# American Board of Family Medicine

## 2011 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: D**

Celiac sprue is an autoimmune disorder characterized by inflammation of the small bowel wall, blunting of the villi, and resultant malabsorption. Symptoms commonly include diarrhea, fatigue, weight loss, abdominal pain, and borborygmus; treatment consists of elimination of gluten proteins from the diet. Extraintestinal manifestations are less common but may include elevated transaminases, osteopenia, and iron deficiency anemia. Serum IgA tissue transglutaminase (TTG) antibodies are highly sensitive and specific for celiac sprue, and a small bowel biopsy showing villous atrophy is the gold standard for diagnosis. This patient's rash is consistent with dermatitis herpetiformis, which is pathognomonic for celiac sprue and responds well to a strict gluten-free diet.

Lactose intolerance, irritable bowel syndrome, collagenous colitis, and Crohn's disease are in the differential diagnosis for celiac sprue. However, significant weight loss is not characteristic of irritable bowel syndrome or lactose intolerance. The diarrhea associated with Crohn's disease is typically bloody. Collagenous colitis does cause symptoms similar to those experienced by this patient, but it is not associated with dermatitis herpetiformis.

Ref: Presutti RJ, Cangemi JR, Cassidy HD, Hill DA: Celiac disease. *Am Fam Physician* 2007;76(12):1795-1802.

**Item 2**

**ANSWER: E**

There are no absolute contraindications to electroconvulsive therapy (ECT), but factors that have been associated with reduced efficacy include a prolonged episode, lack of response to medication, and coexisting psychiatric diagnoses such as a personality disorder. Persons who may be at increased risk for complications include those with unstable cardiac disease such as ischemia or arrhythmias, cerebrovascular disease such as recent cerebral hemorrhage or stroke, or increased intracranial pressure. ECT can be used safely in elderly patients and in persons with cardiac pacemakers or implantable cardioverter-defibrillators. ECT also can be used safely during pregnancy, with proper precautions and in consultation with an obstetrician.

Ref: Lisanby SH: Electroconvulsive therapy for depression. *N Engl J Med* 2007;357(19):1939-1945.

**Item 3**

**ANSWER: E**

Difficult-to-control hypertension has many possible causes, including nonadherence or the use of alcohol, NSAIDs, certain antidepressants, or sympathomimetics. Secondary hypertension can be caused by relatively common problems such as chronic kidney disease, obstructive sleep apnea, or primary hyperaldosteronism, as in the case described here.

As many as 20% of patients referred to specialists for poorly controlled hypertension have primary hyperaldosteronism. It is more common in women and often is asymptomatic. A significant number of these individuals will not be hypokalemic. Screening can be done with a morning plasma aldosterone/renin ratio. If the ratio is 20 or more and the aldosterone level is $>15$ ng/dL, then primary hyperaldosteronism is likely and referral for confirmatory testing should be considered.

Ref: Viera AJ, Hinderliter AL: Education and management of the patient with difficult-to-control or resistant hypertension. *Am Fam Physician* 2009;79(10):863-869.

**Item 4**

**ANSWER: E**

The diagnosis of community-acquired pneumonia is mostly based on the history and physical examination. Pneumonia should be suspected in any child with fever, cyanosis, and any abnormal respiratory finding in the history or physical examination. Children under 2 years of age who are in day care are at higher risk for developing community-acquired pneumonia. Laboratory tests are rarely helpful in differentiating viral versus bacterial etiologies and should not be routinely performed. Outpatient antibiotics are appropriate if the child does not have a toxic appearance, hypoxemia, signs of respiratory distress, or dehydration. *Streptococcus pneumoniae* is one of the most common etiologies in this age group, and high-dose amoxicillin is the drug of choice.

Ref: Ostapchuk M, Roberts D, Haddy R: Community-acquired pneumonia in infants and children. *Am Fam Physician* 2004;70(5):899-908. 2) Kliegman RM, Stanton BF, Geme JW III, et al (eds): *Nelson Textbook of Pediatrics*, ed 19. Elsevier Saunders, 2011, pp 1474-1479.

**Item 5**

**ANSWER: C**

In normal term infants, there is little evidence that solid foods contribute to well-being before the age of 4–6 months. In addition, the extrusion reflex (pushing foreign material out of the mouth with the tongue) makes feeding of solids difficult and often forced. This reflex disappears around the age of 4 months, making feeding easier. The introduction of solids at this age helps supply calories, iron, and vitamins, and may prepare the infant for later dietary diversity and healthy dietary habits.

Ref: Kliegman RM, Stanton BF, Geme JW III, et al (eds): *Nelson Textbook of Pediatrics*, ed 19. Elsevier Saunders, 2011, pp 164-165.

**Item 6**

**ANSWER: D**

Midshaft posteromedial tibial stress fractures are common and are considered low risk. Management consists of relative rest from running and avoiding other activities that cause pain. Once usual daily activities are pain free, low-impact exercise can be initiated and followed by a gradual return to previous levels of running. A pneumatic stirrup leg brace has been found to be helpful during treatment (SOR C). Non–weight bearing is not necessary, as this patient can walk without pain. Casting is not recommended. Ultrasonic pulse therapy has helped fracture healing in some instances, but has not been shown to be beneficial in stress fractures.

Ref: Harrast MA, Colonno D: Stress fractures in runners. *Clin Sports Med* 2010;29(3):399-418.

**Item 7**

**ANSWER: B**

A serum total testosterone level is recommended as the initial screening test for late-onset male hypogonadism. Due to its high cost, a free testosterone level is recommended only if the total testosterone level is borderline and abnormalities in sex hormone–binding globulin are suspected. Follow-up LH and FSH levels help to distinguish primary from secondary hypogonadism.

Ref: Bhasin S, Cunningham GR, Hayes FJ, et al: Testosterone therapy in men with androgen deficiency syndromes: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* 2010;95(6):2536-2559.

**Item 8**

**ANSWER: C**

Because of the precise relationship between circulating thyroid hormone and pituitary TSH secretion, measurement of serum TSH is essential in the management of patients receiving levothyroxine therapy. Immunoassays can reliably distinguish between normal and suppressed concentrations of TSH. In a patient receiving levothyroxine, a low TSH level usually indicates overreplacement. If this occurs, the dosage should be reduced slightly and the TSH level repeated in 2–3 months' time. There is no need to discontinue therapy in this situation, and repeating the TSH level in 2 weeks would not be helpful. A free $T_4$ level would also be unnecessary, since it is not as sensitive as a TSH level for detecting mild states of excess thyroid hormone.

Ref: Hennessey JV, Scherger JE: Evaluating and treating the patient with hypothyroid disease. *J Fam Pract* 2007;56(8 Suppl Hot Topics):S31-S39. 2) Woeber KA: The year in review: The thyroid. *Ann Intern Med* 1999;131(12):959-962. 3) Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, pp 2228-2233.

**Item 9**

**ANSWER: B**

Plantar fasciitis is a common cause of heel pain. It may be unilateral or bilateral, and the etiology is unknown, although it is thought to be due to cumulative overload stress. While it may be associated with obesity or overuse, it may also occur in active or inactive patients of all ages. Typically the pain is located in the plantar surface of the heel and is worst when the patient first stands up when getting out of bed in the morning (first step phenomenon) or after prolonged sitting. The pain may then improve after the patient walks around, only to worsen after prolonged walking. The diagnosis is made by history and physical examination. Typical findings include point tenderness to palpation on the plantar surface of the heel at the medial calcaneal tuberosity where the calcaneal aponeurosis inserts. Radiographs are not necessary unless there is a history of trauma or if the diagnosis is unclear.

The condition may last for months or years, and resolves in most patients over time with or without specific therapy. One long-term follow-up study showed that 80% of patients had complete resolution of their pain after 4 years. Treatments with limited (level 2) evidence of effectiveness include off-the-shelf insoles, custom-made insoles, stretching of the plantar fascia, corticosteroid iontophoresis, custom-made night splints, and surgery (for those who have failed conservative therapy). NSAIDs and ice, although not independently studied for plantar fasciitis, are included in most studies of other treatments, and are reasonable adjuncts to first-line therapy. Magnetic insoles and extracorporeal shockwave therapy are ineffective in treating plantar fasciitis.

Due to their expense, custom-made insoles, custom-made night splints, and corticosteroid iontophoresis should be reserved as second-line treatments for patients who fail first-line treatment. Surgery may be offered if more conservative therapies fail. Corticosteroid injection may have a short-term benefit at 1 month, but is no better than other treatments at 6 months and carries a risk of plantar fascia rupture.

Ref: Landorf KB, Keenan AM, Herbert RD: Effectiveness of foot orthoses to treat plantar fasciitis: A randomized trial. *Arch Intern Med* 2006;166(12):1305-1310.

**Item 10**

**ANSWER: D**

The history and physical findings in this patient are consistent with gingivostomatitis due to a primary or initial infection with herpes simplex virus type 1 (HSV-1). There are no additional findings to suggest other diagnoses such as aphthous ulcers, Behçet's syndrome, or herpangina (coxsackievirus).

After a primary HSV-1 infection with oral involvement, the virus invades the neurons and replicates in the trigeminal sensory ganglion, leading to recurrent herpes labialis and erythema multiforme, among other things. Although some clinicians might choose to use oral anesthetics for symptomatic care, it is not a specific therapy.

Antibiotics are not useful for the treatment of herpetic gingivostomatitis and could confuse the clinical picture should this child develop erythema multiforme, which occurs with HSV-1 infections. An orally applied corticosteroid is not specific treatment, but some might try it for symptomatic relief. An immunosuppressant is sometimes used for the treatment of Behçet's syndrome, but this patient's findings are not consistent with that diagnosis. Therefore, the only specific treatment listed is acyclovir suspension, which has been shown to lead to earlier resolution of fever, oral lesions, and difficulties with eating and drinking. It also reduces viral shedding from 5 days to 1 day (SOR B).

Ref: Usatine RP, Tinitigan R: Nongenital herpes simplex virus. *Am Fam Physician* 2010;82(9):1075-1082.

**Item 11**

**ANSWER: B**

Anterior cruciate ligament (ACL) tears occur more commonly in women than in men. The intensity of play is also a factor, with a much greater risk of ACL injuries occurring during games than during practices. The most accurate maneuver for detecting an ACL tear is the Lachman test (sensitivity 60%–100%, mean 84%), followed by the anterior drawer test (sensitivity 9%–93%, mean 62%) and the pivot shift test (sensitivity 27%–95%, mean 62%) (SOR C). McMurray's test is used to detect meniscal tears.

Ref: Solomon DH, Simel DL, Bates DW, et al: The rational clinical examination. Does this patient have a torn meniscus or ligament of the knee? Value of the physical examination. *JAMA* 2001;286(13):1610-1620. 2) Cimino F, Volk BS, Setter D: Anterior cruciate ligament injury: Diagnosis, management, and prevention. *Am Fam Physician* 2010;82(8):917-922.

**Item 12**

**ANSWER: D**

The diagnosis of multiple myeloma is based on evidence of myeloma-related end-organ impairment in the presence of M protein, monoclonal plasma cells, or both. This evidence may include hypercalcemia, renal failure, anemia, or skeletal lesions. Monoclonal gammopathy of undetermined significance does not progress steadily to multiple myeloma. There is a stable 1% annual risk of progression.

Ref: Landgren O, Waxman AJ: Multiple myeloma precursor disease. *JAMA* 2010;304(21):2397-2404.

**Item 13**

**ANSWER: A**

These findings are typical of femoral neuropathy, a mononeuropathy commonly associated with diabetes mellitus, although it has been found to be secondary to a number of conditions that are common in diabetics and not to the diabetes itself. Diabetic polyneuropathy is characterized by symmetric and distal limb sensory and motor deficits. Meralgia paresthetica, or lateral femoral cutaneous neuropathy, may be secondary to diabetes mellitus, but is manifested by numbness and paresthesia over the anterolateral thigh with no motor dysfunction. Spinal stenosis causes pain in the legs, but is not associated with the neurologic signs seen in this patient, nor with knee problems. Iliofemoral atherosclerosis, a relatively common complication of diabetes mellitus, may produce intermittent claudication involving one or both calf muscles but would not produce the motor weakness noted in this patient.

Ref: Bradley WG, Daroff RB, Fenichel GM, Jankovic J (eds): *Neurology in Clinical Practice*, ed 5. Butterworth Heinemann Elsevier, 2008, pp 442-443. 2) Ropper AH, Samuels MA: *Adams and Victor's Principles of Neurology*, ed 9. McGraw-Hill, 2009, p 1318. 3) Melmed S, Polonsky KS, Larsen PR, Kronenberg HM (eds): *Williams Textbook of Endocrinology*, ed 12. Elsevier Saunders, 2011, pp 1503-1505.

**Item 14**

**ANSWER: E**

Women who use low-dose estrogen oral contraceptives have at least a 50% lower risk of subsequent epithelial ovarian cancer than women who have never used them. Epidemiologic data also suggests other potential long-term benefits of oral contraceptives, including a reduced risk of postmenopausal fractures, as well as reductions in the risk of endometrial and colorectal cancers. Oral contraceptives do not reduce the risk of carcinoma of the breast, cervix, lung, or head and neck.

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

**Item 15**

**ANSWER: C**

Polymyalgia rheumatica is an inflammatory disorder that occurs in persons over the age of 50. White women of European ancestry are most commonly affected. The clinical hallmarks of polymyalgia rheumatica are pain and stiffness in the shoulder and pelvic girdle. One review found that 4%–13% of patients with clinical polymyalgia rheumatica have a normal erythrocyte sedimentation rate (ESR). As many as 5% of patients initially have a normal ESR that later rises.

Polymyalgia rheumatica can have a variety of systemic symptoms. Fever is common, with temperatures as high as 39°C (102°F) along with night sweats. Additional symptoms include depression, fatigue, malaise, anorexia, and weight loss.

Corticosteroids are the mainstay of therapy for polymyalgia rheumatica. Typically, a dramatic response is seen within 48–72 hours.

Ref: Michet CJ, Matteson EL: Polymyalgia rheumatica. *BMJ* 2008;336(7647):765-769.

**Item 16**

**ANSWER: C**

This patient meets the criteria for frontotemporal dementia (FTD), a common cause of dementia in patients younger than 65, with an insidious onset. Unlike with Alzheimer's disease, memory is often relatively preserved, even though insight is commonly impaired.

There are three subtypes of frontotemporal dementia: behavioral variant FTD, semantic dementia, and progressive nonfluent aphasia. This patient would be diagnosed with the behavioral variant due to his loss of executive functioning leading to personality change (apathy) and inappropriate behavior (SOR C). Speech output is often distorted in frontotemporal dementia, although the particular changes differ between the three variants.

Patients with FTD often are mistakenly thought to have major depressive disorder due to their apathy and diminished interest in activities. However, patients with depression do not usually exhibit inappropriate behavior and lack of restraint. Dementia with Lewy bodies and Alzheimer's dementia are both characterized predominantly by memory loss. Alzheimer's dementia is most common after age 65, whereas FTD occurs most often at a younger age. Lewy body dementia is associated with parkinsonian motor features. Patients diagnosed with schizophrenia exhibit apathy and personality changes such as those seen in FTD. However, the age of onset is much earlier, usually in the teens and twenties in men and the twenties and thirties in women.

Ref: Cardarelli R, Kertesz A, Knebl JA: Frontotemporal dementia: A review for primary care physicians. *Am Fam Physician* 2010;82(11):1372-1377.

**Item 17**

**ANSWER: D**

Refeeding syndrome can be defined as the potentially fatal shifts in fluids and electrolytes that may occur in malnourished patients receiving artificial refeeding (whether enterally or parenterally). These shifts result from hormonal and metabolic changes and may cause serious clinical complications. The hallmark biochemical feature of refeeding syndrome is hypophosphatemia. However, the syndrome is complex and may also include abnormal sodium and fluid balance; changes in glucose, protein, and fat metabolism; thiamine deficiency; hypokalemia; and hypomagnesemia.

Ref: Mehanna HM, Moledina J, Travis J: Refeeding syndrome: What it is, and how to prevent and treat it. *BMJ* 2008;336(7659):1495-1498.

**Item 18**

**ANSWER: A**

Pharyngeal and laryngeal side effects of inhaled corticosteroids include sore throat, coughing on inhalation of the medication, a weak or hoarse voice, and oral candidiasis. Rinsing the mouth after each administration of the medication and using a valved holding chamber when it is delivered with a metered-dose inhaler can minimize the risk of oral candidiasis.

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

**Item 19**

**ANSWER: E**

Hoarseness most commonly affects teachers and older adults. The cause is usually benign, but extended symptoms or certain risk factors should prompt evaluation; specifically, laryngoscopy is recommended when hoarseness does not resolve within 3 months or when a serious underlying cause is suspected (SOR C). The American Academy of Otolaryngology/Head and Neck Surgery Foundation guidelines state that antireflux medications should not be prescribed for patients with hoarseness without reflux symptoms (SOR C). Antibiotics should not be used, as the condition is usually caused by acute laryngitis or an upper respiratory infection, and these are most likely to be viral. Inhaled corticosteroids are a common cause of hoarseness. Voice therapy should be reserved for patients who have undergone laryngoscopy first (SOR A).

Ref: Schwartz SR, Cohen SM, Dailey SH, Rosenfeld RM, et al: Clinical practice guideline: Hoarseness (dysphonia). *Otolaryngol Head Neck Surg* 2009;141(3 suppl 2):S1-S31. 2) Huntzinger A: Guidelines for the diagnosis and management of hoarseness. *Am Fam Physician* 2010;81(10):1292-1296.

**Item 20**

**ANSWER: B**

Although myocarditis, pulmonic stenosis, and ventricular septal defects can be causes of right heart failure, left heart failure is the most common cause of right heart failure in adults.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 349-350.

**Item 21**

**ANSWER: C**

Results of urine drug test panels obtained in the workplace are reported by a Medical Review Officer (MRO) as positive, negative, dilute, refusal to test, or test canceled; the drug/metabolite for which the test is positive or the reason for refusal (e.g., the presence of an adulterant) or cancellation is also included in the final report. The MRO interpretation is based on consideration of many factors, including the confirmed patient medical history, specimen collection process, acceptability of the specimen submitted, and qualified laboratory measurement of drugs or metabolites in excess of the accepted thresholds. These thresholds are set to preclude the possibility that secondary contact with smoke, ingestion of poppy seeds, or similar exposures will result in an undeserved positive urine drug screen report. Other findings, such as the presence of behavioral or physical evidence of unauthorized use of opiates, may also factor into the final report.

When a properly collected, acceptable specimen is found to contain drugs or metabolites that would be expected based on a review of confirmed prescribed use of medications, the test is reported as negative. Morphine is a metabolite of codeine that may be found in the urine of someone taking a codeine-containing medication; morphine is not a metabolite of methadone. Oxazepam is a metabolite of diazepam but the reverse is not true. Tetrahydrocannabinol would not be found in the urine as a result of tramadol use.

Ref: *Procedures for Transportation Workplace Drug and Alcohol Testing Programs*. Office of Drug & Alcohol Policy & Compliance, US Dept of Transportation, 2010, sections 40.139, 40.141, 40.163. 2) Standridge JB, Adams SM, Zotos AP: Urine drug screening: A valuable office procedure. *Am Fam Physician* 2010;81(5):635-640.

**Item 22**

**ANSWER: E**

Infectious mononucleosis presents most commonly with a sore throat, fatigue, myalgias, and lymphadenopathy, and is most prevalent between 10 and 30 years of age. Both an atypical lymphocytosis and a positive heterophil antibody test support the diagnosis, although false-negative heterophil testing is common early in the disease course. The cornerstone of treatment for mononucleosis is supportive, including hydration, NSAIDs, and throat sprays or lozenges.

In general, corticosteroids do not have a significant effect on the clinical course of infectious mononucleosis, and they should not be used routinely unless the patient has evidence of acute airway obstruction. Antihistamines are also not recommended as routine treatment for mononucleosis. The use of acyclovir has shown no consistent or significant benefit, and antiviral drugs are not recommended.

There is also no evidence to support bed rest as an effective management strategy for mononucleosis. Given the evidence from other disease states, bed rest may actually be harmful.

Although most patients will not have a palpably enlarged spleen on examination, it is likely that all, or nearly all, patients with mononucleosis have splenomegaly. This was demonstrated in a small study in which 100% of patients hospitalized for mononucleosis had an enlarged spleen by ultrasound examination, whereas only 17% of patients with splenomegaly have a palpable spleen. Patients should be advised to avoid contact- or collision-type activities for 3–4 weeks because of the increased risk of rupture.

Ref: Ebell MH: Epstein-Barr virus infectious mononucleosis. *Am Fam Physician* 2004;70(7):1279-1287. 2) Dickens KP, Nye AM, Gilchrist V, et al: Clinical Inquiries. Should you use steroids to treat infectious mononucleosis? *J Fam Pract* 2008;57(11):754-755.

**Item 23**

**ANSWER: C**

The initial management of hypercalcemia of malignancy includes fluid replacement with normal saline to correct the volume depletion that is invariably present and to enhance renal calcium excretion. The use of loop diuretics such as furosemide should be restricted to patients in danger of fluid overload, since these drugs can aggravate volume depletion and are not very effective alone in promoting renal calcium excretion. Although intravenous pamidronate has become the mainstay of treatment for the hypercalcemia of malignancy, it is considered only after the hypercalcemic patient has been rendered euvolemic by saline repletion. The same is true for the other calcium-lowering agents listed.

Ref: Behl D, Hendrickson AW, Moynihan TJ: Oncologic emergencies. *Crit Care Clin* 2010;26(1):181-205.

**Item 24**

**ANSWER: A**

In the symptomatic patient with uterine fibroids unresponsive to medical therapy, myomectomy is recommended over fibroid embolization for patients who wish to become pregnant in the future. Uterine fibroid embolization requires a shorter hospitalization and less time off work. General anesthesia is not required, and a blood transfusion is unlikely to be needed. Uterine fibroids can recur or develop after either myomectomy or embolization.

Ref: Schorge JO, Schaffer JI, Halvorsen LM, et al (eds): *Williams Gynecology*. McGraw-Hill, 2008, pp 205-207. 2) Bradley LD: Uterine fibroid embolization: A viable alternative to hysterectomy. *Am J Obstet Gynecol* 2009;201(2):127-135. 3) Goodwin SC, Spies JB: Uterine fibroid embolization. *N Engl J Med* 2009;361(7):690-697.

**Item 25**

**ANSWER: B**

This patient has melanosis coli, which is a benign condition resulting from abuse of anthraquinone laxatives such as cascara, senna, or aloe. The condition resolves with discontinuation of the medication.

Ref: Rakel RE, Bope ET, Kellerman R (eds): *Conn's Current Therapy 2010*. Saunders Elsevier, 2010, p 19.

**Item 26**

**ANSWER: D**

The Valsalva maneuver decreases venous return to the heart, thereby decreasing cardiac output. This causes most murmurs to decrease in length and intensity. The murmur of hypertrophic obstructive cardiomyopathy, however, increases in loudness. The murmur of mitral valve prolapse becomes longer, and may also become louder.

Ref: Bonow RO, Mann DL, Zipes DP, Libby P (eds): *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*, ed 9. Elsevier Saunders, 2011, pp 117-118.

**Item 27**

**ANSWER: D**

Slipped capital femoral epiphysis is the most common hip disorder in this patient's age group. It usually occurs between the ages of 8 and 15 and is more common in boys and overweight or obese children. It presents with limping and pain, and limited internal rotation of the hip is noted on physical examination.

Septic arthritis would typically present with a fever. Juvenile rheumatoid arthritis, transient synovitis, and Legg-Calvé-Perthes disease are more common in younger children.

Ref: Peck D: Slipped capital femoral epiphysis: Diagnosis and management. *Am Fam Physician* 2010;82(3):258-262.

**Item 28**

**ANSWER: B**

When a patient or nursing-home resident is losing weight or has suffered an acute change in the ability to perform activities of daily living, a decision must be made as to whether or not to place a PEG tube to provide artificial nutrition. Studies have shown that PEG tubes do not improve nutritional status or quality of life for residents with dementia, nor do they decrease the risk of aspiration pneumonia, although aspiration risk may possibly be decreased if the feeding tube is placed below the gastroduodenal junction (SOR B). Feeding tubes can also cause discomfort and agitation, leading to an increased use of restraints (SOR B).

Ref: Unwin BK, Porvaznik M: Nursing home care: Part II. Clinical aspects. *Am Fam Physician* 2010;81(10):1229-1237.

**Item 29**

**ANSWER: D**

It is important to distinguish between COPD and asthma because of the differences in treatment. Patients with COPD are usually in their sixties when the diagnosis is made. Symptoms of chronic cough (sometimes for months or years), dyspnea, or sputum production are often not reported because the patient may attribute them to smoking, aging, or poor physical condition.

Spirometry is the best test for the diagnosis of COPD. The pressure of outflow obstruction that is not fully reversible is demonstrated by postbronchodilator spirometry showing an $FEV_1/FVC$ ratio of 70% or less.

