media. *Pediatrics* 2004;113(5):1451–1465.

**Item 124**

**ANSWER: 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.

Ref: Sexually transmitted diseases treatment guidelines 2006. *MMWR* 2006;55(RR-11):49-52, 60, 66.

**Item 125**

**ANSWER: B**

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). 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.

Ref: US Preventive Services Task Force: Screening for abdominal aortic aneurysm: Recommendation statement. *Ann Intern Med* 2005;142(3):198-202.

**Item 126**

**ANSWER: 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.

Ref: When a statin fails. *Med Lett Drugs Ther* 2009;51:58-59.

**Item 127**

**ANSWER: 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.

Ref: Rex DK, Johnson DA, Anderson JC: American College of Gastroenterology Guidelines for Colorectal Cancer Screening 2008. *Am J Gastroenterol* 2009;104(3):739-750.

**Item 128**

**ANSWER: B**

A hemoglobin $A_{1c}$ ($HbA_{1c}$) of 6.0% correlates with a mean plasma glucose level of 126 mg/dL or 7.0 mmol/dL. A calculator to convert $HbA_{1c}$ levels into estimated average glucose levels is available at http://professional.diabetes.org/eAG.

A rough guide for estimating average plasma glucose levels assumes that an $HbA_{1c}$ of 6.0% equals an average glucose level of 120 mg/dL. Each percentage point increase in $HbA_{1c}$ is equivalent to a 30-mg/dL rise in average glucose. An $HbA_{1c}$ of 7.0% is therefore roughly equivalent to an average glucose level of 150 mg/dL, and an $HbA_{1c}$ of 8.0% translates to an average glucose level of 180 mg/dL.

Ref: American Diabetes Association: Standards of medical care in diabetes—2010. *Diabetes Care* 2010;33(1):S19.

**Item 129**

**ANSWER: B**

The elevated pH, normal oxygen saturation, and low $pCO_2$ are characteristic of acute respiratory alkalosis, as seen with acute hyperventilation states. In patients with a pulmonary embolism, $pO_2$ and $pCO_2$ 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.

Ref: Marx JA (ed): *Rosen's Emergency Medicine: Concepts and Clinical Practice*, ed 7. Mosby Elsevier, 2010, pp 124-131, 393-394, 893-894, 1128-1132, 2036-2037.

**Item 130**

**ANSWER: D**

Frontotemporal dementia is the second most common cause of early-onset dementia. 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.

Ref: Josephs KA: Frontotemporal lobar degeneration. *Neurol Clin* 2007;25(3):683-696. 2) Rosness TA, Haugen PK, Passant U, Engedal K: Frontotemporal dementia—A clinically complex diagnosis. *Int J Geriatr Psychiatry* 2008;23(8):837-842.

**Item 131**

**ANSWER: 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.

Ref: *U3: Assessment and Treatment of Physical Pain Associated with Life-Limiting Illness*. American Academy of Hospice and Palliative Medicine, 2008, pp 18-21.

**Item 132**

**ANSWER: 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).

Ref: Pokhrel PK, Loftus SA: Ocular emergencies. *Am Fam Physician* 2007;76(6):829-836.

**Item 133**

**ANSWER: 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.

Ref: Kliegman RM, Behrman RE, Jenson HB, Stanton B (eds): *Nelson Textbook of Pediatrics*, ed 18. Saunders, 2007, pp 1020-1022.

**Item 134**

**ANSWER: C**

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. 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.

Ref: Field JM (eds): *Advanced Cardiovascular Life Support Provider Manual*. American Heart Association, 2006, p 124.

**Item 135**

**ANSWER: 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.

Ref: Brenner DJ, Hall EJ: Computed tomography—An increasing source of radiation exposure. *N Engl J Med* 2007;357(22):2277-2284. 2) Einstein AJ, Henzlova MJ, Rajagopalan S: Estimating risk of cancer associated with radiation exposure from 64-slice computed tomography coronary angiography. *JAMA* 2007;298(3):317-323. 3) de Gonzalez A, Mahesh M, Kim KP, et al: Projected cancer risks from computed tomographic scans performed in the United States in 2007. *Arch Intern Med* 2009;169(22):2071-2077. 4) Dachs RJ, Graber MA, Darby-Stewart A: Cancer risks associated with CT scanning. *Am Fam Physician* 2010;81(2):111-114.

**Item 136**

**ANSWER: 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 $D_2$) or cholecalciferol (vitamin $D_3$) can be used to replenish stores (SOR B).

Ref: Bordelon P, Ghetu MV, Langan R: Recognition and management of vitamin D deficiency. *Am Fam Physician* 2009;80(8):841-846.

**Item 137**

**ANSWER: 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.

Ref: Walsh TD, Caraceni AT, Fainsinger R, et al: *Palliative Medicine: Expert Consult*. Saunders Elsevier, 2008, pp 91-93.

**Item 138**

**ANSWER: C**

The 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. 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.

Ref: Stiell IG, McKnight RD, Greenberg GH, et al: Implementation of the Ottawa ankle rules. *JAMA* 1994;271(11):827-832. 2) Bachmann LM, Kolb E, Koller MT, et al: Accuracy of Ottawa ankle rules to exclude fractures of the ankle and mid-foot: Systematic review. *BMJ* 2003;326(7386):417. 3) Marx JA (ed): *Rosen's Emergency Medicine: Concepts and Clinical Practice*, ed 7. Mosby Elsevier, 2010, pp 672-673.

**Item 139**

**ANSWER: 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).

Ref: Gibbs CF, Johnson TM II, Ouslander JG: Office management of geriatric urinary incontinence. *Am J Med* 2007;120(3):211-220. 2) Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 125-128.

**Item 140**

**ANSWER: 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.

Ref: DuPont HL: Bacterial diarrhea. *N Engl J Med* 2009;361(16):1560-1569. 2) Brunette GW, Kozarsky PE, Magill AJ, Shlim DR: *CDC Health Information for International Travel 2010*. Mosby, 2009, pp 161-165.

**Item 141**

**ANSWER: 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.

Ref: Martin KA, Chang RJ, Ehrmann DA, et al: Evaluation and treatment of hirsutism in premenopausal women: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* 2008;93(4):1105-1120.

**Item 142**

**ANSWER: 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).

Ref: Mills K, Nelson AC, Winslow BT, et al: Treatment of nursing home–acquired pneumonia. *Am Fam Physician* 2009;79(11):976-982.

**Item 143**

**ANSWER: B**

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). 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).

Ref: Sweet MG, Sweet JM, Jeremiah MP, Galazka SS: Diagnosis and treatment of osteoporosis. *Am Fam Physician* 2009;79(3):193-200, 201-202.

**Item 144**

**ANSWER: 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.

Ref: Berek JS (ed): *Berek & Novak's Gynecology*, ed 14. Lippincott Williams & Wilkins, 2007, pp 648-651.

**Item 145**

**ANSWER: 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.

Ref: Hollands H, Johnson D, Brox AC, et al: Acute-onset floaters and flashes: Is this patient at risk for retinal detachment? *JAMA* 2009;302(20):2243-2249.

**Item 146**

**ANSWER: 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 appropriate in pregnant women, and miconazole is used to treat vaginal candidiasis.

Ref: Sexually transmitted disease guidelines, 2006. *MMWR* 2006;55(RR-11):40.

**Item 147**

**ANSWER: 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.

Ref: Ropper AH, Samuels MA: *Adams and Victor's Principles of Neurology*, ed 9. McGraw-Hill, 2009, pp 598-600. 2) Halter JB, Ouslander JG, Tinetti ME, et al (eds): *Hazzard's Geriatric Medicine and Gerontology*, ed 6. McGraw-Hill Medical, 2009, pp 757-765.

**Item 148**

**ANSWER: 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 $B_{12}$ deficiency, and folate deficiency result in macrocytic anemias.

Ref: Janus J, Moerschel SK: Evaluation of anemia in children. *Am Fam Physician* 2010;81(12):1462-1471.

**Item 149**

**ANSWER: E**

Somatization disorder is a psychological disorder characterized by the chronic presence of several unexplained symptoms beginning before the age of 30 years. 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.

Ref: Oyama O, Paltoo C, Greengold J: Somatoform disorders. *Am Fam Physician* 2007;76(9):1333-1338.

**Item 150**

**ANSWER: C**

Acute respiratory failure following severe injury and critical illness has received increasing attention over the last decade. 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.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, pp 1680-1684.

**Item 151**

**ANSWER: B**

Cluster headache is predominantly a male disorder. 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.

Ref: Ropper AH, Samuels MA: *Adams and Victor's Principles of Neurology*, ed 9. McGraw-Hill, 2009, pp 166-183.

**Item 152**

**ANSWER: 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.

Ref: Antiviral drugs for influenza. *Med Lett Drugs Ther* 2009;51:89-92.

**Item 153**

**ANSWER: 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 α-blockers can be associated with depression. Calcium-channel blockers, β-blockers, and other sympatholytic drugs affect cardiac conductivity. β-Blockers are contraindicated in patients with asthma, and are also associated with impotence. Thiazide diuretics raise uric acid and blood glucose levels.