Ref: Price DB, Yawn BP, Jones RCM: Improving the differential diagnosis of chronic obstructive pulmonary disease in primary care. *Mayo Clin Proc* 2010;85(12):1122-1129. 2) Dewar M, Curry RW Jr: Chronic obstructive pulmonary disease: Diagnostic considerations. *Am Fam Physician* 2006;73(4):669-676.

**Item 30**

**ANSWER: D**

Pain with eye movement suggests an orbital condition. Orbital inflammation, infection, or tumor invasion can lead to such eye pain. Other findings suggestive of an orbital cause of eye pain include diplopia or proptosis. If an orbital lesion is suspected, imaging studies should be performed.

Ref: Fiore DC, Pasternak AV, Radwan RM: Pain in the quiet (not red) eye. *Am Fam Physician* 2010;82(1):69-73.

**Item 31**

**ANSWER: C**

Patients should be risk-stratified according to their family history. Patients who have one first degree relative diagnosed with colorectal cancer or adenomatous polyps before age 60, or at least two second degree relatives with colorectal cancer, are in the highest risk group. They should start colon cancer screening at age 40, or 10 years before the earliest age at which an affected relative was diagnosed (whichever comes first) and be rescreened every 5 years. Colonoscopy is the preferred screening method for this highest-risk group, as high-risk patients are more likely to have right-sided colon lesions that would not be detected with sigmoidoscopy.

Ref: Wiltz SA, Nelson RM: What's the most effective way to screen patients with a family history of colon cancer? *J Fam Pract* 2010;59(3):176-178.

**Item 32**

**ANSWER: A**

Drug-induced pleuritis is one cause of pleurisy. Several drugs are associated with drug-induced pleural disease or drug-induced lupus pleuritis. Drugs that may cause lupus pleuritis include hydralazine, procainamide, and quinidine. Other drugs known to cause pleural disease include amiodarone, bleomycin, bromocriptine, cyclophosphamide, methotrexate, minoxidil, and mitomycin.

Ref: Kass SM, Williams PM, Reamy BV: Pleurisy. *Am Fam Physician* 2007;75(9):1357-1364.

**Item 33**

**ANSWER: C**

Adenosine, digoxin, and calcium channel antagonists act by blocking conduction through the atrioventricular (AV) node, which may increase the ventricular rate paradoxically, initiating ventricular fibrillation. These agents should be avoided in Wolff-Parkinson-White syndrome. Procainamide is usually the treatment of choice in these situations, although amiodarone may also be used.

Ref: Blomström-Lundqvist C, Scheinman MM, Aliot EM, et al: ACC/AHA/ESC guidelines for the management of patients with supraventricular arrhythmias—Executive summary. A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the European Society of Cardiology Committee for Practice Guidelines (Writing Committee to Develop Guidelines for the Management of Patients with Supraventricular Arrhythmias) developed in collaboration with NASPE-Heart Rhythm Society. *J Am Coll Cardiol* 2003;42(8):1493-1531. 2) Bonow RO, Mann DL, Zipes DP, Libby P (eds): *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*, ed 9. Elsevier Saunders, 2011, pp 787, 795, 798-801.

**Item 34**

**ANSWER: E**

Doxycycline is contraindicated in the second and third trimesters of pregnancy due to the risk of permanent discoloration of tooth enamel in the fetus. Cephalosporins such as ceftriaxone are usually considered safe to use during pregnancy. The use of ciprofloxacin during pregnancy does not appear to increase the risk of major congenital malformation, nor does the use of amoxicillin. Animal studies using rats and mice treated with daily doses of azithromycin up to maternally toxic levels revealed no impairment of fertility or harm to the fetus.

Ref: Briggs GG, Freeman RK, Yaffe SJ (eds): *Drugs in Pregnancy and Lactation*, ed 8. Lippincott Williams & Wilkins, 2008, pp 86, 158, 292-293, 361, 364, 579.

**Item 35**

**ANSWER: C**

There is not a direct relation between daily calorie consumption and weight. An adult male consuming an extra 100 calories a day above his caloric need will not continue to gain weight indefinitely; rather, his weight will increase to a certain point and then become constant. Fat must be fed, and maintaining the newly created tissue requires an increase in caloric expenditure. An extra 100 calories a day will result in a weight gain of approximately 5 kg, which will then be maintained.

Ref: Katan MB, Ludwig DS: Extra calories cause weight gain—But how much? *JAMA* 2010;303(1):65-66.

**Item 36**

**ANSWER: C**

Inhaled corticosteroids improve asthma control in adults and children more effectively than any other single long-term controller medication, and all patients should also receive a prescription for a short-acting β-agonist (SOR A).

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

**Item 37**

**ANSWER: C**

Tumor necrosis factor inhibitors have been associated with an increased risk of infections, including tuberculosis. This class of agents includes monoclonal antibodies such as infliximab, adalimumab, certolizumab pegol, and golimumab. Patients should be screened for tuberculosis and hepatitis B and C before starting these drugs.

The other drugs listed can have adverse effects, but do not increase the risk for tuberculosis.

Ref: Scott DL, Wolfe F, Huizinga TW: Rheumatoid arthritis. *Lancet* 2010;376(9746):1094-1108.

**Item 38**

**ANSWER: D**

The most widely used initial assay for detecting hepatitis C virus (HCV) antibody is the enzyme immunoassay. A positive enzyme immunoassay should be followed by a confirmatory test such as the recombinant immunoblot assay. If negative, it indicates a false-positive antibody test. If positive, the quantitative HCV RNA polymerase chain reaction is used to measure the amount of virus in the blood to distinguish active from resolved HCV infection. In this case, the results of the test indicate that the patient had a past infection with HCV that is now resolved.

Ref: Wilkins T, Malcolm JK, Raina D, Schade RR: Hepatitis C: Diagnosis and treatment. *Am Fam Physician* 2010;81(11):1351-1357.

**Item 39**

**ANSWER: D**

All staff, visitors, and nursing-home residents should observe strict handwashing practices in this situation. Barrier precautions for wounds and medical devices should also be initiated. Surveillance cultures are not warranted. Aggressive housekeeping practices play little, if any, role in preventing the spread of MRSA. Isolating the patient is not practical or cost-effective.

Ref: Unwin BK, Porvaznik M, Spoelhof GD: Nursing home care: Part I. Principles and pitfalls of practice. *Am Fam Physician* 2010;81(10):1219-1227.

**Item 40**

**ANSWER: C**

Since even a temporary reduction in renal function, such as occurs after pyelography or angiography, can cause lactic acidosis in patients taking metformin, the drug should be discontinued 48 hours before such procedures (SOR C) and restarted 48 hours after the procedure if renal function is normal. The other procedures listed are not indications for stopping metformin.

Ref: Stacul F, Adam A, Becker CR, et al: Strategies to reduce the risk of contrast-induced nephropathy. *Am J Cardiol* 2006;98(suppl 6A):59k-77k.

**Item 41**

**ANSWER: C**

The DSM-IV criteria for obsessive-compulsive disorder (OCD) indicate that the patient at some point recognizes that the obsessions or compulsions are excessive or unreasonable. The impulses of OCD are not related to excessive worry about one's problems, and the patient recognizes that they are the product of his or her own mind. In addition, the patient experiences marked distress because of the impulses. Full remission is rare, but treatment can provide significant relief.

Ref: Fenske JN, Schwenk TL: Obsessive-compulsive disorder: Diagnosis and management. *Am Fam Physician* 2009;80(3):239-245.

**Item 42**

**ANSWER: E**

Nursing home–acquired pneumonia should be suspected in patients with a new infiltrate on a chest radiograph if it is associated with a fever, leukocytosis, purulent sputum, or hypoxia. Nursing-home patients who are hospitalized for pneumonia should be started on intravenous antimicrobial therapy, with empiric coverage for methicillin-resistant *Staphylococcus aureus* (MRSA) and *Pseudomonas aeruginosa*. The 2005 American Thoracic Society/Infectious Diseases Society of America guideline recommends combination therapy consisting of an antipseudomonal cephalosporin such as cefepime or ceftazidime, an antipseudomonal carbapenem such as imipenem or meropenem, or an extended-spectrum β-lactam/β-lactamase inhibitor such as piperacillin/tazobactam, PLUS an antipseudomonal fluoroquinolone such as levofloxacin or ciprofloxacin, or an aminoglycoside such as gentamicin, tobramycin, or amikacin, PLUS an anti-MRSA agent (vancomycin or linezolid). Ceftriaxone and azithromycin or levofloxacin alone would be reasonable treatment options for a patient with nursing home–acquired pneumonia who does not require hospitalization.

Ref: American Thoracic Society; Infectious Diseases Society of America: Guidelines for the management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. *Am J Respir Crit Care Med* 2005;171(4):388-416. 2) Mills K, Nelson AC, Winslow BT, Springer KL: Treatment of nursing home–acquired pneumonia. *Am Fam Physician* 2009;79(11):976-992.

**Item 43**

**ANSWER: D**

The use of psychiatric medications during pregnancy should always involve consideration of the potential risks to the fetus in comparison to the well-being of the mother. Lithium is known to be teratogenic. Benzodiazepines such as alprazolam are controversial due to a possible link to cleft lip/palate. Studies have shown no significant risk of congenital anomalies from SSRI use in pregnancy, except for paroxetine. Paroxetine is a category D medication and should be avoided in pregnant women (SOR B). There is concern about an increased risk of congenital cardiac malformations from first-trimester exposure. Bupropion has not been studied extensively for use in pregnancy, and in one published study of 136 patients it was linked to an increased risk of spontaneous abortion.

Ref: ACOG Committee on Practice Bulletins: ACOG Practice Bulletin: Clinical management guidelines for obstetricians-gynecologists number 92, April 2008 (replaces practice bulletin number 87, November 2007). Use of psychiatric medications during pregnancy and lactation. *Obstet Gynecol* 2008;111(4):1001-1020.

**Item 44**

**ANSWER: D**

This is a classic presentation for intussusception, which usually occurs in children under the age of 2 years and is characterized by paroxysms of colicky abdominal pain. A mass is palpable in about two-thirds of patients.

Pyloric stenosis presents with a palpable mass, but usually develops between 4 and 6 weeks of age. A choledochal cyst presents with the classic triad of right upper quadrant pain, jaundice, and a palpable mass. Meckel's diverticulum usually presents in this age group with painless lower gastrointestinal bleeding. Intestinal malrotation usually presents within the first 4 weeks of life and is characterized by bilious vomiting.

Ref: Kliegman RM, Stanton BF, Geme JW III, et al (eds): *Nelson Textbook of Pediatrics*, ed 19. Elsevier Saunders, 2011, pp 1287-1289.

**Item 45**

**ANSWER: C**

Teriparatide is indicated for the treatment of severe osteoporosis, for patients with multiple osteoporosis risk factors, or for patients with failure of bisphosphonate therapy (SOR B). Therapy with teriparatide is currently limited to 2 years and is contraindicated in patients with a history of bone malignancy, Paget disease, hypercalcemia, or previous treatment with skeletal radiation. Its route of administration (subcutaneous) and high cost should be considered when prescribing teriparatide therapy. Testosterone therapy is contraindicated in patients with a history of prostate cancer. Zoledronic acid is a parenterally administered bisphosphonate and would not be appropriate in a patient who has already failed bisphosphonate therapy. Likewise, raloxifene and calcitonin are not indicated in patients with severe osteoporosis who have failed bisphosphonate therapy.

Ref: Rao S, Budhwar N, Ashfaque A: Osteoporosis in men. *Am Fam Physician* 2010;82(5):503-508.

**Item 46**

**ANSWER: B**

Women who present with symptoms of acute dysuria, frequency, and pyuria do not always have bacterial cystitis. In fact, up to 30% will show either no growth or insignificant bacterial growth on a midstream urine culture. Most commonly these patients represent cases of sexually transmitted urethritis caused by *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, or herpes simplex virus.

In this case, the gradual onset, absence of hematuria, and week-long duration of symptoms suggest a sexually transmitted disease. A history of a new sexual partner or a finding of mucopurulent cervicitis would confirm the diagnosis. Empiric treatment with a tetracycline and a search for other sexually transmitted diseases would then be indicated.

Another possible diagnosis is urinary tract infection with *Escherichia coli* or *Staphylococcus* species; however, the onset of these infections is usually abrupt and accompanied by other signs, such as suprapubic pain or hematuria. *Candida* is unlikely because there is no accompanying discharge or itching, and the patient's symptoms predate the use of antibiotics.

Ref: Berek JS (ed): *Berek & Novak's Gynecology*, ed 14. Lippincott Williams & Wilkins, 2007, pp 556-557. 2) Rakel RE, Bope ET, Kellerman R (eds): *Conn's Current Therapy 2010.* Saunders Elsevier, 2010, pp 1251-1255.

**Item 47**

**ANSWER: A**

Gait and balance disorders are one of the most common causes of falls in older adults. Correctly identifying gait and balance disorders helps guide management and may prevent consequences such as injury, disability, loss of independence, or decreased quality of life. The "Timed Up and Go" test is a reliable diagnostic tool for gait and balance disorders and is quick to administer. A time of $<10$ seconds is considered normal, a time of $>14$ seconds is associated with an increased risk of falls, and a time of $>20$ seconds usually suggests severe gait impairment.

This patient has the cautious gait associated with visual impairment. It is characterized by abducted arms and legs; slow, careful, "walking on ice" movements; a wide-based stance; and "en bloc" turns. Patients with cerebellar degeneration have an ataxic gait that is wide-based and staggering. Frontal lobe degeneration is associated with gait apraxia that is described as "magnetic," with start and turn hesitation and freezing. Parkinson's disease patients have a typical gait that is short-stepped and shuffling, with hips, knees, and spine flexed, and may also exhibit festination and "en bloc" turns. Motor neuropathy causes a "steppage" gait resulting from foot drop with excessive flexion of the hips and knees when walking, short strides, a slapping quality, and frequent tripping.

Ref: Salzman B: Gait and balance disorders in older adults. *Am Fam Physician* 2010;82(1):61-68.

**Item 48**

**ANSWER: A**

Family-based treatment for the adolescent with anorexia nervosa has been found to provide superior results when compared with individual adolescent-focused therapy (SOR B). Antidepressants have not been successful. They may be indicated for coexisting conditions, but this is more common with bulimia.

Ref: Walsh BT, Kaplan AS, Attia E, et al: Fluoxetine after weight restoration in anorexia nervosa: A randomized controlled trial. *JAMA* 2006;295(22):2605-2612. 2) Goroll AH, Mulley AG (eds): *Primary Care Medicine: Office Evaluation and Management of the Adult Patient*, ed 6. Lippincott Williams & Wilkins, 2009, pp 1507-1513. 3) Rosen DS, American Academy of Pediatrics Committee on Adolescence: Identifying and treating eating disorders. *Pediatrics* 2010;126(6):1240-1253. 4) Lock J, Grange DL, Agras WS, et al: Randomized clinical trial comparing family-based treatment with adolescent-focused individual therapy for adolescents with anorexia nervosa. *Arch Gen Psychiatry* 2010;67(10):1025-1032.

**Item 49**

**ANSWER: A**

Influenza is a highly contagious viral illness spread by airborne droplets. This patient's symptoms are highly suggestive of typical influenza: a sudden onset of malaise, myalgia, headache, fever, rhinitis, sore throat, and cough. While influenza is typically uncomplicated and self-limited, it can result in severe complications, including encephalitis, pneumonia, respiratory failure, and death.

The effectiveness of treatment for influenza is dependent on how early in the course of the illness it is given. Because of the recent global H1N1 influenza outbreak that resulted in demand potentially outstripping the supply of antiviral medication, the Centers for Disease Control and Prevention has modified its recommendation as follows:

- Antiviral treatment is recommended as soon as possible for patients with confirmed or suspected influenza who have severe, complicated, or progressive illness or who require hospitalization.
- Antiviral treatment is recommended as soon as possible for outpatients with confirmed or suspected influenza who are at higher risk for influenza complications based on their age or underlying medical conditions. Clinical judgment should be an important component of outpatient treatment decisions.
- Antiviral treatment also may be considered on the basis of clinical judgment for any outpatient with confirmed or suspected influenza who does not have known risk factors for severe illness, if treatment can be initiated within 48 hours of illness onset.

Many rapid influenza tests produce false-negative results, and more accurate assays can take more than 24 hours. Thus, treatment of patients with a clinical picture suggesting influenza is recommended, even if a rapid test is negative. Delaying treatment until further test results are available is not recommended.

Ref: Fiore AE, Fry A, Shay D, et al; Centers for Disease Control and Prevention (CDC): Antiviral agents for the treatment and chemoprophylaxis of influenza—Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep* 2011;60(1):1-24.

**Item 50**

**ANSWER: B**

The management of somatizing patients can be difficult. One strategy that has been shown to be effective is to schedule regular office visits so that the patient does not need to develop new symptoms in order to receive medical attention. Regular visits have been shown to significantly reduce the cost and chaos of caring for patients with somatization disorder and to help progressively diminish emergency visits and telephone calls. In addition, it is important to describe the patient's diagnosis with compassion and avoid suggesting that it's "all in your head."

Continued diagnostic testing and referrals in the absence of new symptoms or findings is unwarranted. Visits to the emergency department often result in inconsistent care and mixed messages from physicians who are seeing the patient for the first time, and unnecessary and often repetitive tests may be ordered. Opiates have significant side effects such as constipation, sedation, impaired cognition, and risk of addiction.

Ref: Servan-Schreiber D, Tabas G, Kolb R: Somatizing patients: Part II. Practical management. *Am Fam Physician* 2000;61(5):1423-1428, 1431-1432. 2) Hull SK, Broquet K: How to management difficult patient encounters. *Fam Pract Manag* 2007;14(6):30-34.

**Item 51**

**ANSWER: B**

The U.S. Preventive Services Task Force (USPSTF) has summarized the evidence for the use of aspirin in the primary prevention of cardiovascular disease as follows:

- The USPSTF recommends the use of aspirin for men 45–79 years of age when the potential benefit from a reduction in myocardial infarctions outweighs the potential harm from an increase in gastrointestinal hemorrhage (Grade A recommendation)
- The USPSTF recommends the use of aspirin for women 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 (Grade A recommendation)
- The USPSTF concludes 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 (Grade I statement)
- The USPSTF recommends against the use of aspirin for stroke prevention in women younger than 55 and for myocardial infarction prevention in men younger than 45 (Grade D recommendation)

In summary, consistent evidence from randomized clinical trials indicates that aspirin use reduces the risk for cardiovascular disease events in adults without a history of cardiovascular disease. It reduces the risk for myocardial infarction in men, and ischemic stroke in women. Consistent evidence shows that aspirin use increases the risk for gastrointestinal bleeding, and limited evidence shows that aspirin use increases the risk for hemorrhagic strokes. The overall benefit in the reduction of cardiovascular disease events with aspirin use depends on baseline risk and the risk for gastrointestinal bleeding.

Ref: US Preventive Services Task Force: Aspirin for the primary prevention of cardiovascular events: An update of the evidence. AHRQ pub no 09-05129-EF-4, 2009. 2) *Aspirin for the Prevention of Cardiovascular Disease*. US Preventive Services Task Force, 2009.

**Item 52**

**ANSWER: D**

Iron deficiency is almost certainly the diagnosis in this child. The patient's response to a therapeutic trial of iron would be most helpful in establishing the diagnosis. Additional tests might be necessary if there is no response.

Ref: Kliegman RM, Stanton BF, Geme JW III, et al (eds): *Nelson Textbook of Pediatrics*, ed 19. Elsevier Saunders, 2011, pp 1655-1658.

**Item 53**

**ANSWER: D**

Because of the risk of asthma exacerbation or asthma-related death, the FDA has added a warning against the use of long-acting $\beta_2$-agonists as monotherapy. Inhaled corticosteroids, leukotriene-receptor antagonists, short-acting $\beta_2$-agonists, and mast-cell stabilizers are approved and accepted for both monotherapy and combination therapy in the management of asthma (SOR A).

Ref: Elward KS, Pollart SM: Medical therapy for asthma: Updates from the NAEPP guidelines. *Am Fam Physician* 2010;82(10):1242-1251.

**Item 54**

**ANSWER: E**

The diagnosis of inflammatory bowel disease (IBD) can be elusive but relies primarily on the patient history, laboratory findings, and endoscopy (or double-contrast radiographs if endoscopy is not available). Endoscopy is usually reserved for patients with more severe symptoms or in whom preliminary testing shows the potential for significant inflammation. It is recommended that this preliminary evaluation include a WBC count, platelet count, potassium level, and erythrocyte sedimentation rate.

Patients who have minimal symptoms and normal preliminary testing likely do not have a significant case of IBD. Plain radiographs and CT of the abdomen may help rule out other etiologies but are not considered adequate to diagnose or exclude IBD. Panels of serologic blood tests have recently been developed and are being assessed as to their place in evaluating patients who may have IBD. However, this testing is expensive, lacks sufficient predictive value, and has yet to prove its utility compared to standard testing.

Ref: Langan RC, Gotsch PB, Krafczyk MA, Skillinge DD: Ulcerative colitis: Diagnosis and treatment. *Am Fam Physician* 2007;76(9):1323-1330. 2) Benor S, Russell GH, Silver M, et al: Shortcomings of the Inflammatory Bowel Disease Serology 7 panel. *Pediatrics* 2010;125(6):1230-1236.

**Item 55**

**ANSWER: D**

This infant has a typical presentation of erythema toxicum neonatorum. Staphylococcal pyoderma is vesicular and the stain of the vesicle content shows polymorphonuclear leukocytes and clusters of gram-positive bacteria. Because the mother is healthy and the infant shows no evidence of being otherwise ill, systemic infections such as herpes are unlikely. Acne neonatorum consists of closed comedones on the forehead, nose, and cheeks. Rocky Mountain spotted fever is a tickborne disease that does not need to be considered in a child who is not at risk.

Ref: O'Connor NR, McLaughlin MR, Ham P: Newborn skin: Part I. Common rashes. *Am Fam Physician* 2008;77(1):49-52.

**Item 56**

**ANSWER: E**

Patients with chronic kidney disease (CKD) and those at risk for CKD because of conditions such as hypertension and diabetes have an increased risk of deterioration in renal function from NSAID use. NSAIDs induce renal injury by acutely reducing renal blood flow and, in some patients, by causing interstitial nephritis. Because many of these drugs are available over the counter, patients often assume they are safe for anyone. Physicians should counsel all patients with CKD, as well as those at increased risk for CKD, to avoid NSAIDs.

ACE inhibitors and angiotensin II receptor blockers are renoprotective and their use is recommended in all diabetics. The use of low-dose aspirin and folic acid is recommended in all patients with diabetes, due to the vasculoprotective properties of these drugs. High-dose aspirin should be avoided because it acts as an NSAID.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 1771.

**Item 57**

**ANSWER: B**

The primary treatment for symptomatic mitral valve prolapse is β-blockers. Quinidine and digoxin were used to treat this problem in the past, especially if sinus bradycardia or cardiac arrest occurred with administration of propranolol. Procainamide and phenytoin have not been used to treat this syndrome. Asymptomatic patients require only routine monitoring, while those with significant mitral regurgitation may require surgery. Some patients with palpitations can be managed with lifestyle changes such as elimination of caffeine and alcohol. Orthostatic hypotension can often be managed with volume expansion, such as by increasing salt intake.

Ref: American College of Cardiology/American Heart Association Task Force on Practice Guidelines; Society of Cardiovascular Anesthesiologists; Society for Cardiovascular Angiography and Intervention; Society of Thoracic Surgeons; et al: ACC/AHA 2006 guidelines for the management of patients with valvular heart disease: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 1998 Guidelines for the Management of Patients With Valvular Heart Disease): Developed in collaboration with the Society of Cardiovascular Anesthesiologists: Endorsed by the Society for Cardiovascular Angiography and Interventions and the Society of Thoracic Surgeons. *Circulation* 2006;114(5):e84-e231. 2) Bonow RO, Mann DL, Zipes DP, Libby P (eds): *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*, ed 9. Elsevier Saunders, 2011, pp 1510-1514.

**Item 58**

**ANSWER: D**

Altitude illness is common, affecting 25%–85% of travelers to high altitudes. The most common manifestation is acute mountain sickness, heralded by malaise and headache. Risk factors include young age, residence at a low altitude, rapid ascent, strenuous physical exertion, and a previous history of altitude illness. However, activity restriction is not necessary for patients with coronary artery disease who are traveling to high altitudes (SOR C).

Ginkgo biloba has been evaluated for both prevention and treatment of acute mountain sickness and high-altitude cerebral edema, and it is not recommended. Acetazolamide is an effective prophylactic agent (SOR B), but is contraindicated in patients with a sulfa allergy. If used, it should be started a minimum of one day before ascent and continued until the patient acclimatizes at the highest planned elevation. Dexamethasone is an effective prophylactic and treatment agent (SOR B), and it is not contraindicated for those with a sulfa allergy. It would be the best option for this patient.

Ref: Dumont L, Mardirosoff C, Tramèr MR: Efficacy and harm of pharmacological prevention of acute mountain sickness: Quantitative systematic review. *BMJ* 2000;321(7256):267-272. 2) Murdoch D: Altitude sickness. *Clin Evid* 2005;(14): 1570-1575. 3) Fiore DC, Hall S, Shoja P: Altitude illness: Risk factors, prevention, presentation, and treatment. *Am Fam Physician* 2010;82(9):1103-1110.