Ref: Bope ET, Rakel RE, Kellerman R (eds): *Conn's Current Therapy 2010*. Saunders Elsevier, 2010, pp 362-364.

**Item 154**

**ANSWER: 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.

Ref: Inge LD, Wilson JW: Update on the treatment of tuberculosis. *Am Fam Physician* 2009;78(4):457-465. 2) Mandell GL, Bennett JE, Dolin R (eds): *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, ed 7. Churchill Livingstone, 2009, pp 3144-3151.

**Item 155**

**ANSWER: 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 $>5$ μg/dL after a 1-mg dose 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.

Ref: Young WF Jr: The incidentally discovered adrenal mass. *N Engl J Med* 2007;356(6):601-610. 2) Willatt JM, Francis IR: Radiologic evaluation of incidentally discovered adrenal masses. *Am Fam Physician* 2010:81(11):1361-1366.

**Item 156**

**ANSWER: 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).

Ref: Lin K, Fajardo K: Screening for asymptomatic bacteriuria in adults: Evidence for the US Preventive Services Task Force reaffirmation recommendation statement. *Ann Intern Med* 2008;149(1):W-20-W-24. 2) US Preventive Services Task Force: Screening for asymptomatic bacteriuria in adults: US Preventive Services Task Force reaffirmation recommendation statement. *Ann Intern Med* 2008;149(1):43-47.

**Item 157**

**ANSWER: 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.

Ref: Killip S, Bennett JM, Chambers MD: Iron deficiency anemia. *Am Fam Physician* 2007;75(5):671-678.

**Item 158**

**ANSWER: C**

Childhood bullying has potentially serious implications for bullies and their targets. The target children are typically quiet and sensitive, and may be perceived to be weak and different. 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.

Ref: Lyznicki JM, McCaffree MA, Robinowitz CB: Childhood bullying: Implications for physicians. *Am Fam Physician* 2004;70(9):1723-1728. 2) Vreeman RC, Carroll AE: A systematic review of school-based interventions to prevent bullying. *Arch Pediatr Adolesc Med* 2007;161(1):78-88. 3) Kliegman RM, Behrman RE, Jenson HB, Stanton BF (eds): *Nelson Textbook of Pediatrics*, ed 18. Saunders, 2007, pp 168-169.

**Item 159**

**ANSWER: 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 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.

Ref: Kliegman RM, Behrman RE, Jenson HB, Stanton BF (eds): *Nelson Textbook of Pediatrics*, ed 18. Saunders, 2007, pp 1140-1144.

**Item 160**

**ANSWER: 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.

Ref: Satpathy C, Mishra TK, Satpathy R, et al: Diagnosis and management of diastolic dysfunction and heart failure. *Am Fam Physician* 2006;73(5):841-846. 2) Hunt SA, Abraham WT, Chin MH, et al: 2009 focused update incorporated into the ACC/AHA 2005 Guidelines for the Diagnosis and Management of Heart Failure in Adults: A report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines: Developed in collaboration with the International Society for Heart and Lung Transplantation. *Circulation* 2009;119(14):e391-479.

**Item 161**

**ANSWER: 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.

Ref: Weckmann MT: The role of the family physician in the referral and management of hospice patients. *Am Fam Physician* 2008;77(6):807-812.

**Item 162**

**ANSWER: 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.

Ref: Schlaudecker JD, Bernheisel CR: Gadolinium-associated nephrogenic systemic fibrosis. *Am Fam Physician* 2009;80(7):711-714.

**Item 163**

**ANSWER: 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).

Ref: Frithsen IL, Simpson WM Jr: Recognition and management of acute medication poisoning. *Am Fam Physician* 2010;81(3):316-323.

**Item 164**

**ANSWER: 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.

Ref: Serlin DC, Lash RW: Diagnosis and management of gestational diabetes mellitus. *Am Fam Physician* 2009;80(1):57-62.

**Item 165**

**ANSWER: 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.

Ref: Muench J, Hamer AM: Adverse effects of antipsychotic medications. *Am Fam Physician* 2010;81(5):617-622.

**Item 166**

**ANSWER: B**

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. 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).

Ref: Kruszka P, O'Brian RJ: Diagnosis and management of Sjögren syndrome. *Am Fam Physician* 2009;79(6):465-470.

**Item 167**

**ANSWER: 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.

Ref: Bhatia SK, Bhatia SC: Childhood and adolescent depression. *Am Fam Physician* 2007;75(1):73-80.

**Item 168**

**ANSWER: 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.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 537-547.

**Item 169**

**ANSWER: B**

Psychological disorders, including anxiety, depression, and dysthymia, are frequently confused with premenstrual syndrome (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.

Ref: Hales RE, Yudofsky SC, Gabbard GO (eds): *Textbook of Clinical Psychiatry*, ed 5. American Psychiatric Publishing, 2008, pp 461-464.

**Item 170**

**ANSWER: C**

Congenital adrenal hyperplasia is a family of diseases caused by an inherited deficiency of any of the enzymes necessary for the biosynthesis of cortisol. 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.

Ref: Kliegman RM, Behrman RE, Jenson HB, Stanton BF (eds): *Nelson Textbook of Pediatrics*, ed 18. Saunders, 2007, pp 2360-2367.

**Item 171**

**ANSWER: A**

Polycythemia vera should be suspected in African-Americans or white females whose hemoglobin level is $>16$ g/dL or whose hematocrit is $>47\%$. 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 $O_2$ saturation, and the presence of splenomegaly. Minor criteria include elevated vitamin $B_{12}$ levels, elevated leukocyte alkaline phosphatase, a platelet count $>400{,}000/mm^3$, and a WBC count $>12{,}000/mm^3$. Patients with polycythemia vera may present with gout and an elevated uric acid level, but neither is considered a criterion for the diagnosis.

Ref: Stuart BJ, Viera AJ: Polycythemia vera. *Am Fam Physician* 2004;69(9):2139-2144, 2146. 2) Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 1250-1252.

**Item 172**

**ANSWER: 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.

Ref: Kliegman RM, Behrman RE, Jenson HB, Stanton BF (eds): *Nelson Textbook of Pediatrics*, ed 18. Saunders, 2007, pp 1580-1585.

**Item 173**

**ANSWER: 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.

Ref: Weckmann MT: The role of the family physician in the referral and management of hospice patients. *Am Fam Physician* 2008;77(6):807-812.

**Item 174**

**ANSWER: 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 $B_6$ 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.

Ref: ACOG (American College of Obstetricians and Gynecologists) Practice Bulletin: Nausea and vomiting of pregnancy. *Obstet Gynecol* 2004;103(4):803-814. 2) Gabbe SG, Niebyl JR, Simpson JL (eds): *Obstetrics: Normal and Problem Pregnancies*, ed 5. Churchill Livingstone, 2007, p 74. 3) Low Dog T: The use of botanicals during pregnancy and lactation. *Altern Ther Health Med* 2009;15(1):54-58.

**Item 175**

**ANSWER: 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 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.

Ref: Schwetschenau E, Kelley DJ: The adult neck mass. *Am Fam Physician* 2002;66(5):831-838. 2) Lerberg KM, Stiles M, Johnson S, Crawford P: Clinical inquiries. What evaluation is best for an isolated, enlarged cervical lymph node? *J Fam Pract* 2007;56(2):147-148. 3) Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 164-166.

**Item 176**

**ANSWER: C**

This patient has an ST-segment elevation myocardial infarction (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 β-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.

Ref: Campbell-Scherer DL, Green LA: ACC/AHA guideline update for the management of ST-segment elevation myocardial infarction. *Am Fam Physician* 2009;79(12):1080-1086.

**Item 177**

**ANSWER: 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.

Ref: Gunderson EP, Lewis CE, Tsai AL, et al: A 20-year prospective study of childbearing and incidence of diabetes in young women, controlling for glycemia before conception. *Diabetes* 2007;56(12):2990-2996. 2) Serlin DC, Lash RW: Diagnosis and management of gestational diabetes mellitus. *Am Fam Physician* 2009;80(1):57-62.

**Item 178**

**ANSWER: 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.

Ref: Moser M, Setaro JF: Resistant or difficult-to-control hypertension. *N Engl J Med* 2006;355(4):385-392.

**Item 179**

**ANSWER: C**

Actinic keratoses are scaly lesions that develop on sun-exposed skin, and are believed to be carcinoma in situ. While most actinic keratoses spontaneously regress, others progress to squamous cell cancers.

Ref: McIntyre WJ, Downs MR, Bedwell SA: Treatment options for actinic keratoses. *Am Fam Physician* 2007;76(5):667-671, 672.

**Item 180**

**ANSWER: C**

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. 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.

Ref: Trojian TH, Chu SM: Dupuytren's disease: Diagnosis and treatment. *Am Fam Physician* 2007;76(1):86-90.

**Item 181**

**ANSWER: 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.

Ref: Lebwohl M, Clark L, Levitt J: Therapy for head lice based on life cycle, resistance, and safety considerations. *Pediatrics* 2007;119(5):965-974.

**Item 182**

**ANSWER: 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.

Ref: Pollart SM, Warniment C, Mori T: Latex allergy. *Am Fam Physician* 2009;80(12):1413-1418.