**Item 59**

**ANSWER: E**

Antibiotics, especially penicillins, cephalosporins, and sulfonamides, are the most common drug-related cause of acute interstitial nephritis. Corticosteroids may be useful for treating this condition. The other drugs listed may cause renal injury, but not acute interstitial nephritis.

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

**Item 60**

**ANSWER: A**

Horse chestnut seed extract has been shown to have some effect when used orally for symptomatic treatment of chronic venous insufficiency, such as varicose veins. It may also be useful for relieving pain, tiredness, tension, and swelling in the legs. It contains a number of anti-inflammatory substances, including escin, which reduces edema and lowers fluid exudation by decreasing vascular permeability. Milk thistle may be effective for hepatic cirrhosis. Ephedra is considered unsafe, as it can cause severe life-threatening or disabling adverse effects in some people. St. John's wort may be effective for treating mild to moderate depression. Vitamin $B_{12}$ is used to treat pernicious anemia.

Ref: Jones RH, Carek PJ: Management of varicose veins. *Am Fam Physician* 2008;78(11):1289-1294. 2) Pittler MH, Ernst E: Horse chestnut seed extract for chronic venous insufficiency. *Cochrane Database Syst Rev* 2006;(1):CD003230.

**Item 61**

**ANSWER: D**

Breastfeeding provides such optimal nutrition for an infant that the benefits still far outweigh the risks even when the mother smokes tobacco, tests positive for hepatitis B or C virus, or develops a simple undifferentiated fever. Maternal seropositivity to cytomegalovirus (CMV) is not considered a contraindication except when it has a recent onset or in mothers of low birthweight infants. When present, the CMV load can be substantially reduced by freezing and pasteurization of the milk. All patients who smoke should be strongly encouraged to discontinue use of tobacco, particularly in the presence of infants, but smoking is not a contraindication to breastfeeding.

Mothers with active herpes simplex lesions on a breast should not feed their infant from the infected breast, but may do so from the other breast if it is not infected. Breastfeeding is also contraindicated in the presence of active maternal tuberculosis, and following administration or use of radioactive isotopes, chemotherapeutic agents, "recreational" drugs, or certain prescription drugs.

Ref: American Academy of Pediatrics Section on Breastfeeding: Policy Statement. Breastfeeding and the use of human milk. *Pediatrics* 2005;115(2):496-506.

**Item 62**

**ANSWER: B**

Erythema multiforme usually occurs in adults 20–40 years of age, although it can occur in patients of all ages. Herpes simplex virus (HSV) is the most commonly identified cause of this hypersensitivity reaction, accounting for more than 50% of cases.

Ref: Lamoreux MR, Sternbach MR, Hsu WT: Erythema multiforme. *Am Fam Physician* 2006;74(11):1883-1888.

**Item 63**

**ANSWER: A**

This patient has pyogenic tenosynovitis. When early tenosynovitis (within 48 hours of onset) is suspected, treatment with antibiotics and splinting may prevent the spread of the infection. However, this patient's infection is no longer in the early stages and is more severe, so it requires surgical drainage and antibiotics. A delay in treatment of these infections can lead to ischemia of the tendons and damage to the flexor tendon and sheath. This can lead to impaired function of the finger. Needle aspiration would not adequately drain the infection. Antiviral medication would not be appropriate, as this is a bacterial infection. Corticosteroid injections are contraindicated in the presence of infection.

Ref: Canale ST, Beaty JH (eds): *Campbell's Operative Orthopaedics*, ed 11. Mosby Elsevier, 2007, pp 4351-4354.

**Item 64**

**ANSWER: D**

This geriatric diabetic patient should be treated with insulin. Metformin is contraindicated in patients with renal insufficiency. Sitagliptin should not be added to a sulfonylurea drug initially, the dosage should be lowered in patients with renal insufficiency, and given alone it would probably not result in reasonable diabetic control. Pioglitazone can cause fluid retention and therefore would not be a good choice for a patient with cardiomyopathy.

Ref: Rodbard HW, Jellinger PS, Davidson JA, et al: Statement by an American Association of Clinical Endocrinologists/American College of Endocrinology consensus panel on type 2 diabetes mellitus: An algorithm for glycemic control. *Endocr Pract* 2009;15(6):540-559. 2) Marcus A: Diabetes care—Insulin delivery in a changing world. *Medscape J Med* 2008;10(5):120.

**Item 65**

**ANSWER: D**

Only symptomatic treatment is indicated for ciguatera poisoning, as there is no specific treatment. The same is true for shellfish poisoning, although potential respiratory distress or failure must be kept in mind.

Scombroid poisoning is a pseudoallergic condition resulting from consumption of improperly stored scombroid fish such as tuna, mackerel, wahoo, and bonito. Nonscombroid varieties such as mahi-mahi, amberjack, sardines, and herring can also cause this problem. The poisoning is due to high levels of histamine and saurine resulting from bacterial catabolism of histidine. Symptoms occur within minutes to hours, and include flushing of the skin, oral paresthesias, pruritus, urticaria, nausea, vomiting, diarrhea, vertigo, headache, bronchospasm, dysphagia, tachycardia, and hypotension. Therapy should be the same as for allergic reactions and anaphylaxis, and will usually lead to resolution of symptoms within several hours.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 2450-2451.

**Item 66**

**ANSWER: C**

Postural orthostatic tachycardia syndrome (POTS) is manifested by a rise in heart rate $>30$ beats/min or by a heart rate $>120$ beats/min within 10 minutes of being in the upright position. Symptoms usually include position-dependent headaches, abdominal pain, lightheadedness, palpitations, sweating, and nausea. Most patients will not actually pass out, but some will if they are unable to lie down quickly enough. This condition is most prevalent in white females between the ages of 15 and 50 years old. Often these patients are hardworking, athletic, and otherwise in good health.

There is a high clinical correlation between POTS and chronic fatigue syndrome. Although no single etiology for POTS has been found, the condition is thought to have a genetic predisposition, is often incited after a prolonged viral illness, and has a component of deconditioning. The recommended initial management is encouraging adequate fluid and salt intake, followed by the initiation of regular aerobic exercise combined with lower-extremity strength training, and then the use of β-blockers.

Ref: Post RE, Dickerson LM: Dizziness: A diagnostic approach. *Am Fam Physician* 2010;82(4):361-368, 369. 2) Johnson JN, Mack KJ, Kuntz NL, et al: Postural orthostatic tachycardia syndrome: A clinical review. *Pediatr Neurol* 2010;42(2):77-85.

**Item 67**

**ANSWER: A**

Cigarette smokers are five times more likely than nonsmokers to develop an abdominal aortic aneurysm (AAA). The risk is associated with the number of years the patient has smoked, and declines with cessation. Diabetes mellitus is protective, decreasing the risk of AAA by half. Women tend to develop AAA in their sixties, 10 years later than men. Whites are at greater risk than African-Americans. Hypertension is less of a risk factor than cigarette smoking (SOR A).

Ref: Schermerhorn M: A 66-year-old man with an abdominal aortic aneurysm. *JAMA* 2009;302(18):2015-2022.

**Item 68**

**ANSWER: D**

Subclinical hypothyroidism is defined as slightly elevated TSH (approximately 5–10 mIU/L) and normal levels of thyroid hormone (free $T_4$ or free $T_3$) in an asymptomatic patient. There is a low rate of progression to overt hypothyroidism manifested by symptoms, TSH levels $>10$ mIU/L, or reduced levels of thyroid hormone.

Recent studies have shown that there is an increased risk for cardiovascular morbidity and mortality in those with subclinical hypothyroidism. However, treatment with thyroid replacement hormone did not seem to affect this risk. The decision about whether to recommend thyroid replacement therapy to patients like the one described here should be individualized. An alternative to treating the patient with medication at this time would be to retest her TSH annually, or sooner if she becomes symptomatic.

Ref: Hennessey JV, Scherger JE: Evaluating and treating the patient with hypothyroid disease. *J Fam Pract* 2007;56(8):S31-S39. 2) Vaidya B, Pearce SHS: Management of hypothyroidism in adults. *BMJ* 2008;337:284-289.

**Item 69**

**ANSWER: C**

Dermatophyte infections caused by aerobic fungi produce infections in many areas. Tinea capitis requires systemic therapy to penetrate the affected hair shafts. Tinea cruris and tinea pedis rarely require systemic therapy. Extensive outbreaks of tinea corporis and tinea versicolor benefit from both oral and topical treatment (SOR A), but more localized infections require only topical treatment.

Ref: Andrews MD, Burns M: Common tinea infections in children. *Am Fam Physician* 2008;77(10):1415-1420.

**Item 70**

**ANSWER: C**

The ASC-US/LSIL Triage Study (ALTS) demonstrated that there are three appropriate follow-up options for managing women with an ASC-US Papanicolaou (Pap) test result: (1) two repeat cytologic examinations performed at 6-month intervals; (2) reflex testing for HPV; or (3) a single colposcopic examination. This expert consensus recommendation has been confirmed in more recent clinical studies, additional analyses of the ALTS data, and meta-analyses of published studies (SOR A).

Reflex HPV testing refers to testing either the original liquid-based cytology residual specimen or a separate sample collected for HPV testing at the time of the initial screening visit. This approach eliminates the need for women to return to the office or clinic for repeat testing, rapidly reassures women who do not have a significant lesion, spares 40%–60% of women from undergoing colposcopy, and has been shown to have a favorable cost-effectiveness ratio. In this patient's case, the HPV testing was negative, and there is no need to repeat the Pap test at 6-month intervals or to perform colposcopy.

Although women in certain low-risk groups need routine cervical cancer screening only every 3 years, this patient should have a repeat Pap test in 12 months. Immediately repeating the test or testing at 3-month intervals is not recommended in any of the algorithms to manage ASC-US results for otherwise healthy women.

Ref: ASCUS-LSIL Triage Study (ALTS) Group: Results of a randomized trial on the management of cytology interpretations of atypical squamous cells of undetermined significance. *Am J Obstet Gynecol* 2003;188(6):1383-1392. 2) Wright TC Jr, Massad LS, Dunton CJ, et al: 2006 consensus guidelines for the management of women with abnormal cervical cancer screening tests. *Am J Obstet Gynecol* 2007;197(4):346-355.

**Item 71**

**ANSWER: D**

Family physicians are often asked to perform a preoperative evaluation prior to noncardiac surgery. This requires an assessment of the perioperative cardiovascular risk of the procedure involved, the functional status of the patient, and clinical factors that can increase the risk, such as diabetes mellitus, stroke, renal insufficiency, compensated or prior heart failure, mild angina, or previous myocardial infarction.

This patient is not undergoing emergency surgery, nor does she have an active cardiac condition; however, she is undergoing a high-risk procedure ($>5\%$ risk of perioperative myocardial infarction) with vascular surgery. As she cannot climb a flight of stairs or do heavy housework, her functional status is $<4$ METs, and she should be considered for further evaluation. The patient's diabetes is an additional clinical risk factor.

With vascular surgery being planned, appropriate recommendations include proceeding with the surgery with heart rate control, or performing noninvasive testing if it will change the management of the patient. Coronary angiography is indicated if the noninvasive testing is abnormal. Pulmonary function studies are most useful in patients with underlying lung disease or those undergoing pulmonary resection. Hemoglobin $A_{1c}$ is a measure of long-term diabetic control and is not particularly useful perioperatively. Carotid angiography is not indicated in asymptomatic patients being considered for lower-extremity vascular procedures.

Ref: Fleisher LA, Beckman JA, Brown KA, et al: ACC/AHA 2007 guidelines on perioperative cardiovascular evaluation and care for noncardiac surgery: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines on Perioperative Cardiovascular Evaluation for Noncardiac Surgery): Developed in collaboration with the American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Rhythm Society, Society of Cardiovascular Anesthesiologists, Society for Cardiovascular Angiography and Interventions, Society for Vascular Medicine and Biology, and Society for Vascular Surgery. *Circulation* 2007;116 (17):e418-e499.

**Item 72**

**ANSWER: B**

Although proton pump inhibitors are the most effective treatment for patients with asymptomatic gastroesophageal reflux disease, there are several potential problems with prolonged therapy. Omeprazole is associated with an increased risk of community-acquired pneumonia and *Clostridium difficile* colitis. Omeprazole has also been shown to acutely decrease the absorption of vitamin $B_{12}$, and it decreases calcium absorption, leading to an increased risk of hip fracture. The risk for *Clostridium difficile* colitis is also increased.

Ref: Marcuard SP, Albernaz L, Khazanie PG: Omeprazole therapy causes malabsorption of cyanocobalamin (vitamin $B_{12}$). *Ann Intern Med* 1994;120(3):211-215. 2) Dial S, Delaney JAC, Barkun AN, Suissa S: Use of gastric acid–suppressive agents and the risk of community-acquired *Clostridium difficile*–associated disease. *JAMA* 2005;294(23):2989-2995. 3) Smith L: Practice guidelines. Updated ACG guidelines for diagnosis and treatment of GERD. *Am Fam Physician* 2005;71(12):2376-2382. 4) Yang Y, Lewis JD, Epstein S, Metz DC: Long-term proton pump inhibitor therapy and risk of hip fracture. *JAMA* 2006;296(24):2947-2953. 5) Aseeri M, Schroeder T, Kramer J, Zackula R: Gastric acid suppression by proton pump inhibitors as a risk factor for *Clostridium difficile*–associated diarrhea in hospitalized patients. *Am J Gastroenterol* 2008;103(9):2308-2313.

**Item 73**

**ANSWER: B**

A patient over the age of 35 who experiences abnormal vaginal bleeding must have an endometrial assessment to exclude endometrial hyperplasia or cancer. An endometrial biopsy is currently the preferred method for identifying endometrial disease. A laboratory evaluation for thyroid dysfunction or hemorrhagic diathesis is appropriate if no cancer is present on an endometrial biopsy and medical therapy fails to halt the bleeding. The other options listed can be used as medical therapy to control the bleeding once the histopathologic diagnosis has been made.

Ref: Casablanca Y: Management of dysfunctional uterine bleeding. *Obstet Gynecol Clin North Am* 2008;35(2):219-234.

**Item 74**

**ANSWER: D**

Atrial flutter is not ordinarily a serious arrhythmia, but this patient has heart failure manifested by rales, jugular venous distention, hepatojugular reflux, hypotension, and angina. Electrical cardioversion should be performed immediately. This is generally a very easy rhythm to convert. Digoxin and verapamil are appropriate in hemodynamically stable patients. A pacemaker for rapid atrial pacing may be beneficial if digitalis intoxication is the cause of atrial flutter, but this is unlikely in a patient with no previous history of cardiac problems. Amiodarone is not indicated in this clinical situation.

Ref: Bonow RO, Mann DL, Zipes DP, Libby P (eds): *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*, ed 9. Elsevier Saunders, 2011, pp 771-795.

**Item 75**

**ANSWER: D**

This patient has stage 2 hypertension, and his history of stroke is a compelling indication to use specific classes of antihypertensives. For patients with a history of previous stroke, JNC-7 recommends using combination therapy with a diuretic and an ACE inhibitor to treat the hypertension, as this combination has been clinically shown to reduce the risk of recurrent stroke. Other classes of drugs have not been shown to be of benefit for secondary stroke prevention. Although blood pressure should not be lowered quickly in the setting of acute ischemic stroke, this patient is not having an acute stroke, so treatment of his hypertension is warranted.

Ref: Ressel GW; NHLBI: NHLBI releases new high blood pressure guidelines. *Am Fam Physician* 2003;68(2):376, 379. 2) 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. *JAMA* 2003;289(19):2560-2572.

**Item 76**

**ANSWER: E**

The sympathetic nervous system acts as a positive chronotropic (increases heart rate) and inotropic (increases contractility) agent. This additional work by the heart will increase metabolic demand and coronary flow rate. The increased heart rate will decrease the time intervals between electrical events shown on an EKG.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, pp 1370-1373.

**Item 77**

**ANSWER: A**

Chronic plaque psoriasis is the most common type of psoriasis and is characterized by redness, thickness, and scaling. A variety of treatments were found to be more effective than placebo, but the best results were produced by topical vitamin D analogues and topical corticosteroids. Vitamin D and high-potency corticosteroids were equally effective when compared head to head, but the corticosteroids produced fewer local reactions (SOR A).

Ref: Bailey J, Whitehair B: Cochrane for clinicians. Topical treatments for plaque psoriasis. *Am Fam Physician* 2010;81(5):596-598.

**Item 78**

**ANSWER: A**

Up to one-third of patients with unipolar depression will fail to respond to treatment with a single antidepressant, despite adequate dosing and an appropriate treatment interval. Lithium, triiodothyronine ($T_3$), and atypical antipsychotics can all provide clinical improvement when used in conjunction with the ineffective antidepressant. The American Psychiatric Association and the Institute for Clinical Systems Improvement both recommend a trial of lithium or low-dose $T_3$ for patients who have an incomplete response to antidepressant therapy. A meta-analysis showed that a serum lithium level ≥0.5 mEq/L and a treatment duration of 2 weeks or greater resulted in a good response (SOR A).

While thyroid supplementation as adjunctive therapy is effective, the recommended dosage is no higher than 50 μg/day (SOR B). Atypical antipsychotics can be used as add-on therapy, but are not as effective as lithium or $T_3$ (SOR B). Anticonvulsant medications such as gabapentin have been shown to be effective in the management of bipolar affective disorder, but not as adjunctive therapy in the treatment of unipolar depression resistant to single-agent antidepressants.

Ref: Chilakamarri G, Weismantel D, Weismantel A: Can nonantidepressants help treat depression? *J Fam Pract* 2009;58(10):550-551.

**Item 79**

**ANSWER: B**

When proteinuria is noted on a dipstick and the history, examination, full urinalysis, and serum studies suggest no obvious underlying problem or renal insufficiency, a urine protein/creatinine ratio is recommended. This test correlates well with 24-hour urine protein, which is particularly difficult to collect in a younger patient. Renal ultrasonography is appropriate once renal insufficiency or nephritis is established. If pathogenic proteinuria is confirmed, an antinuclear antibody and/or complement panel may be indicated. A nephrology referral is not necessary until the presence of kidney disease or proteinuria from a cause other than benign postural proteinuria is confirmed.

Ref: Leung AKC, Wong AHC: Proteinuria in children. *Am Fam Physician* 2010;82(6):645-651.

**Item 80**

**ANSWER: A**

Patients who present with acute cervical radiculopathy and normal radiographs can be treated conservatively. The vast majority of patients with cervical radiculopathy improve without surgery. Of the interventions listed, NSAIDs are the initial treatment of choice. Tricyclic antidepressants, as well as tramadol and venlafaxine, have been shown to help with chronic neuropathic pain. Cervical MRI is not indicated unless there are progressive neurologic defects or red flags such as fever or myelopathy. Likewise, referral to a subspecialist should be reserved for patients who have persistent pain after 6–8 weeks of conservative management and for those with signs of instability. Cervical corticosteroid injections have been found to be helpful in the management of cervical radiculopathy, but should not be administered before MRI is performed (SOR C).

Ref: Polston DW: Cervical radiculopathy. *Neurol Clin* 2007;25(2):373-385. 2) Eubanks JD: Cervical radiculopathy: Nonoperative management of neck pain and radicular symptoms. *Am Fam Physician* 2010;81(1):33-40.

**Item 81**

**ANSWER: B**

Clinical clues to the diagnosis of malaria in this case include an appropriately targeted recent travel history, a prodrome of delirium or erratic behavior, unarousable coma following a generalized convulsion, fever, and a lack of focal neurologic signs in the presence of a diffuse, symmetric encephalopathy. The peripheral blood smear shows normochromic, normocytic anemia with *Plasmodium falciparum* trophozoites and schizonts involving erythrocytes, diagnostic of cerebral malaria. Treatment of this true medical emergency is intravenous quinidine gluconate.

Vitamin $B_{12}$ deficiency is a predominantly peripheral neuropathy seen in older adults. Ehrlichiosis causes thrombocytopenia but not hemolytic anemia. Sickle cell disease presents with painful vaso-occlusive crises in multiple organs. Coma is rare.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, pp 1280-1294.

**Item 82**

**ANSWER: A**

Apraxia is a transmission disturbance on the output side, which interferes with skilled movements. Even though the patient understands the request, he is unable to perform the task when asked, but may then perform it after a time delay. Agnosia is the inability to recognize previously familiar sensory input, and is a modality-bound deficit. For example, it results in a loss of ability to recognize objects. Aphasia is a language disorder, and expressive aphasia is a loss of the ability to express language. The ability to recognize objects by palpation in one hand but not the other is called astereognosis.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 157.

**Item 83**

**ANSWER: E**

Using trained, qualified interpreters for patients with limited English proficiency leads to fewer hospitalizations, less reliance on testing, a higher likelihood of making the correct diagnosis and providing appropriate treatment, and better patient understanding of conditions and therapies. Although the patient may request that a family member interpret, there are many pitfalls in using untrained interpreters: a lack of understanding of medical terminology, concerns about confidentiality, and unconscious editing by the interpreter of what the patient has said. Additionally, the patient may be reluctant to divulge sensitive or potentially embarrassing information to a friend or family member. The other principles listed are important practices when working with interpreters. Pictures and diagrams can help strengthen the patient's understanding of his or her health care.

Ref: Herndon E, Joyce L: Getting the most from language interpreters. *Fam Pract Manag* 2004;11(6):37-40. 2) Juckett G: Cross-cultural medicine. *Am Fam Physician* 2005;72(11):2267-2274.

**Item 84**

**ANSWER: C**

This estimated fetal weight is at the 90th percentile for a term fetus. Unfortunately, the accuracy of fetal weight estimates declines as pregnancy proceeds, and the actual size may be as much as 15% different from the estimate. Delivery of a large infant results in shoulder dystocia more often than delivery of a smaller infant, but most large infants are delivered without complications. Intuitively, it would seem logical to induce labor when the fetus seems to be getting large, but this intervention has been studied in controlled trials and the only difference in outcome was an increase in the cesarean rate for women who underwent elective induction for this indication.

Recently, there has been an increase in requests from patients to have an elective cesarean section near term to avoid the risks of labor, including pain, shoulder dystocia, and pelvic relaxation. The American Congress of Obstetricians and Gynecologists (ACOG) recommends consideration of cesarean delivery without a trial of labor if the estimated fetal weight is 4500 g in a mother with diabetes mellitus, or 5000 g in the absence of diabetes. Even at that size, there is not adequate data to show that cesarean section is preferable to a trial of labor. Frequent ultrasonography is often performed to reduce anxiety for both patient and physician, but the problem of accuracy of weight estimates remains an issue even with repeated scans at term.

Ref: ACOG practice bulletin: Shoulder dystocia. American College of Obstetricians and Gynecologists, 2002, no 40. 2) Gherman RB, Chauhan S, Ouzounian JG, et al: Shoulder dystocia: The unpreventable obstetric emergency with empiric management guidelines. *Am J Obstet Gynecol* 2006;195(3):657-672. 3) Gabbe SG, Niebyl JR, Simpson JL (eds): *Obstetrics: Normal and Problem Pregnancies*, ed 5. Churchill Livingstone, 2007, pp 219-220, 851. 4) Mozurkewich E, Chilimigras J, Koepke E, et al: Indications for induction of labor: A best-evidence review. *BJOG* 2009;116(5):626-636.

**Item 85**

**ANSWER: D**

Intertrigo is inflammation of skinfolds caused by skin-on-skin friction and is common on opposing cutaneous or mucocutaneous surfaces. Secondary cutaneous bacterial and fungal infections are common complications. Cutaneous erythrasma may complicate intertrigo of interweb areas, intergluteal and crural folds, axillae, or inframammary regions. Erythrasma is caused by *Corynebacterium minutissimum* and presents as small reddish-brown macules that may coalesce into larger patches with sharp borders. Intertrigo complicated by erythrasma is treated with topical or oral erythromycin.

Ref: Janniger CK, Schwartz RA, Szepietowski JC, Reich A: Intertrigo and common secondary skin infections. *Am Fam Physician* 2005;72(5):833-838, 840. 2) Habif TP: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy*, ed 5. Mosby Elsevier, 2010, pp 501, 534.

**Item 86**

**ANSWER: C**

The CAGE-AID (CAGE Adapted to Include Drugs) questionnaire is a tool for assessing potential substance abuse risk. In one study it had a sensitivity of 70% and a specificity of 85% for drug abuse when two or more affirmative responses were defined as a positive result. It consists of the following four questions:

Have you ever felt you ought to Cut down on your drinking or drug use?
Have people Annoyed you by criticizing your drinking or drug use?
Have you ever felt bad or Guilty about your drinking or drug use?
Have you ever had a drink or used drugs first thing in the morning as an Eye opener to steady your nerves or to get rid of a hangover?

Ref: Yong SS, Ballantyne JC, Domino FJ, Wetterau NW: Balancing clinical and risk management considerations for chronic pain patients on opioid therapy. American Academy of Family Physicians CME monograph 2008, pp 5-7. 2) Lanier D, Ko S: Screening in in primary care for illicit drug use: Assessment of screening instruments—Supplemental evidence update for the US Preventive Services Task Force. Evidence synthesis no 58.2. AHRQ Publication no 08-05108-EF-2.

**Item 87**

**ANSWER: C**

This patient has symptoms and signs consistent with chronic paronychia. This condition is often associated with chronic immersion in water, contact with soaps or detergents, use of certain systemic drugs (antiretrovirals, retinoids) and, as is most likely in a 6-year-old child, finger sucking.

Findings on examination are similar to those of acute paronychia, with tenderness, erythema, swelling, and retraction of the proximal nail fold. Often the adjacent cuticle is absent. Chronic paronychia has usually been persistent for at least 6 weeks by the time of diagnosis.

In addition to medication, basic treatment principles for the condition include avoidance of contact irritants, avoiding immersion of the hands in water, and use of an emollient. Topical corticosteroids have higher efficacy for treating chronic paronychia compared to oral antifungals (SOR B), particularly given the young age of the patient. A topical antifungal can also be tried in conjunction with the corticosteroid.

Ref: Tosti A, Piraccini BM, Ghetti E, Colombo MD: Topical steroids versus systemic antifungals in the treatment of chronic paronychia: An open, randomized double blind and double dummy study. *J Am Acad Dermatol* 2002;47(1):73-76. 2) Habif TP: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy*, ed 4. Mosby Inc, 2004, pp 871-872. 3) Rigopoulos D, Larios G, Gregoriou S, Alevizos A: Acute and chronic paronychia. *Am Fam Physician* 2008;77(3):339-346.

**Item 88**

**ANSWER: A**

In the geriatric population, presbycusis is the most common cause of hearing loss. Patients typically have the most difficulty hearing higher-frequency sounds such as consonants. Lower-frequency sounds such as vowels are preserved.

Ref: Halter JB, Ouslander JG, Tinetti ME, et al (eds): *Hazzard's Geriatric Medicine and Gerontology*, ed 6. McGraw-Hill Medical, 2009, pp 525-534. 2) Elsawy B, Higgins KE: The geriatric assessment. *Am Fam Physician* 2011;83(1):48-56.

**Item 89**

**ANSWER: E**

This patient has obesity-hypoventilation syndrome, often referred to as Pickwickian syndrome. These patients are obese (BMI $>30$ kg/m$^2$), have sleep apnea, and suffer from chronic daytime hypoxia and carbon dioxide retention. They are at increased risk for significant respiratory failure and death compared to patients with otherwise similar demographics. Treatment consists of nighttime positive airway pressure in the form of continuous (CPAP) or bi-level (BiPAP) devices, as indicated by sleep testing. The more hours per day that patients can use this therapy, the less carbon dioxide retention and less daytime hypoxia will ensue. Several small studies suggest that the increased mortality risk from obesity-hypoventilation syndrome can be decreased by adhering to this therapy. The use of daytime oxygen can improve oxygenation, but is not considered adequate to restore the chronic low respiratory drive that is characteristic of this condition.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, p 611. 2) Mokhlesi B: Obesity hypoventilation syndrome: A state-of-the-art review. *Respir Care* 2010;55(10):1347-1362; discussion 1363-1365.

**Item 90**

**ANSWER: A**

Pertussis, once a common disease in infants, declined to around 1000 cases in 1976 as a result of widespread vaccination. The incidence began to rise again in the 1980s, possibly because the immunity from vaccination rarely lasts more than 12 years.

The disease is characterized by a prodromal phase that lasts 1–2 weeks and is indistinguishable from a viral upper respiratory infection. It progresses to a more severe cough after the second week. The cough is paroxysmal and may be severe enough to cause vomiting or fracture ribs. Patients are rarely febrile, but may have increased lacrimation and conjunctival injection. The incubation period is long compared to a viral infection, usually 7–10 days.

Nonasthmatic eosinophilic bronchitis, cough-variant asthma, and gastroesophageal reflux disease cause a severe cough not associated with a catarrhal phase. A rhinovirus infection would probably be resolving within 2–3 weeks.

Ref: Cornia PB, Hersh AL, Lipsky BA, et al: Does this coughing adolescent or adult patient have pertussis? *JAMA* 2010;304(8):890-896.

**Item 91**

**ANSWER: D**

A thrombosed external hemorrhoid is manifested by the sudden development of a painful, tender, perirectal lump. Because there is somatic innervation, the pain is intense, and increases with edema. Treatment involves excision of the acutely thrombosed tissue under local anesthesia, mild pain medication, and sitz baths. It is inappropriate to use procedures that would increase the pain, such as banding or cryotherapy. Total hemorrhoidectomy is inappropriate and unnecessary.

Ref: Tintinalli JE, Kelen GD, Stapczynski JS (eds): *Emergency Medicine: A Comprehensive Study Guide*, ed 7. McGraw-Hill, 2011, pp 1245-1247.

**Item 92**

**ANSWER: C**

Patellofemoral pain syndrome is a common overuse injury observed in adolescent girls. The condition is characterized by anterior knee pain associated with activity. The pain is exacerbated by going up or down stairs or running in hilly terrain. It is associated with inadequate hip abductor and core strength; therefore, a prescription for a rehabilitation program is recommended. Surgical intervention is rarely required.

Ref: Joy E, Van Hala S, Cooper L: Health-related concerns of the female athlete: A lifespan approach. *Am Fam Physician* 2009;79(6):489-495.

**Item 93**

**ANSWER: D**

Hamartomatous (or juvenile) polyps and hyperplastic polyps are benign lesions and are not considered to be premalignant. Adenomas, on the other hand, have the potential to become malignant. Sessile adenomas and lesions $> 1.0$ cm have a higher risk for becoming malignant. Of the three types of adenomas (tubular, tubulovillous, and villous), villous adenomas are the most likely to develop into an adenocarcinoma.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 574.

**Item 94**

**ANSWER: E**

Repaglinide and nateglinide are nonsulfonylureas that act on a portion of the sulfonylurea receptor to stimulate insulin secretion. Pioglitazone is a thiazolidinedione, which reduces insulin resistance. It is believed that the mechanism for this is activation of PPAR-Y, a receptor that affects several insulin-responsive genes. Acarbose is a competitive inhibitor of α-glucosidases, enzymes that break down complex carbohydrates into monosaccharides. This delays the absorption of carbohydrates such as starch, sucrose, and maltose, but does not affect the absorption of glucose. Sitagliptin is a DPP-IV inhibitor, and this class of drugs inhibits the enzyme responsible for the breakdown of the incretins GLP-1 and GIP. Exenatide is an incretin mimetic that stimulates insulin secretion in a glucose-dependent fashion, slows gastric emptying, and may promote satiety.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 1754-1755.

**Item 95**

**ANSWER: A**

Behavioral interventions, especially those including telephone counseling and/or a dental examination, have been shown to be helpful for promoting smokeless tobacco cessation (SOR B). Studies examining mint snuff as a tobacco substitute, bupropion, and nicotine replacement in patch or gum form did not show any significant benefit.

Ref: Ebbert J, Montori VM, Erwin PJ, Stead LF: Interventions for smokeless tobacco use cessation. *Cochrane Database Syst Rev* 2011;(2):CD004306.

**Item 96**

**ANSWER: B**

Autoimmune hypothyroidism is common in elderly women. Symptoms often include fatigue, bradycardia, dry skin, brittle hair, and a prolonged relaxation phase of the deep tendon reflexes. While replacement therapy with levothyroxine is indicated, care must be taken in the elderly, particularly in those with coronary artery disease, to replace the deficit slowly. Levothyroxine replacement should begin at 25 μg daily for 6 weeks, with the dosage increased in 25-μg increments as needed, based on TSH levels.

Rapid replacement of thyroid hormone can increase the metabolic rate, and therefore myocardial oxygen demand, too quickly. This can precipitate complications of coronary artery disease such as atrial fibrillation, angina, and myocardial infarction. Stopping a β-blocker in this setting is likely to increase the risk. Radioactive iodine ablation is indicated for some cases of hyperthyroidism.

Ref: Melmed S, Polonsky KS, Larsen PR, Kronenberg HM (eds): *Williams Textbook of Endocrinology*, ed 12. Elsevier Saunders, 2011, pp 407-427.

**Item 97**

**ANSWER: D**

Vacuum-assisted delivery is associated with higher rates of neonatal cephalhematoma and retinal hemorrhage compared with forceps delivery. A systematic review of 10 trials found that vacuum-assisted deliveries are associated with less maternal soft-tissue trauma when compared to forceps delivery. Compared with spontaneous vaginal delivery, the likelihood of a severe perineal laceration is increased in women who have vacuum-assisted delivery without episiotomy, and the odds are even higher in vacuum-assisted delivery with episiotomy. Operative vaginal delivery is a risk factor for shoulder dystocia, which is more common with vacuum-assisted delivery than with forceps delivery.

Ref: Hook CD, Damos JR: Vacuum-assisted vaginal delivery. *Am Fam Physician* 2008;78(8):953-960.

**Item 98**

**ANSWER: B**

The best initial imaging study for acute pelvic pain in women is transvaginal ultrasonography (SOR C). This provides the greatest level of detail regarding the uterus and adnexae, superior to transcutaneous ultrasonography. CT of the abdomen/pelvis and hysterosalpingography may be indicated eventually in some patients with pelvic pain, but they are not the initial studies of choice. Hysteroscopy is not routinely used in the evaluation of pelvic pain.

Ref: Kruszka PS, Kruszka SJ: Evaluation of acute pelvic pain in women. *Am Fam Physician* 2010;82(2):141-147.

**Item 99**

**ANSWER: C**

*Escherichia coli* O:157 is an increasingly common cause of serious gastrointestinal illness. The usual source is undercooked beef. The child is at risk, since at least 20% of cases result from secondary spread. Transmission is frequent in children's day-care facilities and nurseries. Some cases are asymptomatic, but the great majority are symptomatic, and patients present with bloody diarrhea. Levofloxacin is not useful for prophylaxis in contacts. This patient has a 10%–15% risk of developing hemolytic uremic syndrome secondary to her *E. coli* O:157 infection, making close monitoring of renal function essential.

Ref: Pennington H: *Escherichia coli* O157. *Lancet* 2010;376(9750):1428-1435.

**Item 100**

**ANSWER: C**

Upper extremity deep-vein thrombosis (UE-DVT) accounts for 4% of all cases of DVT. Catheter-related thromboses make up the majority of these cases. Occult cancer, use of oral contraceptives, and inheritable thrombophilia are other common explanations. Another proposed risk factor is the repetitive compression of the axillary-subclavian vein in athletes or laborers, which is the most likely cause of this patient's UE-DVT.

Taken as a whole, UE-DVT is generally associated with fewer venous complications, including less chance for thromboembolism, postphlebitic syndrome, and recurrence compared to lower-extremity deep-vein thrombosis (LE-DVT). However, the rates of these complications are still high enough that most experts recommend treatment identical to that of LE-DVT. Specifically, heparin should be given for 5 days, and an oral vitamin-K antagonist for at least 3 months.

Ref: Kearon C, Kahn SR, Agnelli G, et al: Antithrombotic therapy for venous thromboembolic disease: American College of Chest Physicians evidence-based clinical practice guidelines (8th edition). *Chest* 2008;133(6 suppl):454S-545S. 2) Muñoz FJ, Mismetti P, Poggio R, et al: Clinical outcome of patients with upper-extremity deep vein thrombosis. *Chest* 2008;133(1):143-148. 3) Martinelli I, Franchini M, Mannucci PM: How I treat rare venous thromboses. *Blood* 2008;112(13):4818-4823.

**Item 101**

**ANSWER: B**

Trazodone may be useful for insomnia, but is not recommended as a primary antidepressant because it causes sedation and orthostatic hypotension at therapeutic doses. Bupropion would aggravate this patient's insomnia. Tricyclic antidepressants may be effective, but are no longer considered first-line treatments because of side effects and because they can be cardiotoxic. Mirtazapine has serotonergic and noradrenergic properties and is associated with increased appetite and weight gain. It may be particularly useful for patients with insomnia and weight loss.

Ref: Unützer J: Late-life depression. *N Engl J Med* 2007;357(22):2269-2276.

**Item 102**

**ANSWER: A**

Diuretics such as hydrochlorothiazide are known to increase serum uric acid levels, but losartan has been shown to decrease uric acid. Metoprolol, simvastatin, and acetaminophen have no specific effect on serum uric acid levels.

Ref: Richette P, Bardin T: Gout. *Lancet* 2010;375(9711):318-328.

**Item 103**

**ANSWER: B**

The Cardiovascular risk Reduction by Early Anemia Treatment with Epoetin Beta (CREATE) trial, the Correction of Hemoglobin and Outcomes in Renal insufficiency (CHOIR) trial, and the Trial to Reduce Cardiovascular Events with Aranesp Therapy (TREAT) have shown that patients who had hemoglobin levels targeted to normal ranges did worse than patients who had hemoglobin levels of 10–12 g/dL. The incidence of stroke, heart failure, and death increased in patients targeted to normal hemoglobin levels, and there was no demonstrable decrease in cardiovascular events (SOR A).

Ref: Taliercio JJ: Anemia and chronic disease: What's the connection? *J Fam Pract* 2010;59(1):14-18.

**Item 104**

**ANSWER: B**

Vocal cord dysfunction is an idiopathic disorder commonly seen in patients in their twenties and thirties in which the vocal cords partially collapse or close on inspiration. It mimics, and is commonly mistaken for, asthma. Symptoms include episodic tightness of the throat, a choking sensation, shortness of breath, and coughing. A careful history and examination reveal that the symptoms are worse with inspiration than with exhalation, and inspiratory stridor during the episode may be mistaken for the wheezing of asthma. The sensation of throat tightening or choking also helps to differentiate it from asthma.

Pulmonary function tests (PFTs) are normal, with the exception of flattening of the inspiratory loop, which is diagnostic of extra-thoracic airway compression. Fiberoptic laryngoscopy shows paradoxical inspiratory and/or expiratory partial closure of the vocal cords. Vocal cord dysfunction is treated with speech therapy, breathing techniques, reassurance, and breathing a helium-oxygen mixture (heliox).

PFTs in patients with asthma are normal between exacerbations, but when symptoms are present the $FEV_1$/FVC ratio is reduced, as with COPD. With anaphylaxis, there will typically be itching or urticaria and signs of angioedema, such as lip or tongue swelling, in response to a trigger such as food or medication; PFTs are normal when anaphylaxis symptoms are absent. Globus hystericus is a type of conversion disorder in which emotional stress causes a subjective sensation of pain or tightness in the throat, and/or dysphagia; diagnostic tests such as spirometry and laryngoscopy are normal.

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

**Item 105**

**ANSWER: B**

Chest pain is common in patients with pulmonary embolism (PE). When evaluating a patient for possible PE, the presence of orthopnea suggests heart failure, fever suggests an infectious process, wheezing suggests asthma or COPD, and rhonchi suggest heart failure, interstitial lung disease, or infection. These generalizations are supported by a 2008 study designed to improve the diagnosis of PE based on the history, physical examination, EKG, and chest radiograph.

Ref: Miniati M, Bottai M, Monti S, et al: Simple and accurate prediction of the clinical probability of pulmonary embolism. *Am J Respir Crit Care Med* 2008:178(3):290-294.

**Item 106**

**ANSWER: C**

"Nursemaid's elbow" is one of the most common injuries in children under 5 years of age. It occurs when the child's hand is suddenly jerked up, forcing the elbow into extension and causing the radial head to slip out from the annular ligament.

Ref: Kliegman RM, Stanton BF, Geme JW III, et al (eds): *Nelson Textbook of Pediatrics*, ed 19. Elsevier Saunders, 2011, p 2384.

**Item 107**

**ANSWER: D**

Tetanus vaccine is indicated for adults with clean minor wounds who have received fewer than three previous doses of tetanus toxoid, or whose immune status is unknown. Tetanus immune globulin is not recommended if the wound is clean.

The CDC recommends that adults aged 65 years and older who have not received Tdap and are likely to have close contact with an infant less than 12 months of age (e.g., grandparents, child-care providers, and health-care practitioners) should receive a single dose to protect against pertussis and reduce the likelihood of transmission. For other adults aged 65 years and older, a single dose of Tdap vaccine should be given instead of a scheduled dose of Td vaccine if they have not previously received Tdap. Tdap can be administered regardless of the interval since the last vaccine containing tetanus or diphtheria toxoid, and either Tdap vaccine product may be used. After receiving Tdap, persons should continue to receive Td for routine booster immunizations against tetanus and diphtheria, according to previously published guidelines.

Ref: Updated recommendations for use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis (Tdap) vaccine from the Advisory Committee on Immunization Practices, 2010. *MMWR Morb Mortal Wkly Rep* 2011;60(1):13-15.

**Item 108**

**ANSWER: B**

The target blood pressure in patients with diabetes mellitus is < 130/80 mm Hg (SOR A). ACE inhibitors and angiotensin receptor blockers (ARBs) are the preferred first-line agents for the management of patients with hypertension and diabetes mellitus (SOR A). If the target blood pressure is not achieved with an ACE inhibitor or ARB, the addition of a thiazide diuretic is the preferred second-line therapy for most patients; potassium-sparing and loop diuretics are not recommended (SOR B).

β-Blockers are recommended for patients with diabetes mellitus who also have a history of myocardial infarction, heart failure, coronary artery disease, or stable angina (SOR A). Calcium channel blockers should be reserved for patients with diabetes mellitus who cannot tolerate preferred antihypertensive agents, or for those who need additional agents to achieve their target blood pressure (SOR A).

Ref: Whalen KL, Stewart RD: Pharmacologic management of hypertension in patients with diabetes. *Am Fam Physician* 2008;78(11):1277-1282.

**Item 109**

**ANSWER: C**

This patient has anemia of chronic disease secondary to her rheumatoid arthritis. This anemia is usually mild, with hemoglobin levels of 9.0–11.0 g/dL, and is usually normocytic-normochromic, although it can be microcytic. Characteristically, serum iron and total iron-binding capacity are decreased and ferritin is increased. The best treatment of this anemia is to treat the underlying systemic disease. Neither iron nor folic acid is effective. Since the anemia is usually mild, transfusion is not necessary.

Ref: Weiss G, Goodnough LT: Anemia of chronic disease. *N Engl J Med* 2005;352(10):1011-1023.

**Item 110**

**ANSWER: B**

Sudden infant death syndrome (SIDS) is the most common cause of death during the first 6 months of life in the United States, with a peak incidence at 2–4 months of age and a quick dropoff by the age of 6 months. The cause of death is a retrospective diagnosis of exclusion, and is supported by a history of quiet death during sleep in a previously healthy infant younger than 6 months of age. Evidence of terminal activity may be present, such as clenched fists or a serosanguineous, blood-tinged, or mucoid discharge from the mouth or nose. Lividity and mottling are frequently present in dependent areas.

The reported history and autopsy findings of deliberate suffocation may mirror the findings of SIDS, but suffocation should be considered when there is documentation of any of the following: infant age older than 6 months, previous similar sibling deaths, simultaneous twin deaths, or evidence of pulmonary hemorrhage. A history of recurrent apnea or cyanosis has not been causally linked to SIDS; when such reported events have only been witnessed by one caretaker, deliberate suffocation should be suspected.

Ref: American Academy of Pediatrics, Hymel KP; Committee on Child Abuse and Neglect; National Association of Medical Examiners: Distinguishing sudden infant death syndrome from child abuse fatalities. *Pediatrics* 2006;118(1):421-427.

**Item 111**

**ANSWER: E**

Calcium oxalate stones are the most common of all renal calculi. A low-sodium, restricted-protein diet with increased fluid intake reduces stone formation. A low-calcium diet has been shown to be ineffective. Oxalate restriction also reduces stone formation. Oxalate-containing foods include spinach, chocolate, tea, and nuts, but not yellow vegetables. Potassium citrate should be taken at mealtime to increase urinary pH and urinary citrate (SOR B).

Ref: Borghi L, Schianchi T, Meschi T, et al: Comparison of two diets for the prevention of recurrent stones in idiopathic hypercalciuria. *N Engl J Med* 2002;346(2):77-84. 2) Pietrow PK, Karellas ME: Medical management of common urinary calculi. *Am Fam Physician* 2006;74(1):86-94.

**Item 112**

**ANSWER: A**

The findings in this patient are consistent with a stress fracture. Plain radiographs should be the initial imaging modality because of availability and low cost (SOR C). These are usually negative initially, but are more likely to be positive over time. If the initial films are negative and the diagnosis is not urgently needed, a second plain radiograph can be performed in 2–3 weeks.

Although CT is useful for evaluation of bone pathology, it is not commonly used as even second-line imaging for stress fractures, due to lower sensitivity and higher radiation exposure than other modalities. Triple-phase bone scintigraphy has a high sensitivity and was previously used as a second-line modality; however, MRI has equal or better sensitivity than scintigraphy and higher specificity. MRI is now recommended as the second-line imaging modality when plain radiographs are negative and clinical suspicion of stress fracture persists (SOR C). Musculoskeletal ultrasonography has the advantage of low cost with no radiation exposure, but additional studies are needed before it can be recommended as a standard imaging modality.

Ref: Patel DS, Roth M, Kapil N: Stress fractures: Diagnosis, treatment, and prevention. *Am Fam Physician* 2011;83(1):39-46.

**Item 113**

**ANSWER: D**

Ethylene glycol poisoning should be suspected in patients with metabolic acidosis of unknown cause and subsequent renal failure, as rapid diagnosis and treatment will limit the toxicity and decrease both morbidity and mortality. This diagnosis should be considered in a patient who appears intoxicated but does not have an odor of alcohol, and has anion gap acidosis, hypocalcemia, urinary crystals, and nontoxic blood alcohol levels. Ethylene glycol is found in products such as engine coolant, de-icing solution, and carpet and fabric cleaners. Ingestion of 100 mL of ethylene glycol by an adult can result in toxicity.

The American Academy of Clinical Toxicology criteria for treatment of ethylene glycol poisoning with an antidote include a plasma ethylene glycol concentration $>20$ mg/dL, a history of ingesting toxic amounts of ethylene glycol in the past few hours with an osmolal gap $>10$ mOsm/kg $H_2O$ (N 5–10), and strong clinical suspicion of ethylene glycol poisoning, plus at least two of the following: arterial pH $<7.3$, serum bicarbonate $<20$ mmol/L, or urinary oxalate crystals.

Until recently, ethylene glycol poisoning was treated with sodium bicarbonate, ethanol, and hemodialysis. Treatment with fomepizole (Antizol) has this specific indication, however, and should be initiated immediately when ethylene glycol poisoning is suspected. If ethylene glycol poisoning is treated early, hemodialysis may be avoided, but once severe acidosis and renal failure have occurred hemodialysis is necessary. Ethylene glycol is rapidly absorbed, and use of ipecac or gastric lavage is therefore not effective. Large amounts of activated charcoal will only bind to relatively small amounts of ethylene glycol, and the therapeutic window for accomplishing this is less than 1 hour.

Ref: Scalley RD, Ferguson DR, Picarro JC, et al: Treatment of ethylene glycol poisoning. *Am Fam Physician* 2002;66(5): 807-812. 2) Marx JA (ed): *Rosen's Emergency Medicine: Concepts and Clinical Practice*, ed 7. Mosby Elsevier, 2010, pp 2003-2007.

**Item 114**

**ANSWER: A**

It is recommended that metformin be avoided in patients with a creatinine level $>1.5$ mg/dL for men or $>1.4$ mg/dL for women. Glyburide has an active metabolite that is eliminated renally. This metabolite can accumulate in patients with chronic kidney disease, resulting in prolonged hypoglycemia. Acarbose should be avoided in patients with chronic kidney disease, as it has not been evaluated in these patients. Glipizide does not have an active metabolite, and is safe in patients with chronic renal disease.

Ref: Cavanaugh KL: Diabetes management issues for patients with chronic kidney disease. *Clinical Diabetes* 2007;25(3):90-97.

**Item 115**

**ANSWER: D**

In patients with a drug-eluting stent, combined therapy with clopidrogel and aspirin is recommended for 12 months because of the increased risk of late stent thrombosis. After this time, aspirin at a dosage of 75–165 mg/day is recommended. The minimum duration of combined therapy is 1 month for a bare metal stent, 3 months for a sirolimus-eluting stent, and 6 months for other drug-eluting stents.

Ref: Dehmer GJ, Smith KJ: Drug-eluting coronary artery stents. *Am Fam Physician* 2009;80(11):1245-1251, 1252-1253.

**Item 116**

**ANSWER: C**

Parkinson's disease and essential tremor are the primary concerns in a person of this age who presents with a new tremor. A coarse, resting, pill-rolling tremor is characteristic of Parkinson's disease. Essential tremor is primarily an action tremor and is a common movement disorder, occurring in members of the same family with a high degree of frequency. Alcohol intake will temporarily cause marked reduction in the tremor. β-Adrenergic blockers have been the mainstay of treatment for these tremors, but this patient is intolerant to these drugs. Primidone has been effective in the treatment of essential tremor, and in head-to-head studies with propranolol has been shown to be superior after 1 year. Levodopa in combination with carbidopa is useful in the treatment of parkinsonian tremor but not essential tremor.