**Item 183**

**ANSWER: 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).

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 2246.

**Item 184**

**ANSWER: 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.

Ref: Paris J: Borderline personality disorder. *CMAJ* 2005;172(12):1579-1583.

**Item 185**

**ANSWER: 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.

Ref: Brunton LL (ed): *Goodman & Gilman's The Pharmacological Basis of Therapeutics*, ed 11. McGraw-Hill, 2006, chap 20. 2) Gill S, Anderson GM, Fischer HD, et al: Syncope and its consequences in patients with dementia receiving cholinesterase inhibitors. *Arch Intern Med* 2009;169(9):867-873.

**Item 186**

**ANSWER: 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.

Ref: Kraft DM, McKee D, Scott C: Henoch-Schönlein purpura: A review. *Am Fam Physician* 1998;58(2):405-408, 411. 2) Kliegman RM, Behrman RE, Jenson HB, Stanton BF (eds): *Nelson Textbook of Pediatrics*, ed 18. Saunders, 2007, pp 1043-1045.

**Item 187**

**ANSWER: 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/m$^2$), 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.

Ref: Francis CW: Prophylaxis for thromboembolism in hospitalized medical patients. *N Engl J Med* 2007;356(14):1438-1444.

**Item 188**

**ANSWER: C**

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. 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.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 685-688. 2) Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 1631.

**Item 189**

**ANSWER: C**

Status epilepticus refers to continuous seizures or repetitive, discrete seizures with impaired consciousness in the interictal period. 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.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 2511. 2) Rakel RE, Bope ET, Kellerman R (eds): *Conn's Current Therapy 2010*. Saunders Elsevier, 2010, p 914.

**Item 190**

**ANSWER: 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.

Ref: Chobanian AV, Bakris GL, Black HR, et al: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure—The JNC 7 Report. National Heart Lung and Blood Institute (NHLBI), 2003, p 43.

**Item 191**

**ANSWER: 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.

Ref: Kronenberg HM, Melmed S, Polonsky K, et al: *Williams Textbook of Endocrinology*, ed 11. Saunders, 2008, pp 1403-1405.

**Item 192**

**ANSWER: 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.

Ref: Hales RE, Yudofsky SC, Gabbard GO (eds): *Textbook of Clinical Psychiatry*, ed 5. American Psychiatric Publishing, 2008, pp 1088-1089.

**Item 193**

**ANSWER: A**

Intramuscular epinephrine is the recommended drug for anaphylactic reactions (SOR A). Epinephrine is absorbed more rapidly intramuscularly than subcutaneously.

Ref: Shatsky M: Evidence for the use of intramuscular injections in outpatient practice. *Am Fam Physician* 2009;79(4):297-300.

**Item 194**

**ANSWER: 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.

Ref: Heidelbaugh JJ, Lee H: Management of the ingrown toenail. *Am Fam Physician* 2009;79(4):303-308, 311-312.

**Item 195**

**ANSWER: E**

The current American Heart 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.

Ref: Field JM (ed): *Advanced Cardiovascular Life Support Provider Manual*. American Heart Association, 2006, p 48.

**Item 196**

**ANSWER: E**

Placenta previa is a relatively common incidental finding on second trimester ultrasonography. 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.

Ref: Sakornbut E, Leeman L, Fontaine P: Late pregnancy bleeding. *Am Fam Physician* 2007;75(8):1199-1206.

**Item 197**

**ANSWER: D**

Biguanides and thiazolidinediones are insulin sensitizers that decrease hepatic glucose production and increase insulin sensitivity. 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 β-cell production. Amylin analogs act with insulin to delay gastric emptying and they also inhibit glucagon release.

Ref: LaRocque P: Type 2 diabetes prevention and treatment. *CME Bull* 2009;8(1). 2) Kronenberg HM, Melmed S, Polonsky K, et al: *Williams Textbook of Endocrinology*, ed 11. Saunders, 2008, pp 1364-1369.

**Item 198**

**ANSWER: 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.

Ref: Miller JD, Pruitt S, McDonald TJ: Acute brachial plexus neuritis: An uncommon cause of shoulder pain. *Am Fam Physician* 2000;62(9):2067-2072. 2) Ropper AH, Samuels MA: *Adams and Victor's Principles of Neurology*, ed 9. McGraw-Hill, 2009, pp 1309-1313.

**Item 199**

**ANSWER: 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.

Ref: Rebar RW: Premature ovarian failure. *Obstet Gynecol* 2009;113(6):1355-1363. 2) Katz VL, Lentz GM, Lobo RA, et al (eds): *Comprehensive Gynecology*, ed 5. Mosby Elsevier, 2007, pp 947-948, 1040-1041.