Ref: Ropper AH, Samuels MA: *Adams and Victor's Principles of Neurology*, ed 9. McGraw-Hill, 2009, pp 90-92.

**Item 117**

**ANSWER: D**

When a medical error has been made, patients prefer that their physician disclose the error and offer an explanation of events. Withholding that information from a patient is not ethical and is counter to standards set forth by various organizations such as the Joint Commission on Accreditation of Health Care Organizations. Using the word "error" is acceptable and does not lead to an increase in litigation. In fact, there is no evidence that malpractice litigation rates increase when an error is admitted, and rates often decrease. Private-practice physicians are less likely to admit errors to patients. It is surmised that these physicians have less access to training in disclosure than those employed by hospitals or health care organizations.

Ref: Gallagher TH, Waterman AD, Garbutt JM, et al: US and Canadian physicians' attitudes and experiences regarding disclosing errors to patients. *Arch Intern Med* 2006;166(15):1605-1611.

**Item 118**

**ANSWER: D**

First-line therapies for urge urinary incontinence include behavioral therapy, such as pelvic muscle contractions, and anticholinergic therapy. Oral estrogen is not indicated. Noninvasive treatments should be tried initially. Urodynamic testing is indicated preoperatively. Stopping the hydrochlorothiazide would not be helpful, as it would not address the issue of detrusor instability.

Ref: Nygaard I: Clinical practice. Idiopathic urgency urinary incontinence. *N Engl J Med* 2010;363(12):1156-1162.

**Item 119**

**ANSWER: C**

The ADA recommends testing to detect type 2 diabetes mellitus in asymptomatic adults with a BMI $\geq 25$ kg/m$^2$ and one or more additional risk factors. Risk factors include physical inactivity, hypertension, an HDL-cholesterol level $< 35$ mg/dL, a triglyceride level $> 250$ mg/dL, a history of cardiovascular disease, a hemoglobin $A_{1c} \geq 5.7\%$, a history of gestational diabetes or delivery of an infant weighing $> 4$ kg (9 lb), and a history of polycystic ovary syndrome.

Diabetes mellitus can be diagnosed if the patient's fasting blood glucose level is $\geq 126$ mg/dL on two separate occasions. It can also be diagnosed if a random blood glucose level is $\geq 200$ mg/dL if classic symptoms of diabetes are present. A fasting blood glucose level of 100–125 mg/dL, a glucose level of 140–199 mg/dL 2 hours following a 75-g glucose load, or a hemoglobin $A_{1c}$ of 5.7%–6.9% signifies impaired glucose tolerance. Patients meeting these criteria have a significantly higher risk of progression to diabetes and should be counseled about lifestyle modifications such as weight loss and exercise.

Ref: Patel P, Macerollo A: Diabetes mellitus: Diagnosis and screening. *Am Fam Physician* 2010;81(7):863-870.

**Item 120**

**ANSWER: C**

Causes of low back pain include vertebral disk herniation and spinal stenosis. Numbness and muscle weakness may be present in both. Pain from spinal stenosis is relieved by sitting and aggravated by standing, whereas the opposite is true for pain from a herniated disk.

Ref: Chou R, Qaseem A, Snow V, Casey D, 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. 2) Haig AJ, Tomkins CC: Diagnosis and management of lumbar spinal stenosis. *JAMA* 2010;303(1):71-72. 3) Abraham P, Ouedraogo N, Leftheriotis G: Diagnosing lumbar spinal stenosis. *JAMA* 2010;303(15):1479-1480.

**Item 121**

**ANSWER: D**

Community-acquired methicillin-resistant *Staphylococcus aureus* (MRSA) is resistant to β-lactam and macrolide antibiotics, and is showing increasing resistance to fluoroquinolones. FDA-approved treatments include clindamycin and doxycycline. Other commonly used treatments include minocycline and trimethoprim/sulfamethoxazole.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 2152, 2170.

**Item 122**

**ANSWER: C**

In 2008, the American Academy of Pediatrics increased its recommended daily intake of vitamin D in infants, children, and adolescents to 400 IU/day (SOR C). Breastfeeding does not provide adequate levels of vitamin D. Exclusive formula feeding probably provides adequate levels of vitamin D, but infants who consume less than 1 liter of formula per day need supplementation with 400 IU of vitamin D daily. Vitamin D supplementation should be started within the first 2 months of birth.

Ref: Wagner CL, Greer FR: American Academy of Pediatrics Section on Breastfeeding; American Academy of Pediatrics Committee on Nutrition: Prevention of rickets and vitamin D deficiency in infants, children, and adolescents. *Pediatrics* 2008;122(5):1142-1152. 2) Casey CF, Slawson DC, Neal LR: Vitamin D supplementation in infants, children, and adolescents. *Am Fam Physician* 2010;81(6):745-748. 3) Insititute of Medicine: *Dietary Reference Intakes for Calcium and Vitamin D*. The National Academies Press, 2011.

**Item 123**

**ANSWER: A**

Although dietary management may be appropriate, a weight reduction diet is not likely to improve this patient's cardiovascular outcome. In fact, even if this person were obese, there is insufficient evidence that weight reduction would decrease his cardiovascular mortality (SOR C). There is good evidence that the other options, even β-blockers in a patient with normal blood pressure, are indicated. All of these measures have evidence to support their usefulness for secondary prevention of coronary artery disease (SOR A).

Ref: Walker C, Reamy BV: Diets for cardiovascular disease prevention: What is the evidence? *Am Fam Physician* 2009;79(7):571-578. 2) Hall SL, Lorenc T: Secondary prevention of coronary artery disease. *Am Fam Physician* 2010;81(3):289-296.

**Item 124**

**ANSWER: A**

Selective serotonin reuptake inhibitors (SSRIs) such as sertraline have the broadest range of efficacy in treating posttraumatic stress disorder (PTSD) since they are able to reduce all three clusters of PTSD symptoms. Studies on the effectiveness of tricyclic antidepressants such as amitriptyline demonstrate modest lessening of the symptoms of reexperiencing, with minimal or no effect on avoidance or arousal symptoms. Patients treated with monoamine oxidase inhibitors such as phenelzine have shown moderate to good improvement in reexperiencing and avoidance symptoms, but little improvement in hyperarousal. Benzodiazepines such as alprazolam have been used to treat PTSD, but their efficacy against the major symptoms has not been proven in controlled studies.

Ref: Jeffereys M: *Clinician's Guide to Medications for PTSD*. National Center for PTSD, US Dept of Veterans Affairs, 2009.

**Item 125**

**ANSWER: A**

Students with uncontrolled stage 2 hypertension should not participate in sports associated with static exercise, in which the blood pressure load is more significantly increased (SOR C). Rowing involves both a high static and a high dynamic load. Soccer, tennis, fencing, and baseball have relatively few static exercise components and blood pressure spikes are less likely.

Ref: McCambridge TM, Benjamin HJ, Brenner JS: Council on Sports Medicine and Fitness: Athletic participation by children and adolescents who have systemic hypertension. *Pediatrics* 2010;125(6):1287-1294.

**Item 126**

**ANSWER: C**

Psychomotor agitation is experienced by most patients during alcohol withdrawal. Benzodiazepines are clearly the drug class of choice. Providing medication on an as-needed basis rather than on a fixed schedule is generally preferred. Antipsychotics and butyrophenones (including haloperidol) lower the seizure threshold and should not be used. For short-term management of status epilepticus, anticonvulsants may be used in conjunction with benzodiazepines. The vast majority of seizures from withdrawal are self-limited and do not require anticonvulsant treatment. Clonidine and other $\alpha_2$-agonists do reduce minor symptoms of withdrawal, but have not been shown to prevent seizures. The effectiveness of baclofen in acute alcohol withdrawal is unknown.

Ref: Kosten TR, O'Connor PG: Management of drug and alcohol withdrawal. *N Engl J Med* 2003;348(18):1786-1795. 2) Bayard M, McIntyre J, Hill KR, Woodside J Jr: Alcohol withdrawal syndrome. *Am Fam Physician* 2004;69(6):1443-1450. 3) Ricks J, Replogle WH, Cook NJ: FPIN's Clinical Inquiries. Management of alcohol withdrawal syndrome. *Am Fam Physician* 2010;82(4):344-347.

**Item 127**

**ANSWER: D**

Microscopic examination of synovial fluid in a patient suffering an acute attack of pseudogout shows large numbers of polymorphonuclear leukocytes. Calcium pyrophosphate dihydrate crystals are frequently found extracellularly and in polymorphonuclear leukocytes. When viewed with polarized light, the crystals appear as short, blunt rods, rhomboids, and cuboids. The diagnosis is made by finding typical crystals under compensated polarized light and is supported by radiographic evidence of chondrocalcinosis.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 2075-2078.

**Item 128**

**ANSWER: A**

According to the American Diabetes Association, the goal for patients with type 2 diabetes mellitus is to achieve a hemoglobin $A_{1c}$ of $<7.0\%$ (SOR C). This patient has achieved this goal, and there is no indication for changes in his management.

Ref: American Diabetes Association: Standards of medical care in diabetes—2011. *Diabetes Care* 2011;34(Suppl 1):S19-S21.

**Item 129**

**ANSWER: E**

The diagnosis of giardiasis is suggested by its most characteristic symptoms: foul-smelling, soft, or loose stools; foul-smelling flatus; belching; marked abdominal distention; and the virtual absence of mucus or blood in the stool. Stools are usually mushy between exacerbations, though constipation may occur. If eosinophilia occurs, it is more likely to be related to some other concomitant cause rather than to giardiasis.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, pp 1311-1313.

**Item 130**

**ANSWER: D**

*Pasteurella* species are isolated from up to 50% of dog bite wounds and up to 75% of cat bite wounds, and the hand is considered a high-risk area for infection (SOR A). Although much more rare, *Capnocytophaga canimorsus*, a fastidious gram-negative rod, can cause bacteremia and fatal sepsis after animal bites, especially in asplenic patients or those with underlying hepatic disease. Anaerobes isolated from dog and cat bite wounds include *Bacteroides*, *Fusobacterium*, *Porphyromonas*, *Prevotella*, *Propionibacterium* and *Peptostreptococcus*.

In addition to animal oral flora, human skin flora are also important pathogens, but are less commonly isolated. These can include streptococci and staphylococci, including methicillin-resistant *Staphylococcus aureus* (MRSA). Coverage for MRSA may be especially important if the patient has risk factors for colonization with community-acquired MRSA. Pets can also become colonized with MRSA and transmit it via bites and scratches.

Cat bites that become infected with *Pasteurella multocida* can be complicated by cellulitis, which may form around the wound within 24 hours and is often accompanied by redness, tenderness, and warmth. The use of prophylactic antibiotics is associated with a statistically significant reduction in the rate of infection in hand bites (SOR A). If infection develops and is left untreated, the most common complications are tenosynovitis and abscess formation; however, local complications can include septic arthritis and osteomyelitis. Fever, regional adenopathy, and lymphangitis are also seen.

Ref: Garcia VF: Animal bites and *Pasteurella* infections. *Pediatr Rev* 1997;18(4):127-130. 2) Talan DA, Citron DM, Abrahamian FM, et al: Bacteriologic analysis of infected dog and cat bites. Emergency Medicine Animal Bite Infection Study Group. *N Engl J Med* 1999;340(2):85-92. 3) Medeiros IM, Saconato H: Antibiotic prophylaxis for mammalian bites. *Cochrane Database Syst Rev* 2001;(2):CD001738. 4) Rabinowitz PM, Gordon Z, Odofin L: Pet-related infections. *Am Fam Physician* 2007;76(9):1314-22. 5) Sing A, Tuschak C, Hörmansdorfer S: Methicillin-resistant *Staphylococcus aureus* in a family and its pet cat. *N Engl J Med* 2008;358(11):1200-1201.

**Item 131**

**ANSWER: E**

The epidemiology of group A streptococcal disease of the perineum is similar to that of group A streptococcal pharyngitis, and the two often coexist. It is theorized that either auto-inoculation from mouth to hand to perineum occurs, or that the bacteria is transmitted through the gastrointestinal tract. In one study, the average age of patients with this disease varied from 1 to 11 years, with a mean of 5 years. Girls and boys were almost equally affected. The incidence is estimated to be about 1 in 200 pediatric visits and peaks in March, April, and May in North America. The condition usually presents with itching and a beefy redness around the anus and/or vulva and will not clear with medications used to treat candidal infections.

Ref: Mogielnicki NP, Schwartzman JD, Elliott JA: Perineal group A streptococcal disease in a pediatric practice. *Pediatrics* 2000;106(2 Pt 1):276-281. 2) Habif TP: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy*, ed 5. Mosby Elsevier, 2010, p 348. 3) Kliegman RM, Stanton BF, Geme JW III, et al (eds): *Nelson Textbook of Pediatrics*, ed 19. Elsevier Saunders, 2011, pp 916-917.

**Item 132**

**ANSWER: C**

The majority of patients presenting with spontaneous pneumothorax are tall, thin individuals under 40 years of age. Most do not have clinically apparent lung disease, and the chest pain is sometimes minimal at the time of onset and may resolve within 24 hours even if untreated. Patients with small pneumothoraces involving $< 15\%$ of the hemithorax may have a normal physical examination, although tachycardia is occasionally noted. The diagnosis is confirmed by chest radiographs. When a pneumothorax is suspected but not seen on a standard chest film, an expiratory film may be obtained to confirm the diagnosis.

Studies have found that an average of 30% of patients will have a recurrence within 6 months to 2 years. An initial pneumothorax of $< 20\%$ may be monitored if the patient has few symptoms. Follow-up should include a chest radiograph to assess stability at 24–48 hours. Indications for treatment include progression, delayed expansion, or the development of symptoms. The majority of patients with spontaneous pneumothoraces, and perhaps almost all of them, will have subcutaneous bullae on a CT scan.

Ref: Marx JA (ed): *Rosen's Emergency Medicine: Concepts and Clinical Practice*, ed 7. Mosby Elsevier, 2010, pp 942-943.

**Item 133**

**ANSWER: D**

A systematic review is a literature review focused on a research question that tries to identify, appraise, select, and synthesize all high-quality research evidence relevant to that question. A randomized, controlled trial (RCT) involves a group of patients who are randomized into an experimental group and a control group. These groups are followed for the outcomes of interest. The process of randomization minimizes bias and is thus the individual study type that is most likely to provide accurate results about an intervention's effectiveness.

A cohort study is a nonexperimental study design that follows a group of people (a cohort), and then looks at how events differ among people within the group. A study that examines a cohort of persons who differ in respect to exposure to some suspected risk factor such as smoking is useful for trying to ascertain whether exposure is likely to cause specified events such as lung cancer. This study design is less reliable due to inherent biases that may not be accounted for and may exist in the groupings of patients.

Retrospective and prospective case-control studies compare people with a disease or specific diagnosis with people who do not have the disease. The groups are studied to find out if other characteristics are also different between the two groups. This type of study often overestimates the benefit of a trial and is of lower quality than a randomized, controlled trial.

Ref: OCEBM Table of Evidence Working Group: The Oxford 2011 Table of Evidence. Oxford Centre for Evidence-Based Medicine, 2009. 2) Shaughnessy AF: Evaluating and understanding articles about treatment. *Am Fam Physician* 2009;79(8):668-670.

**Item 134**

**ANSWER: B**

Acid laryngitis is a group of respiratory symptoms related to gastroesophageal reflux disease. The symptoms of hoarseness (especially in the morning), a repeated need to clear the throat, and nocturnal or early morning wheezing may occur singly or in varying combinations, and are believed to be caused by gastric contents irritating the larynx and hypopharynx. Thyroid disease, sinusitis, and tracheal stenosis can produce one or more of the symptoms described, but not all of them.

Ref: Feldman M, Friedman LS, Brandt LJ: *Sleisenger and Fordtran's Gastrointestinal and Liver Disease*, ed 9. Saunders, 2010, pp 179-181.

**Item 135**

**ANSWER: A**

Latex allergy management includes preventing exposure and treating reactions. Patients with latex allergy can reduce their risk of exposure by avoiding direct contact with common latex products. Additionally, they should be aware of foods with crossreactive proteins. Foods that have the highest association with latex allergy include avocados, bananas, chestnuts, and kiwi. Walnuts, shellfish, strawberries, and wheat have low or undetermined associations.

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

**Item 136**

**ANSWER: D**

The cardiac toxicity of methadone is primarily related to QT prolongation and torsades de pointes.

Ref: Death, narcotic overdose, and serious cardiac arrhythmias. FDA Alert, 2006.

**Item 137**

**ANSWER: D**

Diagnosis and appropriate treatment of genital herpes during pregnancy is particularly important because of the high mortality in neonates who contract herpes during delivery and then develop disseminated infection. In those who survive, there is a very high risk of serious neurologic sequelae.

HSV is acquired by deposition of the virus on a break in the skin or mucous membranes during close physical contact with an infected person. Neonatal infection most commonly results from transmission via the birth canal, although transplacental transmission can occur. The risk of HSV infection in the neonate is higher during an episode of primary genital herpes than during a recurrent episode.

DNA polymerase chain reaction testing is 95% sensitive as long as an ulcer is present, and has a specificity of 90%. The diagnosis is established by culturing the virus from an infected lesion. A Tzanck prep and Papanicolaou smear can detect cellular changes, but both have low sensitivity. Serologic diagnosis is mainly an epidemiologic tool and has limited clinical usefulness. Cultures of the virus by amniocentesis have shown both false-positive and false-negative results.

Ref: Sen P, Barton SE: Genital herpes and its management. *BMJ* 2007;334(7602):1048-1052. 2) Gabbe SG, Niebyl JR, Simpson JL (eds): *Obstetrics: Normal and Problem Pregnancies*, ed 5. Churchill Livingstone, 2007, pp 1219-1221.

**Item 138**

**ANSWER: B**

*Pseudomonas* organisms have been associated with outbreaks of otitis externa, dermatitis, and folliculitis in persons using swimming pools and hot tubs.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, p 2956. 2) Habif TP: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy*, ed 5. Mosby Elsevier, 2010, pp 363-365.

**Item 139**

**ANSWER: E**

This patient's symptoms and laboratory findings suggest a significant lack of TSH despite low levels of circulating thyroid hormone. This is diagnostic of secondary hypothyroidism. Such findings should prompt a workup for a pituitary or hypothalamic deficiency that is causing a lack of TSH production. Primary hypothyroidism, such as Hashimoto's thyroiditis, would be evidenced by an elevated TSH and low (or normal) $T_4$. Graves' disease is a cause of hyperthyroidism, which would be expected to increase $T_4$ levels, although low TSH with a normal $T_4$ level may be present. Some nonthyroid conditions such as malnutrition may suppress $T_4$. In such cases the TSH would be elevated or normal. This patient has gained weight, which does not coincide with malnutrition. The patient does not have the thyroid gland enlargement seen with goiter.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, pp 2229-2233. 2) McPHee SJ, Papadakis MA (eds): *Current Medical Diagnosis and Treatment*, ed 50. McGraw-Hill Co, 2011, pp 1061-1069.

**Item 140**

**ANSWER: A**

Atrial fibrillation is the most common arrhythmia, and its prevalence increases with age. The major risk with atrial fibrillation is stroke, and a patient's risk can be determined by the $CHADS_2$ score. CHADS stands for Congestive heart failure, Hypertension, Age >75, Diabetes mellitus, and previous Stroke or transient ischemic attack. Each of these is worth 1 point except for stroke, which is worth 2 points. A patient with 4 or more points is at high risk, and 2–3 points indicates moderate risk. Having ≤1 point indicates low risk, and this patient has 0 points.

Low-risk patients should be treated with aspirin, 81–325 mg daily (SOR B). Moderate- or high-risk patients should be treated with warfarin. Amiodarone is used for rate control, and clopidogrel is used for vascular events not related to atrial fibrillation.

Ref: Gutierrez C, Blanchard DG: Atrial fibrillation: Diagnosis and treatment. *Am Fam Physician* 2011;83(1):61-68.

**Item 141**

**ANSWER: A**

Constipation is one adverse effect of opioid treatment that does not diminish with time. Thus, this effect should be anticipated, and recommendations for prevention and treatment of constipation should be discussed when initiating opioids. Nausea and vomiting, mental status changes, sedation, and pruritus are also common with the initiation of opioid treatment, but these symptoms usually diminish with time, and can be managed expectantly.

Ref: Clary PL, Lawson P: Pharmacologic pearls for end-of-life care. *Am Fam Physician* 2009;79(12):1059-1065.

**Item 142**

**ANSWER: D**

Lung cancer is the leading cause of cancer-related deaths in the United States. In 2006, lung cancer caused more deaths than colorectal, breast, and prostate cancers combined.

Ref: Collins LG, Haines C, Perkel R, et al: Lung cancer: Diagnosis and management. *Am Fam Physician* 2007;75(1):56-63.

**Item 143**

**ANSWER: E**

Aspirin was once the best initial therapy for rheumatoid arthritis and then NSAIDs became the preferred treatment. Now, however, disease-modifying drugs such as methotrexate are the best choice for initial therapy. Aspirin and NSAIDs are no longer considered first-line treatment because of concerns about their limited effectiveness, inability to modify the long-term course of the disease, and gastrointestinal and cardiotoxic effects. Glucocorticoids such as prednisone are often useful, but have significant side effects. Biologic agents such as rituximab are expensive and have significantly more side effects than methotrexate.

Ref: Scott DL, Wolfe F, Huizinga TWJ: Rheumatoid arthritis. *Lancet* 2010;376(9746):1094-1108.

**Item 144**

**ANSWER: E**

Respiratory viruses appear to be the most common cause of acute bronchitis; however, the organism responsible is rarely identified in clinical practice because viral cultures and serologic assays are not routinely performed. Fewer than 10% of patients will have a bacterial infection diagnosed as the cause of bronchitis. For this reason, for patients with a putative diagnosis of acute bronchitis, routine treatment with antibiotics is not justified and should not be offered. Antitussive agents are occasionally useful and can be offered as therapy for short-term symptomatic relief of coughing.

Ref: Braman SS: Chronic cough due to acute bronchitis: ACCP evidence-based clinical practice guidelines. *Chest* 2006;129(1 Suppl):95S-103S.

**Item 145**

**ANSWER: A**

Insulin and glucose intravenously will provide the fastest and most consistent early lowering of serum potassium (SOR C). Calcium is important for arrhythmia prevention, but does not lower the potassium level. Sodium polystyrene sulfonate given orally or rectally will only lower potassium in a delayed fashion.

Ref: Carvalhana V, Burry L, Lapinsky SE: Management of severe hyperkalemia without hemodialysis: Case report and literature review. *J Crit Care* 2006;21(4):316-321. 2) Brenner BM (ed): *Brenner & Rector's The Kidney*, ed 8. Saunders Elsevier, 2007, pp 573-578. 3) Weiberg LS: Management of severe hyperkalemia. *Crit Care Med* 2008;36(12):3246-3251.

**Item 146**

**ANSWER: E**

Trimethoprim/sulfamethoxazole is the treatment of choice for acute *Pneumocystis* pneumonia. Adjunctive corticosteroids should also be started in any patient whose initial $pO_2$ on room air is $< 70$ mm Hg. Three prospective trials have shown that there is a decrease in mortality and frequency of respiratory failure when corticosteroids are used in addition to antibiotics. All of the other medications listed are effective therapy for *Pneumocystis* pneumonia, but they do not need to be given with trimethoprim/sulfamethoxazole.

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 1858-1874.

**Item 147**

**ANSWER: E**

Current evidence indicates that traditional sliding-scale insulin as the only means of controlling glucose in hospitalized patients is inadequate. For patients in a surgical intensive-care unit, using an insulin drip to maintain tight glucose control decreases the risk of sepsis but has no mortality benefit. Metformin should be stopped if the serum creatinine level is ≥1.5 mg/dL in men or ≥1.4 mg/dL in women, or if an imaging procedure requiring contrast is needed. In patients who have not had their hemoglobin $A_{1c}$ measured in the past 30 days, this could be done to provide a better indication of glucose control. If adequate control has been demonstrated and no contraindications are noted, the patient's usual medication regimen should be continued (SOR B).

Ref: Nau KC, Lorenzetti RC, Cucuzella M, et al: Glycemic control in hospitalized patients not in intensive care: Beyond sliding-scale insulin. *Am Fam Physician* 2010;81(9):1130-1135.

**Item 148**

**ANSWER: E**

Fracture of the scaphoid should be suspected in every "sprained wrist" presenting with tenderness in the anatomic snuffbox. Radiographs may be negative initially. The scaphoid circulation enters the bone for the most part through the distal half. Fractures through the proximal third tend to cause loss of circulation and are slower to heal, and should be referred to an orthopedist because of the risk of nonunion and avascular necrosis. Fractures through the middle or distal one-third can be handled by the family physician in consultation with an orthopedist. The fracture is treated with a thumb spica cast for 10–12 weeks. A wrist splint does not provide adequate immobilization. A bone scan is unnecessary, and physical therapy is inappropriate. If there is still no evidence of union after 10 weeks of immobilization, the patient should be referred to an orthopedist for further care.

Ref: McKeag K, Moeller J (eds): *ACSM Primary Care Sports Medicine*, ed 2. Lippincott, Williams & Wilkins, 2007, p 410.

**Item 149**

**ANSWER: B**

The decision to utilize the Medicare hospice benefit is reversible, and patients may elect to return to Medicare Part A. Individuals who reside in nursing homes and assisted-living facilities are eligible for the Medicare hospice benefit. Patients with end-stage Alzheimer's disease are eligible for the Medicare hospice benefit if they meet criteria for hospice. If the patient lacks decision-making capacity, a family member or guardian may elect the Medicare hospice benefit for the patient. The patient must be certified by the hospice medical director and primary physician to have a life expectancy of less than 6 months to qualify for hospice services. This requirement is the same whether or not the patient resides in a nursing home.

Ref: Pan CX, Russo DJ: Hospice as a care option in long-term skilled nursing care. *Ann Longterm Care* 2010;18(12):32-37.

**Item 150**

**ANSWER: A**

According to CDC guidelines, the initial workup for urethritis in men includes gonorrhea and *Chlamydia* testing of the penile discharge or urine, urinalysis with microscopy if no discharge is present, VDRL or RPR testing for syphilis, and HIV and hepatitis B testing. Empiric treatment for men with a purulent urethral discharge or a positive urine test (positive leukocyte esterase or ≥10 WBCs/hpf in the first-void urine sediment) includes azithromycin, 1 g orally as a single dose, OR doxycycline, 100 mg orally twice a day for 7 days, PLUS ceftriaxone, 125 mg intramuscularly, OR cefixime, 400 mg orally as a single dose.

If the patient presents with the same complaint within 3 months, and does not have a new sexual partner, the tests obtained at his first visit should be repeated, and consideration should be given to obtaining cultures for *Mycoplasma* or *Ureaplasma* and *Trichomonas* from the urethra or urine. Treatment should include azithromycin, 500 mg orally once daily for 5 days, or doxycycline, 100 mg orally twice daily for 7 days, plus metronidazole, 2 g orally as a single dose.

Ref: Brill JR: Diagnosis and treatment of urethritis in men. *Am Fam Physician* 2010;81(7):873-878. 2) Workowski KA, Berman S; Centers for Disease Control and Prevention (CDC): Sexually transmitted diseases treatment guidelines, 2010. *MMWR Recomm Rep* 2010;59(RR-12):42-43.

**Item 151**

**ANSWER: B**

Two doses of varicella vaccine are recommended for all children unless they are immunocompromised, in which case they should not be immunized against varicella, or with other live-virus vaccines.

Shingles is evidence of prior varicella infection and is a reason not to vaccinate with varicella vaccine.

Ref: Zimmerman RK, Middleton DB, Burns IT, et al: Routine vaccines across the life span, 2007. *J Fam Pract* 2007;56(2 Suppl Vaccines):S18-S37.

**Item 152**

**ANSWER: D**

The black box warning for thiazolidinediones specifically addresses heart failure. These agents are also contraindicated in patients with type 1 diabetes mellitus or hepatic disease, and in premenopausal anovulatory women.

Ref: Nathan DM, Buse JB, Davidson MB, et al: Management of hyperglycemia in type 2 diabetes: A consensus algorithm for the initiation and adjustment of therapy. Update regarding thiazolidinediones: A consensus statement from the American Diabetes Association and the European Association for the Study of Diabetes. *Diabetes Care* 2008;31(1):173-175.

**Item 153**

**ANSWER: B**

The treatment for otitis media is evolving. Recommendations by the American Academy of Family Physicians and the American Academy of Pediatrics advocate a 10-day course of antibiotics for children under the age of 2 years if the diagnosis is certain. If the diagnosis is not certain and the illness is not severe, there is an option of observation with follow-up. For children over the age of 2 years, the recommendation is still to treat if the diagnosis is certain, but there is an option of observation and follow-up if the illness is not severe and follow-up can be guaranteed.

Amoxicillin is the first-line therapy; the recommended dosage is 80–90 mg/kg/day in two divided doses, which increases the concentration of amoxicillin in the middle ear fluid to help with resistant *Pneumococcus*.

Azithromycin, because of a broader spectrum and potential for causing resistance, is not considered the treatment of first choice. Treatment regimens ranging from 5 to 7 days are appropriate for selected children over the age of 5 years.

Oral decongestants and antihistamines are not recommended for children with acute otitis media.

Ref: Neff MJ; AAP; AAFP; AAO-HNS: AAP, AAFP, AAO-HNS release guideline on diagnosis and management of otitis media with effusion. *Am Fam Physician* 2004;69(12):2929-2931. 2) Coleman C, Moore M: Decongestants and antihistamines for acute otitis media in children. *Cochrane Database Syst Rev* 2008;(3):CD001727. 3) Hoberman A, Paradise JL, Rockette HE, et al: Treatment of otitis media in children under 2 years of age. *N Engl J Med* 2011;364(2):105-115.

**Item 154**

**ANSWER: E**

In breastfeeding women, bilateral nipple pain with and between feedings after initial soreness has resolved is usually due to *Candida*. Pain from engorgement typically resolves after feeding. Mastitis is usually unilateral and is associated with systemic symptoms and wedge-shaped erythema of the breast tissue. Improper latch-on is painful only during feedings. Eczema isolated to the nipple, while a reasonable part of the differential, would be much more unusual.

Ref: Jatoi I, Kaufman M (eds): *Management of Breast Diseases*. Springer, 2010, pp 95-96.

**Item 155**

**ANSWER: A**

Azithromycin has been shown to reduce the duration of lymphadenopathy in cat-scratch disease (SOR B). Other antibiotics that have been used include rifampin, ciprofloxacin, trimethoprim/sulfamethoxazole, and gentamicin. Ceftriaxone, amoxicillin/clavulanate, doxycycline, and clindamycin are not effective in the treatment of *Bartonella* infection.

Ref: Klotz SA, Ianas V, Elliott SP: Cat-scratch disease. *Am Fam Physician* 2011;83(2):152-155.

**Item 156**

**ANSWER: C**

The current (2004) recommendation of the U.S. Preventive Services Task Force (USPSTF) is that children over the age of 6 months receive oral fluoride supplementation if the primary drinking water source is deficient in fluoride. The USPSTF cites "fair" evidence (B recommendation) that such supplementation reduces the incidence of dental caries and concludes that the overall benefit outweighs the potential harm from dental fluorosis.

Dental fluorosis is chiefly a cosmetic staining of the teeth, is uncommon with currently recommended fluoride intake, and has no other functional or physiologic consequences. Fluoridated toothpaste can cause fluorosis in children younger than 2 years of age, and is therefore not recommended in this age group. Fluoridated toothpaste by itself does not reliably prevent tooth decay.

Fluoride varnish, applied by a dental or medical professional, is another treatment option to prevent caries. It provides longer-lasting protection than fluoride rinses, but since it is less concentrated, it may carry a lower risk of fluorosis than other forms of supplementation.

Oral fluoride supplementation for children over the age of 6 months is based not only on age but on the concentration of fluoride in the primary source of drinking water, whether it be tap water or bottled water. Most municipal water supplies in the United States are adequately fluoridated, but concentrations vary. Fluoride concentrations in bottled water vary widely. If the concentration is $>0.6$ ppm no supplementation is needed, and may result in fluorosis if given. Lower concentrations of fluoride may indicate the need for partial or full-dose supplementation.

Ref: Recommendations for using fluoride to prevent and control dental caries in the United States. *MMWR* 2001;50(RR-14):1-42. 2) US Preventive Services Task Force: Prevention of dental caries in preschool children: Recommendations and rationale. *Am Fam Physician* 2004;70(8):1529-1532. 3) Riley M, Locke AB, Skye EP: Health maintenance in school-aged children: Part I. History, physical examination, screening, and immunizations. *Am Fam Physician* 2011;83(6):683-688.

**Item 157**

**ANSWER: B**

An enlarged tongue (macroglossia) may be part of a syndrome found in developmental conditions such as Down syndrome, or may be caused by a tumor (hemangioma or lymphangioma), metabolic diseases such as primary amyloidosis, or endocrine disturbances such as acromegaly or cretinism. A "bald" tongue may be associated with xerostomia, pernicious anemia, iron deficiency anemia, pellagra, or syphilis.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 219.

**Item 158**

**ANSWER: B**

This child is experiencing simple breath-holding spells, a relatively common and benign condition that usually begins in children between the ages of 6 months and 6 years. The cause is uncertain but seems to be related to overactivity of the autonomic nervous system in association with emotions such as fear, anger, and frustration. The episodes are self-limited and may be associated with pallor, cyanosis, and loss of conciousness if prolonged. There may be an association with iron deficiency anemia, but this child had a recent normal hemoglobin level.

These events are not volitional, so disciplinary methods are neither effective nor warranted. While children may experience a loss of consciousness and even exhibit some twitching behavior, the episodes are not seizures so neither EEG evaluation nor anticonvulsant therapy is indicated. No additional laboratory studies are indicated. Parents should be reassured that the episodes are benign and will resolve without treatment.

Ref: Rudolph CD, Rudolph AM, Lister G, et al (eds): *Rudolph's Pediatrics*, ed 22. McGraw-Hill, 2011, p 2223.

**Item 159**

**ANSWER: D**

This patient has classic symptoms of allergic rhinitis. Intranasal corticosteroids are considered the mainstay of treatment for mild to moderate cases. In multiple studies, intranasal corticosteroid sprays have proven to be more efficacious than the other options listed, even for ocular symptoms. Air filtration systems and bedding covers have not been shown to reduce symptoms.

Ref: Sur DK, Scandale S: Treatment of allergic rhinitis. *Am Fam Physician* 2010;81(12):1440-1446.

**Item 160**

**ANSWER: A**

This woman most likely has primary hyperparathyroidism due to a parathyroid adenoma or hyperplasia. Secondary hyperparathyroidism is unlikely with normal renal function, a normal vitamin D level, and hypercalcemia. Likewise, tertiary hyperparathyroidism is unlikely with normal renal function. The parathyroid hormone level is suppressed with hypercalcemia associated with bone metastases. Parathyroid hormone–related protein, produced by cancer cells in humoral hypercalcemia of malignancy, is not detected by the assay for parathyroid hormone.

Ref: Bilezikian JP, Silverberg SJ: Asymptomatic primary hyperparathyroidism. *N Engl J Med* 2004;350(17):1746-1751. 2) Melmed S, Polonsky KS, Larsen PR, Kronenberg HM (eds): *Williams Textbook of Endocrinology*, ed 12. Elsevier Saunders, 2011, pp 1260-1269.

**Item 161**

**ANSWER: E**

Uncomplicated hypertension is frequently detected in the emergency department. Many times this is a chronic condition, but it also may result from an acutely painful situation. Hypertensive emergencies, defined as severe blood pressure elevations to $>180/120$ mm Hg complicated by evidence of impending or worsening target organ dysfunction, warrant emergent treatment. There is no evidence, however, to suggest that treatment of an isolated blood pressure elevation in the emergency department is linked to a reduction in overall risk. In fact, the aggressive reduction of blood pressure with either intravenous or oral agents is not without potential risk.

The appropriate management for the patient in this scenario is simply to discharge her and ask her to follow up with you in the near future.

Ref: American College of Emergency Physicians Clinical Policies Subcommittee (Writing Committee) on Asymptomatic Hypertension in the ED: Clinical policy: Critical issues in the evaluation and management of adult patients with asymptomatic hypertension in the emergency department. *Ann Emerg Med* 2006;47(3):237-249.

**Item 162**

**ANSWER: E**

This child has typical findings of bronchiolitis. The initial infection usually occurs by the age of 2 years. It is caused by respiratory syncytial virus (RSV). Bronchodilator treatment may be tried once and discontinued if there is no improvement. Treatment usually consists of supportive care only, including oxygen and intravenous fluids if indicated (SOR B). Corticosteroids, antibiotics, and decongestants are of no benefit. RSV infection may recur, since an infection does not provide immunity. Up to 10% of infected children will have wheezing past age 5, and bronchiolitis may predispose them to asthma.

Ref: Dawson-Caswell M, Muncie HL Jr: Respiratory syncytial virus infection in children. *Am Fam Physician* 2011;83(2):141-146.

**Item 163**

**ANSWER: D**

Contraindications to insertion of the levonorgestrel intrauterine system (LNG-IUS) include uterine anomalies, postpartum endometritis, untreated cervicitis, and current pelvic inflammatory disease. Nulliparity may increase discomfort during insertion but is not a contraindication. Levonorgestrel is a synthetic progestin and is not associated with an increased risk of deep vein thrombosis. It also is not associated with any adverse effect on quantity or quality of milk in breastfeeding women, and has no adverse effects on the infant. The LNG-IUS is not contraindicated in patients with endometriosis, and there is some evidence that it may improve symptom scores in these women.

Ref: Lockhat FB, Emembolu JO, Konje JC: The evaluation of the effectiveness of an intrauterine-administered progestogen (levonorgestrel) in the symptomatic treatment of endometriosis and in the staging of the disease. *Hum Reprod* 2004;19(1):179-184. 2) Paladine HL, Blenning CE, Judkins DZ, Mittal S: What are contraindications to IUDs? *J Fam Pract* 2006:55(8):726-729.

**Item 164**

**ANSWER: C**

For men older than 65 years of age with small-volume, low-grade disease and a 10- to 15-year life expectancy, the risk of complications from treatment outweighs any decreased risk of dying from prostate cancer. Radiation, androgen deprivation therapy, and surgical approaches have not been shown to improve disease-free survival (SOR A).

Ref: Delbanco T, Albertsen PC: Update: A 72-year-old man with localized prostate cancer—14 years later. *JAMA* 2009;302(10):1105-1106.

**Item 165**

**ANSWER: D**

The sudden onset of severe abdominal pain, vomiting, and diarrhea in a patient with a cardiac source of emboli and evidence of a separate embolic event makes superior mesenteric artery embolization likely. In this case, evidence of a brachial artery embolus and a cardiac rhythm indicating atrial fibrillation suggest the diagnosis. Some patients may have a surprisingly normal abdominal examination in spite of severe pain. Microscopic hematuria and blood in the stool may both occur with embolization, and severe leukocytosis is present in more than two-thirds of patients with this problem. Diagnostic confirmation by angiography is recommended. Immediate embolectomy with removal of the propagated clot can then be accomplished and a decision made regarding whether or not the intestine should be resected. A second procedure may be scheduled to reevaluate intestinal viability.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 1910-1912.

**Item 166**

**ANSWER: A**

The threshold for prophylactic platelet transfusion is 10,000/μL (SOR A). Platelet transfusion decreases the risk of spontaneous bleeding in such patients. A count below 50,000/μL is an indication for platelet transfusion in patients undergoing an invasive procedure.

Ref: Slichter SJ: Evidence-based platelet transfusion guidelines. *Hematology Am Soc Hematol Educ Program* 2007:172-178. 2) Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, p 709.

**Item 167**

**ANSWER: E**

Ibandronate, raloxifene, denosumab, and etidronate have been shown to reduce new vertebral fractures, but are not proven to prevent hip fracture. Only zoledronic acid, risedronate, and alendronate have been confirmed in sufficiently powered studies to prevent hip fracture, and these are the anti-osteoporosis drugs of choice.

Ref: Favus MJ: Bisphosphonates for osteoporosis. *N Engl J Med* 2010;363(21):2027-2035.

**Item 168**

**ANSWER: D**

Sensitivity is the percentage of patients with a disease who have a positive test result. Specificity is the percentage of patients without the disease who have a negative test result. Pretest probability is the probability of disease before a test is performed. Posttest probability is the probability of disease after a test is performed. Positive predictive value is the percentage of patients with a positive test result who are confirmed to have the disease.

Ref: Jaeschke R, Guyatt GH, Sackett DL: Users' guides to the medical literature. III. How to use an article about a diagnostic test. B. What are the results and will they help me in caring for my patients? The Evidence-Based Medicine Working Group. *JAMA* 1994;271(9):703-707. 2) Shaughnessy AF: Evaluating and understanding articles about treatment. *Am Fam Physician* 2009;79(8):668-670.

**Item 169**

**ANSWER: B**

First-line agents for ovulation induction and treatment of infertility in patients with polycystic ovary syndrome (PCOS) include metformin and clomiphene, alone or in combination, as well as rosiglitazone (SOR A). In one study of nonobese women with PCOS, metformin was found to be more effective than clomiphene for improving the rate of conception (level of evidence 1b). However, the treatment of infertile women with PCOS remains controversial. One recent group of experts recommended that metformin use for ovulation induction in PCOS be restricted to women with glucose intolerance (SOR C).

Oral contraceptives are commonly used to treat menstrual irregularities in women with PCOS; however, there are few studies supporting their use, and they would not be appropriate for ovulation induction. Spironolactone is a first-line agent for treatment of hirsutism (SOR A) and has shown promise in treating menstrual irregularities, but is not commonly recommended for ovulation induction. There is a high prevalence of insulin resistance in women with PCOS, as measured by glucose intolerance; insulin-sensitizing agents are therefore indicated, but not insulin or sulfonylurea medications.

Ref: Palomba S, Ono F Jr, Falbo A, et al: Prospective parallel randomized, double-blind, double-dummy controlled clinical trial comparing clomiphene citrate and metformin as the first-line treatment for ovulation induction in nonobese anovulatory women with polycystic ovary syndrome. *J Clin Endocrinol Metab* 2005;90(7):4068-4074. 2) Ehrmann DA: Polycystic ovary syndrome. *N Engl J Med* 2005;352(12):1223-1236. 3) Legro RS, Barnhart HX, Schlaff WD, et al: Clomiphene, metformin, or both for infertility in the polycystic ovary syndrome. *N Engl J Med* 2007;356(6):551-566. 4) Thessaloniki ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group: Consensus on infertility treatment related to polycystic ovary syndrome. *Fertil Steril* 2008;89(3):505-522. 5) Radosh L: Drug treatments for polycystic ovary syndrome. *Am Fam Physician* 2009;79(8):671-676.

**Item 170**

**ANSWER: C**

Fluoroquinolones are associated with an increased risk of tendinopathy and tendon rupture. About 1/6000 prescriptions will cause an Achilles tendon rupture. The risk is higher in those also taking corticosteroids or over the age of 60.

Ref: O'Connor NR: FDA boxed warnings: How to prescribe drugs safely. *Am Fam Physician* 2010;81(3):298-303.

**Item 171**

**ANSWER: D**

Pentoxifylline is effective when used with compression therapy for venous ulcers, and may be useful as monotherapy in patients unable to tolerate compression therapy. Aspirin has also been shown to be effective. Other treatments that have been studied but have not been found to be effective include oral zinc and antibiotics (SOR A).

Ref: Collins L, Seraj S: Diagnosis and treatment of venous ulcers. *Am Fam Physician* 2010;81(8):989-996.

**Item 172**

**ANSWER: C**

A pulmonary capillary wedge pressure of 8 mm Hg suggests hypovolemia. Normal saline should be given because 5% dextrose is not a reliable volume expander.

Ref: Bonow RO, Mann DL, Zipes DP, Libby P (eds): *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*, ed 9. Elsevier Saunders, 2011, pp 1141-1142. 2) Tintinalli JE, Kelen GD, Stapczynski JS (eds): *Emergency Medicine: A Comprehensive Study Guide*, ed 7. McGraw-Hill, 2011, p 175.

**Item 173**

**ANSWER: D**

Acute exacerbations of COPD are very common, with most caused by superimposed infections. Supplemental oxygen, antibiotics, and bronchodilators are used for management. Systemic corticosteroids, either oral or parenteral, have been shown to significantly reduce treatment failures and improve lung function and dyspnea over the first 72 hours, although there is an increased risk of adverse drug reactions.

Ref: Wood-Baker RR, Gibson PG, Hannay M, et al: Systemic corticosteroids for acute exacerbations of chronic obstructive pulmonary disease. *Cochrane Database Syst Rev* 2005;(4):C00075320. 2) Evensen AE: Management of COPD exacerbations. *Am Fam Physician* 2010;81(5):607-613.

**Item 174**

**ANSWER: C**

Although intravenous dextrose in normal saline can initially be used for aggressive rehydration, it does not meet the nutritional needs of patients with acute pancreatitis. Total enteral nutrition is superior to total parenteral nutrition in stable patients with acute pancreatitis, in both mild and severe cases (SOR A). When compared to total parenteral nutrition in these patients, enteral nutrition is associated with reduced rates of mortality, multiple organ failure, systemic infection, and operative interventions (SOR A). Enteral nutrition likely contributes to better outcomes by inhibiting bacterial translocation from the gut, thereby preventing the development of infected necrosis. This patient is awake and alert and presumably able to protect her airway, so nasogastric tube feeding is unnecessary to provide enteral nutrition.

Ref: Carroll JK, Herrick B, Gipson T, Lee SP: Acute pancreatitis: Diagnosis, prognosis, and treatment. *Am Fam Physician* 2007;75(10):1513-1520. 2) Al-Omran M, Albalawi ZH, Tashkandi MF, Al-Ansary LA: Enteral versus parenteral nutrition for acute pancreatitis. *Cochrane Database Syst Rev* 2010(1):CD002837. 3) Kulick D, Deen D: Specialized nutrition support. *Am Fam Physician* 2011;83(2):173-183.

**Item 175**

**ANSWER: E**

In controlled studies, it has been shown that a single 200-mg dose of doxycycline given within 72 hours after an *Ixodes scapularis* tick bite can prevent the development of Lyme disease.

Ref: Nadelman RB, Nowakowski J, Fish D, et al: Prophylaxis with single-dose doxycycline for the prevention of Lyme disease after an *Ixodes scapularis* tick bite. *N Engl J Med* 2001;345(2):79-84. 2) Bratton RL, Whiteside JW, Hovan MJ, et al: Diagnosis and treatment of Lyme disease. *Mayo Clin Proc* 2008;83(5):566-571.

**Item 176**

**ANSWER: D**

Both the CDC and the American Academy of Family Physicians recommend that all adults over the age of 65 receive a single dose of pneumococcal polysaccharide vaccine. Immunization before the age of 65 is recommended for certain subgroups of adults, including institutionalized individuals over the age of 50; those with chronic cardiac or pulmonary disease, diabetes mellitus, anatomic asplenia, chronic liver disease, or kidney failure; and health-care workers. It is recommended that those receiving the vaccine before the age of 65 receive an additional dose at age 65 or 5 years after the first dose, whichever is later.

Ref: Updated recommendations for prevention of invasive pneumococcal disease among adults using the 23-valent pneumococcal polysaccharide vaccine (PPSV23). *MMWR* 2010;59(34):1102-1106.

**Item 177**

**ANSWER: B**

Solitary pulmonary nodules are common radiologic findings, and the differential diagnosis includes both benign and malignant causes. The American College of Chest Physicians guidelines for evaluation of pulmonary nodules are based on size and patient risk factors for cancer. Lesions ≥8 mm in diameter with a "ground-glass" appearance, an irregular border, and a doubling time of 1 month to 1 year suggest malignancy, but smaller lesions should also be evaluated, especially in a patient with a history of smoking.

CT is the imaging modality of choice to reevaluate pulmonary nodules seen on a radiograph (SOR C). PET is an appropriate next step when the cancer pretest probability and imaging results are discordant (SOR C). Patients with notable nodule growth during follow-up should undergo a biopsy (SOR C).

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

**Item 178**

**ANSWER: D**

It has been shown that palliative care offered early in the course of a terminal disease has many benefits. Palliative care leads to improvement in a patient's quality of life and mood, and patients who receive palliative care often have fewer symptoms of depression than those who do not receive palliative care. In addition, palliative care reduces aggressive end-of-life care and thus reduces health care costs. Palliative care does not reduce the need for hospice, but in fact enables patients to enter hospice care earlier and perhaps for longer. Palliative care has been shown to extend survival times in terminal patients (SOR B).

Ref: Temel JS, Greer JA, Muzikansky A, Gallagher ER, et al: Early palliative care for patients with metastatic non-small-cell lung cancer. *N Engl J Med* 2010;363(8):733-742.

**Item 179**

**ANSWER: B**

Prevention traditionally has been divided into three categories: primary, secondary, and tertiary. Primary prevention targets individuals who may be at risk to develop a medical condition and intervenes to prevent the onset of that condition (e.g., childhood vaccination programs, water fluoridation, antismoking programs, and education about safe sex). Secondary prevention targets individuals who have developed an asymptomatic disease and institutes treatment to prevent complications (e.g., routine Papanicolaou tests; screening for hypertension, diabetes, or hyperlipidemia). Tertiary prevention targets individuals with a known disease, with the goal of limiting or preventing future complications (e.g., screening diabetics for microalbuminuria, rigorous treatment of diabetes mellitus, and post–myocardial infarction prophylaxis with β-blockers and aspirin).

Ref: Roadmaps for clinical practice: A primer on population-based medicine. American Medical Association, 2002, pp 28-33. 2) Rakel RE, Rakel DP (eds): *Textbook of Family Medicine*, ed 8. Elsevier Saunders, 2011, p 74.