**Item 200**

**ANSWER: D**

Inhaled corticosteroids improve asthma control more effectively in children and adults than any other single long-term controller medication (SOR A). This patient has mild persistent asthma and should be treated with a low-dose inhaled corticosteroid.

Ref: Pollart SM, Elward KS: Overview of changes to asthma guidelines: Diagnosis and screening. *Am Fam Physician* 2009;79(9):761-767.

**Item 201**

**ANSWER: 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.

Ref: Canavan A, Arant BS: Diagnosis and management of dehydration in children. *Am Fam Physician* 2009;80(7):692-696.

**Item 202**

**ANSWER: 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.

Ref: Manning-Dimmitt LL, Dimmitt SG, Wilson GR: Diagnosis of gastrointestinal bleeding in adults. *Am Fam Physician* 2005;71(7):1339-1346.

**Item 203**

**ANSWER: B**

Patients with carbon monoxide poisoning should be treated immediately with normobaric oxygen, which speeds up the excretion of carbon monoxide.

Ref: Weaver LK: Carbon monoxide poisoning. *N Engl J Med* 2009;360(12):1217-1225.

**Item 204**

**ANSWER: 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.

Ref: Dachs RJ, Elias JM: What you need to know when called upon to be a Good Samaritan. *Fam Pract Manag* 2008;15(4):37-40.

**Item 205**

**ANSWER: D**

Red yeast rice (*Monascus purpureus*) is a widely available dietary supplement that has been used as an herbal medication in China for centuries. 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.

Ref: Cartin-Ceba R, Lu LB, Kolpakehi A: A "natural" threat. *Am J Med* 2007;120(11):e3-e4. 2) Becker DJ, Gordon RY, Halbert SC, et al: Red yeast rice for dyslipidemia in statin-intolerant patients: A randomized trial. *Ann Intern Med* 2009;150(12):830-839, W147-W149. 3) Kelly RB: Diet and exercise in the management of hyperlipidemia. *Am Fam Physician* 2010;81(9):1097-1102.

**Item 206**

**ANSWER: A**

Occupational asthma merits special consideration in all cases of new adult asthma or recurrence of childhood asthma after a significant asymptomatic period (SOR C). 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 β-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.

Ref: Nicholson PJ, Cullinan P, Newman Taylor AJ, et al: Evidence based guidelines for the prevention, identification, and management of occupational asthma. *Occup Environ Med* 2005;62(5);290-299. 2) Taiwo OA, Cantley L, Mobo BP Jr: Recognizing occupational illnesses and injuries. *Am Fam Physician* 2010 82(2):169-174.

**Item 207**

**ANSWER: 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.

Ref: Nau KC, Lewis WD: Multiple myeloma: Diagnosis and treatment. *Am Fam Physician* 2008;78(7):853-859.

**Item 208**

**ANSWER: 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).

Ref: Last AR, Hulbert K: Chronic low back pain: Evaluation and management. *Am Fam Physician* 2009;79(12):1067-1074.

**Item 209**

**ANSWER: C**

COPD has several symptoms, including poor exercise tolerance, chronic cough, sputum production, dyspnea, and signs of right-sided heart failure. 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 $FEV_1 \leq 60\%$ 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 β-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.

Ref: Calverley PM, Anderson JA, Celli B, et al; TORCH investigators: Salmeterol and fluticasone propionate and survival in chronic obstructive pulmonary disease. *N Engl J Med* 2007;356(8):775-789. 2) Qaseem A, Snow V, Shekelle P, et al; Clinical Efficacy Assessment Subcommittee of the American College of Physicians: Diagnosis and management of stable chronic obstructive pulmonary disease: A clinical practice guideline from the American College of Physicians. *Ann Intern Med* 2007;147(9):633-638. 3) Yang IA, Fong KM, Sim EH, et al: Inhaled corticosteroids for stable chronic obstructive pulmonary disease. *Cochrane Database Syst Rev* 2007;18(2):CD002991. 4) Drummond MB, Dasenbrook EC, Pitz MW, et al: Inhaled corticosteroids in patients with stable chronic obstructive pulmonary disease: A systematic review and meta-analysis. *JAMA* 2008;300(20):2407-2416. 5) Cayley WE Jr: Use of inhaled corticosteroids to treat stable COPD. *Am Fam Physician* 2008;77(11):1532-1533.

**Item 210**

**ANSWER: E**

Each of the individuals listed is at 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.

Ref: Craig AS, Schaffner W: Prevention of hepatitis A with the hepatitis A vaccine. *N Engl J Med* 2004;350(5):476-481. 2) Fiore AE, Wasley A, Bell BP: Prevention of hepatitis A through active or passive immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2006;55(RR07):1-23.