**Item 180**

**ANSWER: C**

Ventricular septal defect causes overload of both ventricles, since the blood is shunted left to right. The murmur is harsh and holosystolic, generally heard best at the lower left sternal border. As the volume of the shunting increases, cardiac enlargement and increased pulmonary vascular markings can be seen on a chest radiograph.

Hypoplastic left heart syndrome would be manifested by near-obliteration of the left ventricle on the EKG and chest radiograph, and the infant would be cyanotic. Transposition of the great vessels would cause AV conduction defects and single-sided hypertrophy on the EKG. The chest radiograph would show a straight shoulder on the left heart border where the aorta was directed to the right. Tetralogy of Fallot causes cyanosis and right ventricular enlargement. The murmur of patent ductus arteriosus is continuous, best heard below the left clavicle. The EKG shows left atrial and ventricular enlargement.

Ref: Rudolph CD, Rudolph AM, Lister G, et al (eds): *Rudolph's Pediatrics*, ed 22. McGraw-Hill, 2011, pp 1807-1808.

**Item 181**

**ANSWER: E**

Non-alcoholic fatty liver disease (NAFLD) is the most common cause of abnormal liver tests in the developed world. Its prevalence increases with age, body mass index, and triglyceride concentrations, and in patients with diabetes mellitus, hypertension, or insulin resistance. There is a significant overlap between metabolic syndrome and diabetes mellitus, and NAFLD is regarded as the liver manifestation of insulin resistance.

Statin therapy is considered safe in such individuals and can improve liver enzyme levels and reduce cardiovascular morbidity in patients with mild to moderately abnormal liver tests that are potentially attributable to NAFLD.

Ref: Athyros VG, Tziomolos K, Gossios TD, et al: Safety and efficacy of long-term statin treatment for cardiovascular events in patients with coronary heart disease and abnormal liver tests in the Greek Atorvastatin and Coronary Heart Disease Evaluation (GREACE) study: A post-hoc analysis. *Lancet* 2010;376(9756):1916-1922.

**Item 182**

**ANSWER: C**

In patients with severe pneumonia, the urine should be tested for antigens to *Legionella* and pneumococcus. Two blood cultures should also be drawn, but these are positive in only 10%–20% of all patients with community-acquired pneumonia.

Ref: Niederman M: In the clinic. Community-acquired pneumonia. *Ann Intern Med* 2009;151(7):ITC4-2–ITC4-14.

**Item 183**

**ANSWER: B**

The history and physical examination are critical for making a diagnosis in patients with scrotal pain. Transillumination may also be performed as part of the clinical assessment. If the diagnosis is uncertain, ultrasonography with color Doppler imaging has become the accepted standard for evaluation of the acutely swollen scrotum (SOR B). Ultrasonography alone can confirm the diagnosis in a number of conditions, such as hydrocele, spermatocele, and varicocele. For other conditions such as orchitis, carcinoma, or torsion, color Doppler ultrasonography is essential because it will show increased flow in orchitis, normal or increased flow in carcinoma, and decreased blood flow in testicular torsion.

For testicular torsion, color Doppler ultrasonography has a sensitivity of 86%–88% and a specificity of 90%–100%. When testicular torsion is strongly suspected, emergent surgical consultation should be obtained before ultrasonography is performed, because surgical exploration as soon as possible is critical to salvaging the testis and should not be delayed for imaging unless the diagnosis is in doubt.

While radionuclide imaging would be accurate for diagnosing testicular torsion, it is not used for this purpose because of time limits and lack of easy availability. CT or MRI may be appropriate if ultrasonography indicates a possibility of carcinoma. Plain films are not useful in assessing scrotal swelling or masses.

Ref: Tiemstra JD, Kapoor S: Evaluation of scrotal masses. *Am Fam Physician* 2008;78(10):1165-1170.

**Item 184**

**ANSWER: D**

For patients who have acute back pain without sciatic involvement, a return to normal activities as tolerated has been shown to be more beneficial than either bed rest or a basic exercise program. Bed rest for more than 2 or 3 days in patients with acute low back pain is ineffective and may be harmful. Patients should be instructed to remain active. Injections should be considered only if conservative therapy fails.

Ref: Kinkade S: Evaluation and treatment of acute low back pain. *Am Fam Physician* 2007;75(8):1181-1188.

**Item 185**

**ANSWER: C**

It has been recognized that patients suffering from a critical illness with an exaggerated inflammatory response often have a relative cortisol deficiency. Clinically, this can cause hypotension that is resistant to intravenous fluid resuscitation, and evidence is mounting that survival is increased if these patients are treated with intravenous corticosteroids during acute management. Cortisol levels can be assessed with a single serum reading, or by the change in the cortisol level after stimulation with cosyntropin (referred to as Δcortisol). The other hormones listed are not important for the acute management of a critically ill patient.

Ref: Bornstein SR: Predisposing factors for adrenal insufficiency. *N Engl J Med* 2009;360(22):2328-2339.

**Item 186**

**ANSWER: B**

The Medicare Hospice Benefit reimburses hospice providers for the care of terminally ill patients. In order to be eligible for this benefit, patients must be entitled to Medicare Part A and be certified by both the personal physician and the hospice medical director as having a life expectancy of 6 months or less. Services covered include physician services; nursing services; social services; counseling services; physical, occupational, and speech therapy; diagnostic testing; home health aides; homemaker services; and medical supplies. These services may be provided in the patient's home or in the hospital setting. Malignancy, ambulatory status, caregiver availability, and do-not-resuscitate orders are not specifically related to eligibility requirements for this benefit.

Ref: Centers for Medicare and Medicaid Services: *Medicare Benefit Policy Manual* (Internet only). US Dept of Health and Human Services, 2011, rev 141, pub 100-02, chap 9.

**Item 187**

**ANSWER: E**

This patient's asthma is well-controlled according to the 2007 NHLBI asthma guidelines. The "rule of twos" is useful in assessing asthma control: in children under the age of 12, asthma is NOT well-controlled if they have had symptoms or used a β-agonist for symptom relief more than twice per week, had two or more nocturnal awakenings due to asthma symptoms in the past month, or had two or more exacerbations requiring systemic corticosteroids in the past year. For individuals over 12 years of age, there must be more than two nocturnal awakenings per month to classify their asthma as not well controlled.

Exercise-induced asthma is considered separately. A β-agonist used as premedication before exercise is not a factor when assessing asthma control. Since this patient does not exceed the rule of twos, her asthma is categorized as well-controlled and no changes to her therapy are indicated. Asthma education should be reinforced at every visit.

Ref: *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma*. National Asthma Education and Prevention Program, NIH pub no 07-4051, 2007. 2) Pollart SM, Elward KS: Overview of changes to asthma guidelines: Diagnosis and screening. *Am Fam Physician* 2009;79(9):761-767.

**Item 188**

**ANSWER: E**

Intravenous magnesium sulfate reduces the risk of subsequent seizures in women with eclampsia compared with placebo, and with fewer adverse effects for the mother and baby compared with phenytoin or diazepam. The newer oral agents have no role in this emergency.

Ref: Duley L: Clinical evidence handbook: Preeclampsia, eclampsia, and hypertension. *Am Fam Physician* 2009;79(10):895-896.

**Item 189**

**ANSWER: A**

A comprehensive, systematic literature review found an association of sexual abuse with a lifelong history of functional gastrointestinal disorders, irrespective of the age of the victim at the time of abuse. There was no statistically significant association with obesity, headache, or syncope.

Ref: Paras ML, Murad MH, Chen LP, et al: Sexual abuse and lifetime diagnosis of somatic disorders. *JAMA* 2009;302(5):550-561.

**Item 190**

**ANSWER: D**

People with familial adenomatous polyposis typically develop hundreds or thousands of polyps in their colon and rectum, usually in their teens or early adulthood. Cancer usually develops in one or more of these polyps as early as age 20. By age 40, almost all people with this disorder will have developed cancer if preventive colectomy is not performed.

The approximate lifetime risk of colon cancer in the general population of the United States is 6%. Most case-control studies of cigarette exposure and adenomas have found an elevated risk for smokers. Tobacco use raises the risk of colon cancer by approximately 50%.

Patients with ulcerative colitis are at increased risk for colon cancer. The anatomic extent and duration of the disease correlate with the degree of risk. In one meta-analysis, investigators found that the risk of colon cancer was 2% in the first 10 years after ulcerative colitis develops, 8% during the first 20 years, and 18% during the first 30 years.

The evidence is still evolving regarding the level of future risk of colon cancer associated with having had an adenomatous polyp removed in the past, but it may approach a doubling of the baseline risk of colon cancer. Studies suggest a clear association with a history of multiple polyps or a single large ($>1$ cm) polyp. The data is less clear for single small adenomas. Of the three types of adenomas (tubular, tubulovillous, and villous), villous adenomas are most likely to develop into adenocarcinomas.

Having a family history of a first degree relative with colon cancer raises the risk approximately two- to threefold. If that relative was younger than age 50 at the time of diagnosis the risk is three- to fourfold higher.

Ref: Winawer S, Fletcher R, Rex D, et al; Gastrointestinal Consortium Panel: Colorectal cancer screening and surveillance: Clinical guidelines and rationale—Update based on new evidence. *Gastroenterology* 2003;124(2):544-560. 2) Wilkins T, Reynolds PL: Colorectal cancer: A summary of the evidence for screening and prevention. *Am Fam Physician* 2008;78(12):1385-1392.

**Item 191**

**ANSWER: A**

Topical lidocaine produces very low serum levels of active drug, resulting in very few adverse effects (SOR C). Hydrocodone could produce any opiate-type effect. Nortriptyline and duloxetine could aggravate this patient's atrial arrhythmia and cause urinary retention. Celecoxib could aggravate his reflux problem.

Ref: Malanga G, Paster Z: Update on managing chronic pain in the elderly. *J Fam Pract* 2007;56(12):S11-S16.

**Item 192**

**ANSWER: D**

HIV screening is recommended as part of routine prenatal care, even in low-risk pregnancies. Counseling about cystic fibrosis carrier testing is recommended, but not routine testing. Hepatitis C and parvovirus antibodies are not part of routine prenatal screening. Routine screening for bacterial vaginosis with a vaginal smear for clue cells is not recommended.

Ref: US Preventive Services Task Force: *Human Immunodeficiency Virus Infection*. Agency for Healthcare Research and Quality, 2007.

**Item 193**

**ANSWER: D**

Delayed attainment of social skill milestones is the earliest and most specific sign of autism. Delayed or odd use of language is a common, but less specific, early sign of autism. Compared with social and language impairments, restricted interests and repetitive behaviors are less prominent and more variable in young children. Self-injurious behaviors are associated with autism, but not specific for it. For example, new-onset head banging may be the way an autistic child attempts to deal with pain from a dental abscess, headache, sinusitis, otitis media, or other source of pain.

Ref: Carbone PS, Davis T: Primary care for children with autism. *Am Fam Physician* 2010;81(4):453-460, 461.

**Item 194**

**ANSWER: B**

Based on the American College of Radiology's Appropriateness Criteria for chronic neck pain, a complete cervical spine series that includes five views is the correct study in a patient of any age with chronic neck pain and no history of trauma, malignancy, or surgery. If the radiographs are normal and the patient has neurologic signs or symptoms, the next step would be MRI. If MRI is contraindicated, CT myelography should be offered (SOR B). A single lateral radiograph is not sufficient. Diskography is not recommended in patients with chronic neck pain (SOR C).

Ref: Daffner RH: Radiologic evaluation of chronic neck pain. *Am Fam Physician* 2010;82(8):959-964.

**Item 195**

**ANSWER: E**

For patients with a pulmonary embolus, American College of Chest Physicians guidelines recommend initial treatment with low molecular weight heparin (LMWH), unfractionated heparin, or fondaparinux for at least 5 days, and then can be stopped if the INR has been ≥2.0 for at least 24 hours (SOR C). Warfarin reduces the activity of coagulation factors II, VII, IX, and X produced in the liver. Coagulation factors produced prior to initiating warfarin remain active for their usual several-day lifespan, which is why LMWH and warfarin must be given concomitantly for at least 5 days. The INR may reach levels >2.0 before coagulation factors II and X have reached their new plateau levels, accounting for the need for an additional 24 hours of combined therapy before stopping LMWH.

Ref: Kearon C, Kahn S, Agnelli G, et al: Antithrombotic therapy for venous thromboembolic disease: American College of Chest Physicians evidence-based clinical practice guidelines (8th edition). *Chest* 2008;133(6):454S-545S.

**Item 196**

**ANSWER: A**

Cardiovascular changes associated with aging include decreased cardiac output, maximum heart rate, and stroke volume, as well as increased systolic and diastolic blood pressure. Respiratory changes include an increase in residual lung volume and a decrease in vital capacity. Other changes include decreases in nerve conduction, proprioception and balance, maximum $O_2$ uptake, bone mass, muscle strength, and flexibility. Most of these changes, however, can be reduced in degree by a regular aerobic and resistance training program.

Ref: Halter JB, Ouslander JG, Tinetti ME, et al (eds): *Hazzard's Geriatric Medicine and Gerontology*, ed 6. McGraw-Hill Medical, 2009, pp 975-976.

**Item 197**

**ANSWER: A**

Atopic dermatitis is a pruritic, inflammatory skin disorder affecting nearly 1 in 5 children residing in developed countries. The vast majority of those eventually afflicted experience the onset of symptoms by the age of 5 years, and more than half will present before the age of 1 year. The etiology is not fully understood, but it seems clear that environmental, immune, genetic, metabolic, infectious, and neuroendocrine factors all play a role. Environmental factors that may be involved include harsh detergents, abrasive clothing, *Staphylococcus aureus* skin infection, food allergens (cow's milk, eggs, peanuts, tree nuts, etc.), overheating, and psychological stress. Aeroallergens that are problematic for asthmatics, such as animal dander, dust mites, and pollen, have not been clearly linked to atopic dermatitis.

Large, well-designed studies have found no evidence that delaying the introduction of solid foods until after 6 months of age reduces the likelihood of atopic dermatitis. Ingestion of probiotic agents during pregnancy has also not been shown to have any effect, and studies of probiotic use in breastfeeding mothers and their infants have yielded conflicting results. Exclusive breastfeeding for the first 4 months of life has been shown to reduce the cumulative incidence of atopic dermatitis in the first 2 years of life for infants at high risk of developing atopic disease; doing so beyond 4 months does not appear to provide additional benefit. Maternal dietary restriction during pregnancy and lactation has not been associated with significant benefit. Limited studies have demonstrated that emollients and moisturizers can reduce associated xerosis and are thought to be helpful treatments, but the data is not convincing.

Ref: Krakowski AC, Eichenfield LF, Dohil MA: Management of atopic dermatitis in the pediatric population. *Pediatrics* 2008;122(4):812-824.

**Item 198**

**ANSWER: D**

This patient most likely is suffering from recurrent migraine headaches; at the described frequency and intensity, he meets the criteria for prophylactic medication. Ibuprofen or acetaminophen could still be used as rescue medications, but a daily agent is indicated and propranolol is the best choice for this patient (SOR B). Sumatriptan is not approved for children under the age of 12 years. Carbamazepine has significant side effects and requires monitoring. Amitriptyline is a commonly used agent, but it could worsen his constipation.

Ref: Lewis DW: Headaches in children and adolescents. *Am Fam Physician* 2002;65(4):625-632. 2) Damen L, Bruijn JKJ, Verhagen AP, et al: Symptomatic treatment of migraine in children: A systematic review of medication trials. *Pediatrics* 2005;116(2):e295-e302. 3) Lewis DW: Pediatric migraine. *Neurol Clin* 2009;27(2):481-501.

**Item 199**

**ANSWER: D**

This patient has Henoch-Schönlein purpura. This condition is associated with a palpable purpuric rash, without thrombocytopenia. Other diagnostic criteria include bowel angina (diffuse abdominal pain or bowel ischemia), age ≤20, renal involvement, and a biopsy showing predominant immunoglobulin A deposition. The long-term prognosis depends on the severity of renal involvement. Almost all children with Henoch-Schönlein purpura have a spontaneous resolution, but 5% may develop end-stage renal disease. Therefore, patients with renal involvement require careful monitoring (SOR A).

Ref: Reamy BV, Lindsay TJ: Henoch-Schönlein purpura. *Am Fam Physician* 2009;80(7):697-704.

**Item 200**

**ANSWER: A**

The Beers criteria, a list of drugs that should generally be avoided by older patients, was developed by expert consensus, and was last updated in 2002. Indomethacin is on the list due to its propensity to produce more central nervous system adverse effects than other NSAIDs.

Ref: Pham CB, Dickman RL: Minimizing adverse drug events in older patients. *Am Fam Physician* 2007;76(12):1837-1844.

**Item 201**

**ANSWER: A**

Of the many currently available medications to treat diabetes mellitus, only metformin and incretin mimetics such as exenatide have the additional benefit of helping the overweight or obese patient lose a significant amount of weight. Most of the other medications, including all the insulin formulations, unfortunately lead to weight gain or have no effect on weight.

Ref: LaRocque P, Beard JM, Mintz M: Type 2 diabetes prevention and treatment. *CME Bull* 2009;8(1). 2) Shyangdan DS, Royle P, Clar C, et al: Glucagon-like peptide analogues for type 2 diabetes mellitus. *Cochrane Database Syst Rev* 2011;10:CD006423.

**Item 202**

**ANSWER: A**

This patient suffers from separation anxiety disorder, which is unique to pediatric patients and is characterized by excessive anxiety regarding separation from the home or from people the child is attached to, such as family members or other caregivers. The anxiety is beyond what is developmentally appropriate for the child's age. Patients may even suffer distress from anticipation of the separation. Other characteristics include persistent worry about harm occurring to major attachment figures, worry about an event that may separate the patient from caregivers, reluctance to attend school due to the separation it implies, fear of being alone, recurring nightmares with themes of separation, and physical complaints when faced with separation. Children diagnosed with separation anxiety disorder must be under 18 years of age and have had symptoms for at least 4 weeks.

Social phobia is a persistent fear of a specific object or situation. Exposure to the object provokes an immediate anxiety response such as a panic attack. To meet the criteria for social phobia, patients must suffer symptoms for at least 6 months. Generalized anxiety disorder is characterized as excessive anxiety and worry regarding a number of events or activities. Physical symptoms include restlessness, irritability, or sleep disturbance. Symptoms must be present for at least 6 months.

Acute stress disorder occurs after a traumatic event that the individual considers life threatening. Patients experience dissociative symptoms, flashbacks, and increased arousal. Symptoms are present for at least 2 days, with a maximum of 4 weeks. Beyond 4 weeks, a diagnosis of posttraumatic stress disorder is made. Panic disorder with agoraphobia is characterized by recurrent panic attacks with a fear of being in situations in which the patient cannot escape or may be embarrassed by doing so. Symptoms must be present for 1 month for the diagnosis to be made (SOR C).

Ref: Rockhill C, Kodish I, DiBattisto C, et al: Anxiety disorders in children and adolescents. *Curr Probl Pediatr Adolesc Health Care* 2010;40(4):66-99.

**Item 203**

**ANSWER: C**

The pes anserine bursa is associated with the tendinous insertion of the sartorius, gracilis, and semitendinosus muscles into the medial aspect of the proximal tibia. Commonly associated with early osteoarthritis in the medial knee compartment, pes anserine bursitis can also result from overuse of the involved muscles or from direct trauma to the area. A patient with pes anserine bursitis will generally complain of pain in the area of insertion when flexing and extending the knee and tenderness of the area will be noted on examination. Slight swelling may be present but no effusion is generally evident. Treatment may include oral anti-inflammatory agents, physical therapy, and corticosteroid injection.

Ref: Calmbach WL, Hutchens M: Evaluation of patients presenting with knee pain: Part II. Differential diagnosis. *Am Fam Physician* 2003;68(5):917-922. 2) Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, pp 2154, 2184.

**Item 204**

**ANSWER: A**

The p-value is a level of statistical significance, and characterizes the likelihood of achieving the observed results of a study by chance alone; in this study that likelihood is 5%, although 5% or less of the results of the study can be achieved by chance alone and still be significant. The confidence interval is a measure of variance and is derived from the test data. The p-value in and of itself says nothing about the truth or falsity of the null hypothesis, only that the likelihood of the observed results occurring by chance is 5%. The α or type I error is akin to the error of false-positive assignment; the β or type II error is analogous to the false-negative rate, or 1 – specificity, and cannot be calculated from the information given.

Ref: Merrill R: *Introduction to Epidemiology*, ed 5. Jones & Bartlett, 2009, pp 231-236.

**Item 205**

**ANSWER: D**

"Baby blues" are differentiated from postpartum depression by the severity and duration of symptoms. Baby blues occur in 80% of postpartum women and are associated with mild dysfunction. They begin during the first 2–3 days after delivery and resolve within 10 days. Symptoms include brief crying spells, irritability, poor sleep, nervousness, and emotional reactivity. An estimated 5%–7% of women develop a postpartum major depression associated with moderate to severe dysfunction during the first 3 months post partum. While women with baby blues are at risk for progression to major depression, no more than 8%–10% will progress to a major postpartum depression.

A previous history of major depressive disorder significantly increases the risk of developing postpartum depression (RR = 4.5), and a prior episode of postpartum depression is the strongest risk factor for postpartum depression in subsequent pregnancies. Prenatal and obstetric complications and socioeconomic status have not consistently been shown to be risk factors. First pregnancy is also not a significant risk factor.

Ref: Hirst KP, Moutier CY: Postpartum major depression. *Am Fam Physician* 2010;82(8):926-933.

**Item 206**

**ANSWER: E**

Studies suggest that in 25% of patients, irritable bowel syndrome may be caused or aggravated by one or more dietary components. Restriction of fermentable, poorly absorbed carbohydrates is beneficial, including fructan (found in wheat and onions), sorbitol, and other such alcohols. Further studies are needed, however. Despite its popularity, fiber is marginally beneficial and insoluble fiber may worsen symptoms in patients with diarrhea. Probiotics in the form of foods such as buttermilk and live-culture yogurt have thus far not been established as useful. Daily use of peppermint oil has been shown to relieve symptoms.

Ref: Heizer WD, Southern S, McGovern S: The role of diet in symptoms of irritable bowel syndrome in adults: A narrative review. *J Am Diet Assoc* 2009;109(7):1204-1214. 2) Graham L: Practice guidelines. ACG releases recommendations on the management of irritable bowel syndrome. *Am Fam Physician* 2009;79(12):1108-1117.

**Item 207**

**ANSWER: A**

Loss of vision is a devastating neurologic deficit that occurs with idiopathic intracranial hypertension (pseudotumor cerebri, benign intracranial hypertension), although it is uncommon. Sixth cranial nerve palsies may also occur as a false localizing sign. The typical presentation is a young, obese woman with a headache, palpable tinnitus, and nausea and vomiting. CT is usually normal or shows small ventricles. The lumbar puncture shows elevated pressure with normal fluid examination. CSF protein levels may be low.

Hearing loss and vertigo are not characteristic of this disorder. Long tract signs and facial nerve palsies have been attributed to idiopathic intracranial hypertension; they are atypical and should lead to consideration of other diagnoses.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 1448-1449.

**Item 208**

**ANSWER: E**

The U.S. Preventive Services Task Force recommends against screening adults for COPD with spirometry. Spirometry is indicated for patients who have symptoms suggestive of COPD, but not for healthy adults. While tobacco use is a risk factor for COPD, routine spirometry, chest radiographs, or arterial blood gas analysis is not recommended to screen for COPD in patients with a history of tobacco use. Peak flow measurement is not recommended for screening for COPD.

Ref: US Preventive Services Task Force: *Screening for Chronic Obstructive Pulmonary Disease Using Spirometry*. Agency for Healthcare Research and Quality, 2008.

**Item 209**

**ANSWER: C**

Postcholecystectomy pain associated with jaundice (which can cause itching) is a classic presentation for a retained common duct stone. Acetaminophen toxicity is usually painless, and is associated with ingestion of large amounts of the drug and/or alcohol, or other potentially hepatotoxic drugs. Viral hepatitis is usually painless and accompanied by other systemic symptoms. Hydrocodone can cause pruritus but not pain and jaundice.

Ref: Bellows CF, Berger DH, Crass RA: Management of gallstones. *Am Fam Physician* 2005;72(4):637-642. 2) Roche SP, Kobos R: Jaundice in the adult patient. *Am Fam Physician* 2004;69(2):299-304. 3) Townsend CM Jr, Beauchamp RD, Evers BM, et al: *Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice*, ed 18. Saunders, 2008, p 1572.

**Item 210**

**ANSWER: E**

Most women do not regularly perform breast self-examinations (BSE). Evidence from large, well-designed, randomized trials of adequate duration has shown that the performance of regular BSE by trained women does not reduce breast cancer–specific mortality or all-cause mortality. The 2009 update to the U.S. Preventive Services Task Force breast cancer screening recommendations recommended against teaching BSE (D recommendation). The rationale for this recommendation is that there is moderate certainty that the harms outweigh the benefits. The two available trials indicated that more additional imaging procedures and biopsies were done for women who performed BSE than for control participants, with no gains in breast cancer detection or reduction in breast-cancer related mortality.