**Item 211**

**ANSWER: 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.

Ref: Wagner CL, Greer FR; American Academy of Pediatrics Section on Breastfeeding and Committee on Nutrition: Prevention of rickets and vitamin D deficiency in infants, children, and adolescents. *Pediatrics* 2008;122(5):1142-1152.

**Item 212**

**ANSWER: 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.

Ref: Schroeder MS: *Clostridium difficile*–associated diarrhea. *Am Fam Physician* 2005;71(5):921-928. 2) Severe *Clostridium difficile*–associated disease in populations previously at low risk—Four states, 2005. *MMWR* 2005;54(47):1201-1205.

**Item 213**

**ANSWER: 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.

Ref: Wexler RK, Elton T, Pleister A, Feldman D: Cardiomyopathy: An overview. *Am Fam Physician* 2009;79(9):778-784.

**Item 214**

**ANSWER: D**

Trials have not definitively shown that nutritional 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).

Ref: Bluestein D, Javaheri A: Pressure ulcers: Prevention, evaluation, and management. *Am Fam Physician* 2008;78(10):1186-1194, 1195-1196.

**Item 215**

**ANSWER: A**

The "Get Up and Go Test" is the most frequently recommended screening test for mobility. 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.

Ref: Tinetti ME, Kumar C: The patient who falls: "It's always a trade-off." *JAMA* 2010;303(3):258-266.

**Item 216**

**ANSWER: 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.

Ref: Trojian TH, Lishnak TS, Heiman D: Epididymitis and orchitis: An overview. *Am Fam Physician* 2009;79(7):583-587.

**Item 217**

**ANSWER: B**

Alkaline phosphatase is elevated in conditions affecting the bones, liver, small intestine, and placenta. 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).

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 1925.

**Item 218**

**ANSWER: 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.

Ref: Rakel RE: *Textbook of Family Medicine*, ed 7. Saunders, 2007, pp 1283-1335.

**Item 219**

**ANSWER: 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.

Ref: Kitiyakara C, Kopp JB, Eggers P: Trends in the epidemiology of focal segmental glomerulosclerosis. *Semin Nephrol* 2003;23(2):172-182. 2) Hull RP, Goldsmith DJ: Nephrotic syndrome in adults. *BMJ* 2008;336(7654):1185-1189. 3) Kodner C: Nephrotic syndrome in adults: Diagnosis and management. *Am Fam Physician* 2009;80(10):1129-1134.

**Item 220**

**ANSWER: 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.

Ref: Mehler PS: Bulimia nervosa. *N Engl J Med* 2003;349(9):875-881. 2) Hales RE, Yudofsky SC, Gabbard GO (eds): *Textbook of Clinical Psychiatry*, ed 5. American Psychiatric Publishing, 2008, pp 983-984.

**Item 221**

**ANSWER: C**

Trismus is almost universally present with peritonsillar abscess, while voice changes, otalgia, and odynophagia may or may not be present. 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.

Ref: Galioto NJ: Peritonsillar abscess. *Am Fam Physician* 2008;77(2):199-202. 2) Marx JA (ed): *Rosen's Emergency Medicine: Concepts and Clinical Practice*, ed 7. Mosby Elsevier, 2010, pp 919-920.

**Item 222**

**ANSWER: 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.

Ref: Griffin LY (ed): *Essentials of Musculoskeletal Care*, ed 3. American Academy of Orthopedic Surgeons, 2005, pp 358-361.

**Item 223**

**ANSWER: 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.

Ref: Hays JT, Ebbert JO: Varenicline for tobacco dependence. *N Engl J Med* 2008;359(19):2018-2024.

**Item 224**

**ANSWER: D**

Circumflex occlusion causes changes in I, AVL, and possibly V5 and V6 as well. Left anterior descending coronary artery occlusion causes changes in V1 to V6. Right coronary occlusion causes changes in II, III, and AVF.

Ref: Field JM (ed): *Advanced Cardiovascular Life Support Provider Manual*. American Heart Association, 2006, p 129.

**Item 225**

**ANSWER: D**

Thyroid function must be evaluated in women with postpartum depression since both hyperthyroidism and hypothyroidism are more common post partum. Postpartum depression may 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.

Ref: Wisner KL, Parry BL, Piontek CM: Postpartum depression. *N Engl J Med* 2002;347(3):194-199. 2) Hales RE, Yudofsky SC, Gabbard GO (eds): *Textbook of Clinical Psychiatry*, ed 5. American Psychiatric Publishing, 2008, pp 1506-1508. 3) Pearlstein T, Howard M, Salisbury A, Zlotnick C: Postpartum depression. *Am J Obstet Gynecol* 2009;200(4):357-364.