Ref: US Preventive Services Task Force: Screening for breast cancer: Recommendation statement. AHRQ pub no 10-5142-EF-2, 2009.

**Item 211**

**ANSWER: E**

Actinic keratoses are precursor lesions for cutaneous squamous cell carcinoma. The conversion rate of actinic keratoses into squamous cell carcinoma has been estimated to be 1 in 1000 per year. Thicker lesions, cutaneous horns, and lesions that show ulceration have a higher malignant potential. Although sun exposure is a risk factor for both melanoma and basal cell carcinoma, there are no recognized precursor lesions for either. Actinic keratosis is not a precursor lesion to keratoacanthoma.

Ref: Habif TP: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy*, ed 5. Mosby Elsevier, 2010, p 814.

**Item 212**

**ANSWER: D**

Factors associated with a higher risk of heat-related death include being confined to bed, not leaving home daily, and being unable to care for oneself. Living alone during a heat wave is associated with an increased risk of death, but this increase is not statistically significant. Among medical conditions, the highest risk is associated with preexisting psychiatric illnesses, followed by cardiovascular disease, use of psychotropic medications, and pulmonary disease.

A lower risk of heat-related death has been noted in those who have working air conditioning, visit air-conditioned sites, or participate in social activities. Those who take extra showers or baths and who use fans have a lower risk, but this difference is not statistically significant.

Ref: Bouchama A, Dehbi M, Mohamed G, et al: Prognostic factors in heat wave–related deaths: A meta-analysis. *Arch Intern Med* 2007;167(20):2170-2176.

**Item 213**

**ANSWER: D**

The National Institutes of Health Consensus Development Conference issued recommendations for gastric bypass surgery in 1991, and these are still considered to be basic criteria (SOR C). Indications for laparoscopic bariatric surgery for morbid obesity include a BMI $>40$ kg/m$^2$ or a BMI of 35–40 kg/m$^2$ with significant obesity-related comorbidities. Weight loss by nonoperative means should be attempted before surgery, and patients should be evaluated by a multidisciplinary team that includes a dietician and a mental health professional before surgery.

Ref: Pentin PL, Nashelsky J: What are the indications for bariatric surgery? *J Fam Pract* 2005;54(7):633-634. 2) Cameron JL (ed): *Current Surgical Therapy*, ed 9. Mosby, 2008, p 1368.

**Item 214**

**ANSWER: A**

Duplex Doppler ultrasonography is the preferred initial test for renovascular hypertension in patients with impaired renal function. Tests involving intravenous radiographic contrast material may cause deterioration in renal function. Captopril renography is not reliable in the setting of poor renal function. Magnetic resonance angiography also could be considered, but the association between the use of gadolinium contrast agents and nephrogenic systemic fibrosis in patients with renal dysfunction would be a concern.

Ref: Hartman RP, Kawashima A: Radiologic evaluation of suspected renovascular hypertension. *Am Fam Physician* 2009;80(3):273-279.

**Item 215**

**ANSWER: E**

Approximately 10% of women with nausea and vomiting during pregnancy require medication. Pharmacologic therapies that have been used include vitamin $B_6$, antihistamines, and prokinetic agents, as well as other medications. Randomized, placebo-controlled trials have shown that vitamin $B_6$ is effective for this problem. The combination of vitamin $B_6$ and doxylamine was studied in more than 6000 patients and was associated with a 70% reduction in nausea and vomiting, with no evidence of teratogenicity. It is recommended by the American Congress of Obstetricians and Gynecologists as first-line therapy for nausea and vomiting in pregnancy. A combination pill was removed from the U.S. market in 1983 because of unjustified concerns about teratogenicity, but the medications can be bought separately over the counter.

In rare cases, metoclopramide has been associated with tardive dyskinesia, and the FDA has issued a black-box warning concerning the use of this drug in general. The 5-$HT_3$-receptor antagonists, such as ondansetron, are being used for hyperemesis in pregnancy, but information is limited. Droperidol has been used for this problem in the past, but it is now used infrequently because of its risks, particularly heart arrhythmias.

Ref: Niebyl JR: Nausea and vomiting in pregnancy. *N Engl J Med* 2010;363(16):1544-1550.

**Item 216**

**ANSWER: B**

This patient has a specific situational anxiety disorder or social phobia called performance anxiety or speech phobia, characterized by marked and sometimes disabling symptoms of catecholamine excess during specific performance situations, such as public speaking. Rates of speech phobia may exceed 50% in the population, but it is unclear whether such fear and avoidance of public speaking warrants a psychiatric diagnosis.

Specific phobias such as speech phobia respond moderately well to β-blockers used prior to a performance. These drugs block peripheral anxiety symptoms such as tachycardia and tremulousness that can escalate subjective anxiety and impair performance. Drugs that are primarily psychotropics or antiparkinsonian agents are much less likely to be of value in this specific anxiety disorder, and may cause undesirable sedation and dry mouth.

Ref: Sadock BJ, Sadock VA, Ruiz P (eds): *Kaplan & Sadock's Comprehensive Textbook of Psychiatry*, ed 9. Lippincott Williams & Wilkins, 2009, p 1873.

**Item 217**

**ANSWER: D**

The diagnosis of Duchenne muscular dystrophy, the most common neuromuscular disorder of childhood, is usually not made until the affected individual presents with an established gait abnormality at the age of 4–5 years. By then, parents unaware of the X-linked inheritance may have had additional children who would also be at risk.

The disease can be diagnosed earlier by testing for elevated creatine kinase in boys who are slow to walk. The mean age for walking in affected boys is 17.2 months, whereas over 75% of developmentally normal children in the United States walk by 13.5 months. Massive elevation of creatine kinase (CK) from 20 to 100 times normal occurs in every young infant with the disease. Early detection allows appropriate genetic counseling regarding future pregnancies.

Hypothyroidism and phenylketonuria could present as delayed walking. However, these diseases cause significant mental retardation and would be associated with global developmental delay. Furthermore, these disorders are now diagnosed in the neonatal period by routine screening. Disorders of amino acid metabolism present in the newborn period with failure to thrive, poor feeding, and lethargy. Gross chromosomal abnormalities would usually be incompatible with a normal physical examination at 18 months of age.

Ref: Pegoraro E, Hoffman EP, Piva L, et al: Cooperative International Neuromuscular Research Group: SPP1 genotype is a determinant of disease severity in Duchenne muscular dystrophy. *Neurology* 2011;76(3):219-226. 2) Dooley J, Gordon KE, Dodds L, MacSween J: Duchenne muscular dystrophy: A 30-year population-based incidence study. *Clin Pediatr (Phila)* 2010;49(2):177-179.

**Item 218**

**ANSWER: B**

The American College of Chest Physicians recommends a starting warfarin dosage of ≤5 mg/day in elderly patients, or in patients who have conditions such as heart failure, liver disease, or a history of recent surgery. The INR should be used to guide adjustments in the dosage.

Ref: Ansell J, Hirsch J, Hylek E, et al: Pharmacology and management of the vitamin K antagonists. American College of Chest Physicians evidence-based clinical practice guidelines (8th edition). *Chest* 2008;133(6 Suppl):161S.

**Item 219**

**ANSWER: C**

Testing for androgen excess is indicated in the young woman with an acute onset of hirsutism or when it is associated with menstrual irregularity, infertility, central obesity, acanthosis nigricans, or clitoromegaly. It should be kept in mind that excess hair has a male pattern in women with hirsutism, whereas hypertrichosis is characterized by excessive hair growth all over the body.

Elevated early morning total testosterone is most often associated with polycystic ovary syndrome, but other causes of hyperandrogenism and other endocrinopathies should be eliminated. These studies should include pregnancy testing if the patient has amenorrhea, as well as a serum prolactin level to exclude hyperprolactinemia. DHEA-S and early morning 17-hydroxyprogesterone can detect adrenal hyperandrogenism and congenital adrenal hyperplasia. Assessment for Cushing syndrome, thyroid disease, or acromegaly is appropriate if associated signs or symptoms are present. Pelvic ultrasonography can be performed to evaluate for ovarian neoplasm or polycystic ovaries, although PCOS is a clinical diagnosis and ultrasonography has a low sensitivity.

Ref: Curran DR, Moore C, Huber T: Clinical inquiries. What is the best approach to the evaluation of hirsutism? *J Fam Pract* 2005;54(5):465-467. 2) Martin KA, Chang JA, 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 220**

**ANSWER: D**

High-risk patients should have a target LDL-cholesterol level of < 100 mg/dL. High risk is defined as the presence of known coronary heart disease (CHD), diabetes mellitus, noncoronary atherosclerotic disease, or multiple risk factors for CHD (SOR C). Patients at very high risk (known CHD and multiple additional risk factors) have an optional target of < 70 mg/dL.

Ref: Evensen A, Elliott M, Hooper-Lane C: Clinical inquiries. Which patients benefit from lowering LDL to < 100 mg/dL? *J Fam Pract* 2010;59(12):706-708.

**Item 221**

**ANSWER: C**

The patient described has symptomatic arterial vascular disease manifested by intermittent claudication. He has already initiated the two most important changes: he has stopped smoking and started a walking program. His LDL-cholesterol is at target levels; further lowering is not likely to improve his symptoms. In the presence of diffuse disease, interventional treatments such as angioplasty or surgery may not be helpful; in addition, these interventions should be reserved as a last resort. Cilostazol has been shown to help with intermittent claudication, but additional antiplatelet agents are not likely to improve his symptoms. Fish oil and warfarin have not been found to be helpful in the management of this condition.

Ref: Arain FA, Cooper LT Jr: Peripheral arterial disease: Diagnosis and management. *Mayo Clin Proc* 2008;83(8):944-950.

**Item 222**

**ANSWER: E**

More than 9500 cases of calcium channel blocker intoxication were reported to U.S. poison control centers in 2005. Substantial toxicity can occur with one or two tablets, and all children suspected of ingesting a calcium channel blocker should be admitted to a pediatric intensive-care unit for monitoring and management.

The use of gastric emptying, cathartics, or adsorptive agents is unlikely to be helpful and should be considered only in patients presenting within 1 hour of ingestion, if then. The American Academy of Pediatrics has advised that syrup of ipecac not be kept in the home because of toxicity and dubious benefit.

Ref: Hanhan UA: The poisoned child in the pediatric intensive care unit. *Pediatr Clin North Am* 2008;55(3):669-686.

**Item 223**

**ANSWER: A**

The patient described in this case has polycythemia vera. Pruritus after a hot shower (aquagenic pruritus) and the presence of splenomegaly helps to clinically distinguish polycythemia vera from other causes of erythrocytosis (hematocrit $>55\%$). Specific criteria for the diagnosis of polycythemia vera include an elevated red cell mass, a normal arterial oxygen saturation ($>92\%$), and the presence of splenomegaly. In addition, patients usually exhibit thrombocytosis (platelet count $>400{,}000/mm^3$), leukocytosis (WBC $>12{,}000/mm^3$), a low serum erythropoietin level, and an elevated leukocyte alkaline phosphatase score. High carboxyhemoglobin levels are associated with secondary polycythemia.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, pp 672-673. 2) Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 1250-1252.

**Item 224**

**ANSWER: D**

The syndrome of delirium is common in the postoperative setting. It is characterized by disorganized thinking; rambling, incoherent speech; and a reduced ability to maintain and shift attention. In addition, at least two of the following are typically present: a reduced level of consciousness with perceptual disturbances or hallucinations; sleep disturbances or changes in psychomotor activity; disorientation to time, place, or person; and memory impairment. This syndrome typically begins abruptly and may fluctuate hourly. There is usually a specific etiologic factor identified, such as surgery in this case.

A patient with normal vital signs, no fever, and normal laboratory studies is unlikely to be septic. Patients with psychosis typically maintain orientation to person and place, as well as attention. Dementia with Lewy bodies has a more chronic onset, and the absence of focal neurologic findings makes stroke unlikely. Alcohol withdrawal is also a consideration in the differential diagnosis.

Ref: Halter JB, Ouslander JG, Tinetti ME, et al (eds): *Hazzard's Geriatric Medicine and Gerontology*, ed 6. McGraw-Hill Medical, 2009, pp 231-232, 647-658. 2) Mantz J, Hemmings HC Jr, Boddaert J: Case scenario: Postoperative delirium in elderly surgical patients. *Anesthesiology* 2010;112(1):189-195. 3) Miller MO: Evaluation and management of delirium in hospitalized older patients. *Am Fam Physician* 2008;78(11):1265-1270.

**Item 225**

**ANSWER: A**

*Clostridium difficile* infection is more common with aging and can be treated with either metronidazole or vancomycin daily. For mild recurrent disease, repeating the course of the original agent is appropriate (SOR B). Multiple recurrences or severe disease warrants the use of both agents. The effectiveness of probiotics such as *Lactobacillus* remains uncertain. Intravenous vancomycin has not been effective. Antiperistaltic drugs should be avoided.

Ref: Simor AE: Diagnosis, management, and prevention of *Clostridium difficile* infection in long-term care facilities: A review. *J Am Geriatr Soc* 2010;58(8):1556-1564.

**Item 226**

**ANSWER: E**

An international expert committee issued a report in 2009 recommending that a hemoglobin $A_{1c}$ level ≥6.5% be used to diagnose diabetes mellitus. Other criteria include a fasting plasma glucose level ≥126 mg/dL, a random glucose level ≥200 mg/dL in a patient with symptoms of diabetes, or a 2-hour oral glucose tolerance test value ≥200 mg/dL. While a urine dipstick may be used to screen for diabetes, it is not a diagnostic test.

Ref: The International Expert Committee: International Expert Committee report on the role of the A1C assay in the diagnosis of diabetes. *Diabetes Care* 2009;32(7):1327-1334.

**Item 227**

**ANSWER: D**

All women ≥65 (SOR A) and all men ≥70 (SOR C) should be screened for osteoporosis. For men and women age 50–69, the presence of factors associated with low bone density would merit screening. Risk factors include low body weight, previous fracture, a family history of osteoporosis with fracture, a history of falls, physical inactivity, low vitamin D or calcium intake, and the use of certain medications or the presence of certain medical conditions.

Chronic systemic diseases that increase risk include COPD, HIV, severe liver disease, renal failure, systemic lupus erythematosus, and rheumatoid arthritis. Endocrine disorders that increase risk include type 1 diabetes mellitus, hyperparathyroidism, hyperthyroidism, Cushing's syndrome, and others. Medications that increase risk include anticonvulsants, corticosteroids, and immunosuppressants. Nutritional risks include celiac disease, vitamin D deficiency, anorexia nervosa, gastric bypass, and increased alcohol or caffeine intake.

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

**Item 228**

**ANSWER: C**

Treatment of hypertension reduces the risk of stroke, myocardial infarction, and heart failure. For most patients, JNC-7 recommends a goal blood pressure of <140/90 mm Hg. However, the goal for patients with chronic kidney disease (CKD) or diabetes mellitus is <130/80 mm Hg. Both conditions are independent risk factors for cardiovascular disease. The National Kidney Foundation and the American Society of Nephrology recommend treating most patients with CKD with an ACE inhibitor or angiotensin receptor blocker (ARB), plus a diuretic, with a goal blood pressure of <130/80 mm Hg. Most patients with CKD will require two drugs to reach this goal.

Ref: K/DOQI clinical practice guidelines for chronic kidney disease: Evaluation, classification, and stratification. *Am J Kidney Dis* 2002;39(2 Suppl 1):S1-S266. 2) 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.

**Item 229**

**ANSWER: B**

In patients with grade 2 ascites (visible clinically by abdominal distention, not just with ultrasonography), the initial treatment of choice is diuretics along with salt restriction. Aldosterone antagonists such as spironolactone are more effective than loop diuretics such as furosemide (SOR A). Chlorthalidone, a thiazide diuretic, is not recommended. Large-volume paracentesis is the recommended treatment of grade 3 ascites (gross ascites with marked abdominal distention), and is followed by salt restriction and diuretics.

Ref: European Association for the Study of the Liver: EASL clinical practice guidelines on the management of ascites, spontaneous bacterial peritonitis, and hepatorenal syndrome in cirrhosis. *J Hepatol* 2010;53(3):397-417.

**Item 230**

**ANSWER: A**

The indolent course of the sore described favors the diagnosis of cutaneous leishmaniasis. Neither malaria nor schistosomiasis produces these sores. The chancres of syphilis and trypanosomiasis are more fleeting in duration.

Ref: Goldman L, Ausiello D (eds): *Cecil Medicine*, ed 23. Saunders, 2008, pp 2391-2393.

**Item 231**

**ANSWER: E**

Sporulating organisms such as *Clostridium difficile* are not killed by alcohol products. *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Klebsiella pneumoniae* are killed by alcohol products (SOR A).

Ref: Schroeder A, Schroeder MA, D'Amico F: What's growing on your stethoscope? (And what you can do about it). *J Fam Pract* 2009;58(8):404-409.

**Item 232**

**ANSWER: D**

Biceps tendon rupture is one of the most common musculotendinous ruptures. Patients typically present with a visible lump in the upper arm following an audible, painful "pop." The injury typically results from application of an eccentric load to a flexed elbow. Risk factors for biceps tendon rupture include age $>40$, deconditioning, contralateral biceps tendon rupture, a history of rotator cuff tear, rheumatoid arthritis, and cigarette smoking. Weakness in forearm supination and elbow flexion may be present. The biceps squeeze test and the hook test are both sensitive and specific for diagnosing the condition.

Acute anterior shoulder dislocation is typically very painful, with restricted shoulder movements. Lateral epicondylitis results in pain and tenderness over a localized area of the proximal lateral forearm. Biceps tendinitis results in a deep throbbing pain over the anterior shoulder, accompanied by bicipital groove tenderness.

Ref: Churgay CA: Diagnosis and treatment of biceps tendinitis and tendinosis. *Am Fam Physician* 2009;80(5):470-476.

**Item 233**

**ANSWER: C**

When third-stage hookworm larvae, most commonly of the species infecting dogs and cats, penetrate the skin and migrate through the dermis, they create the serpiginous, erythematous tracks characteristic of cutaneous larva migrans. Although this dermatosis can occur in northern areas when conditions are ideal, it is most often encountered in tropical and semitropical regions such as the Caribbean, Africa, Asia, and South America.

Travelers to beach environments where pet feces have been previously deposited are most at risk because of the direct contact of bare skin with the sand. As in this case, a stinging or itching sensation may be noted upon penetration; this is followed by the development of the creeping eruption, which usually appears 1–5 days later, although the onset may be delayed for up to a month. The larvae will not develop in the human host, so the infection is self-limited, usually resolving within weeks to months. Treatment with antihelminthic drugs can greatly reduce the clinical course. Preventive measures include treatment of infected dogs and cats and limiting exposure to contaminated soil by wearing shoes and protective clothing.

Ref: *CDC Health Information for International Travel 2010*. Centers for Disease Control and Prevention, 2010, pp 313-314.

**Item 234**

**ANSWER: D**

The EKG shown represents torsades de pointes. This special form of ventricular tachyarrhythmia is often regarded as an intermediary between ventricular tachycardia and ventricular fibrillation. Morphologically it is characterized by wide QRS complexes with apices that are sometimes positive and sometimes negative. It is generally restricted to polymorphous tachycardias associated with QT prolongation.

Anything that produces or is associated with a prolonged QT interval can cause torsades de pointes, including drugs (quinidine, procainamide, disopyramide, phenothiazines), electrolyte disturbances, insecticide poisoning, subarachnoid hemorrhage, and congenital QT prolongation. Its great clinical importance lies in the fact that the usual anti-arrhythmic drugs are not only useless but contraindicated, because they can make matters worse.

*Ventricular flutter* is the term used by some authorities to describe a rapid ventricular tachycardia producing a regular zigzag on EKG, without clearly formed QRS complexes. Ventricular tachycardia consists of at least three consecutive ectopic QRS complexes recurring at a rapid rate. They are usually regular. Ventricular fibrillation is characterized by the complete absence of properly formed ventricular complexes; the baseline wavers unevenly, with no clear-cut QRS deflections.

Ref: Bonow RO, Mann DL, Zipes DP, Libby P (eds): *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*, ed 9. Elsevier Saunders, 2011, pp 806-809.

**Item 235**

**ANSWER: D**

Fractures of the medial third of the clavicle in pediatric patients are common and are best treated by a figure-of-8 apparatus. Open surgical reduction with intramedullary fixation will minimize angular deformity at the fracture site but leaves a scar and may result in nonunion. With the rare exception of neurovascular injury accompanying the fracture, there are no indications for open reduction of a clavicular fracture in a child.

Ref: Tintinalli JE, Kelen GD, Stapczynski JS (eds): *Emergency Medicine: A Comprehensive Study Guide*, ed 7. McGraw-Hill, 2011, pp 570-573.

**Item 236**

**ANSWER: D**

The retinal findings shown are consistent with central retinal artery occlusion. The painless, unilateral, sudden loss of vision over a period of seconds may be caused by thrombosis, embolism, or vasculitis. Acute narrow-angle glaucoma is an abrupt, painful, monocular loss of vision often associated with a red eye, which will lead to blindness if not treated. In persons with optic neuritis, funduscopy reveals a blurred disc and no cherry-red spot. Occlusion of the central retinal vein causes unilateral, painless loss of vision, but the retina will show engorged vessels and hemorrhages.

Ref: Yanoff M, Duker JS (eds): *Ophthalmology*, ed 3. Mosby, 2008, pp 589-592. 2) Pokhrel PK, Loftus SA: Ocular emergencies. *Am Fam Physician* 2007;76(6):829-836.

**Item 237**

**ANSWER: C**

Bedbug bites are difficult to diagnose due to the variability in bite response between people and the changes in a given individual's skin reaction over time. It is best to collect and identify bedbugs to confirm bites. *Cimex lectularius* injects saliva into the bloodstream of the host to prevent coagulation. It is this saliva that causes the intense itching and welts.

Ref: Goddard J, deShazo R: Bed bugs (*Cimex lectularius*) and clinical consequences of their bites. *JAMA* 2009;301(13):1358-1366.

**Item 238**

**ANSWER: B**

Echocardiography is the most effective imaging study for the diagnosis of pericardial effusion. It is a simple, sensitive, specific, noninvasive test that can be used at the patient's beside (SOR A). The test also helps to quantify the amount of pericardial fluid and to detect the presence of any accompanying cardiac tamponade. The erythrocyte sedimentation rate, WBC count, and antinuclear antibody titer are helpful for guiding the follow-up care of patients with systemic lupus erythematosus, but not for diagnosing precordial pain. Cardiac angiography has no role in the diagnosis of pericardial effusion.

Ref: Fauci AS, Braunwald E, Kasper DL, et al (eds): *Harrison's Principles of Internal Medicine*, ed 17. McGraw-Hill, 2008, pp 1489-1490.

**Item 239**

**ANSWER: C**

In the radiograph shown, there is a fracture of the fifth metacarpal head, commonly known as a boxer's fracture. There is only slight volar angulation and no displacement. The proper treatment for this fracture is an ulnar gutter splint, which immobilizes the wrist, hand, and fourth and fifth digits in the neutral position. Generally, 3 or 4 weeks of continuous splinting is adequate for healing.

Surgical pinning is indicated in cases of significant angulation (35°–40° or more of volar angulation) or in fractures with significant rotational deformity or displacement. The other options listed are not appropriate treatments for this injury. This injury most commonly results from "man-versus-wall" pugilistics, but other mechanisms of injury are possible.

Ref: Boyd AS, Benjamin HJ, Asplund C: Splints and casts: Indications and methods. *Am Fam Physician* 2009;80(5):491-499.

**Item 240**

**ANSWER: E**

This presentation is typical of pityriasis rosea. There was a mild prodrome, thought to be jet lag by this patient, followed by the development of an ovoid salmon-colored, slightly raised herald patch, most commonly seen on the trunk. This was followed by an outbreak of multiple smaller, similar lesions that trend along Langer's lines. In this case, clear evidence of the herald patch remains visible in the left interscapular region, which is helpful in confirming the diagnosis.

Guttate psoriasis shares some features with pityriasis rosea in that it can appear suddenly and often follows a triggering incident such as a streptococcal infection, which could be confused with a prodromal phase; however, the absence of a herald patch and the smaller but thicker erythematous lesions differentiate psoriasis from pityriasis rosea. Tinea versicolor often involves the upper trunk and may appear as a lightly erythematous, scaling rash, but the onset is more gradual than in this case. Although this patient may be exposed to low levels of radiation in her job, radiation dermatitis requires doses such as those administered in cancer treatment protocols and would generally be limited to the field of exposure. Cutaneous T-cell lymphoma usually presents as a nonspecific dermatitis, most commonly in men over the age of 50.

An infectious etiology for pityriasis rosea is strongly suspected, although none has been identified. There is some evidence that the agent may be human herpesvirus 6. The illness generally resolves within 2 months, leaving no residual signs other than postinflammatory hyperpigmentation.

Ref: Stulberg DL, Wolfrey J: Pityriasis rosea. *Am Fam Physician* 2004;69(1):87-91, 94. 2) Habif TP: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy*, ed 5. Mosby Elsevier, 2010, pp 316-319.