**Item 226**

**ANSWER: 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.

Ref: Long SS (ed): *Principles and Practice of Pediatric Infectious Diseases*, ed 3. Churchill Livingstone, 2008, pp 435-436.

**Item 227**

**ANSWER: 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%.

Ref: Naschitz JE, Rosner I: Musculoskeletal syndromes associated with malignancy (excluding hypertrophic osteoarthropathy). *Curr Opin Rheumatol* 2008;20(1):100-105. 2) Levine SM: Cancer and myositis: New insights into an old association. *Curr Opin Rheumatol* 2006;18(6):620-624.

**Item 228**

**ANSWER: 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.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, p 993. 2) Feldman M, Friedman LS, Brandt LJ (eds): *Sleisenger and Fordtran's Gastrointestinal and Liver Disease*, ed 9. Saunders Elsevier, 2010, pp 2272-2273.

**Item 229**

**ANSWER: 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.

Ref: Abdel-Kader K, Palevsky P: Acute kidney injury in the elderly. *Clin Geriatr Med* 2009;25(3):331-358.

**Item 230**

**ANSWER: A**

The recycling of scalp hair is an ongoing process, with the hair follicles rotating through three phases. The actively 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.

Ref: Shapiro J: Hair loss in women. *N Engl J Med* 2007;357(16):1620-1630.

**Item 231**

**ANSWER: 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.

Ref: Sweet MG, Sweet JM, Jeremiah MP, Galazka SS: Diagnosis and treatment of osteoporosis. *Am Fam Physician* 2009;79(3):193-200, 201-202.

**Item 232**

**ANSWER: D**

COPD is the fourth leading cause of death in the United States. 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 $\alpha_1$-antitrypsin disease.

Ref: US Preventive Services Task Force: Screening for chronic obstructive pulmonary disease using spirometry. Agency for Healthcare Research and Quality, 2008.

**Item 233**

**ANSWER: 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.

Ref: Behrman RE, Kliegman RM, Jenson HB (eds): *Nelson Textbook of Pediatrics*, ed 17. Saunders, 2004, p 1049. 2) Pickering LK (ed): Red Book: *2009 Report of the Committee on Infectious Diseases*, ed 28. American Academy of Pediatrics, 2009, pp 491-493.

**Item 234**

**ANSWER: 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 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.

Ref: Marx JA (ed): *Rosen's Emergency Medicine: Concepts and Clinical Practice*, ed 7. Mosby Elsevier, 2010, p 532.

**Item 235**

**ANSWER: E**

Adenosine, an expensive intravenous drug, is highly effective in terminating many resultant supraventricular arrhythmias. 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.

Ref: Field JM (ed): *Advanced Cardiovascular Life Support Provider Manual*. American Heart Association, 2006, p 99.

**Item 236**

**ANSWER: E**

Genital warts are typically caused by human papillomavirus (HPV) types 5 and 11, which are rarely associated with invasive squamous cell carcinoma. 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.

Ref: Pfenninger JL, Zainea GG: Common anorectal conditions: Part II. Lesions. *Am Fam Physician* 2001;64(1):77-88. 2) Kodner CM, Nasraty S: Management of genital warts. *Am Fam Physician* 2004;70(12):2335-2342. 3) Kennedy CM, Boardman LA: New approaches to external genital warts and vulvar intraepithelial neoplasia. *Clin Obstet Gynecol* 2008;51(3):518-526.

**Item 237**

**ANSWER: 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.

Ref: Norman GR, Steiner DL: *Biostatistics: The Bare Essentials*,ed 3. People's Medical Publishing House, 2008, pp 7-32.

**Item 238**

**ANSWER: 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.

Ref: Kliegman RM, Behrman RE, Jenson HB, Stanton BF (eds): *Nelson Textbook of Pediatrics*, ed 18. Saunders, 2007, pp 2808-2810.

**Item 239**

**ANSWER: 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.

Ref: Peate WF: Occupational skin disease. *Am Fam Physician* 2002;66(6):1025-1032. 2) Habif TP: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy*, ed 5. Mosby Elsevier, 2010, pp 148-153.

**Item 240**

**ANSWER: E**

Fingernails and toenails are often overlooked as clues to systemic illness. 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.

The other options listed involve the nails, but cause different and characteristic types of nail changes.

Ref: Fawcett RS, Linford S, Stulbers DL: Nail abnormalities: Clues to systemic disease. *Am Fam Physician* 2004;69(6):1417-1424. 2) Habif TP: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy*, ed 5. Mosby Elsevier, 2010, pp 966-968.