



# Take Home Primary Care Challenge

## BLUEprint Exam Answers

### Section 2

#### 1. Answer: B

On physical examination, aortic regurgitation is associated with a high-pitched blowing diastolic murmur heard immediately after  $S_2$ , in the second or third intercostal space at the left sternal border. Unfortunately, in acute disease, the murmur may be soft or short, and, therefore, inaudible. Tachycardia, tachypnea, and rales are common physical findings. Patients often have a widened pulse pressure that may be palpable. EKG typically will show LV hypertrophy, chest X-ray will show cardiomegaly with LV prominence and sometimes aortic dilation, and Doppler echocardiography will confirm the diagnosis and estimate severity.

#### 2. Answer: C

Migraine headaches are classified as being with or without aura. In migraine without aura headache, pain is throbbing or pulsing, unilateral, and of moderate or severe intensity. Associated symptoms include nausea and vomiting, photophobia, or phonophobia. Continuing pain may cause cervical muscle contraction, leading to an erroneous diagnosis of tension headaches. Migraine with aura is preceded by transient neurologic symptoms (the aura). The most common auras are visual disturbances: hemianoptic field defects, scotomas, and scintillations that enlarge and spread peripherally. Other aura may include sensory symptoms or dysphasic speech disturbance. As the aura fades, vasodilatation occurs producing the headache that has identical characteristics as migraine without aura. Attacks may be precipitated by certain foods such as tyramine-containing cheeses, wine, meats with nitrite preservatives, chocolate containing phenyl ethylamine, and monosodium glutamate. Fasting, stress, menses, drugs (especially oral contraceptive agents and vasodilators such as nitroglycerin's), and bright lights may also trigger attacks.

#### 3. Answer: D

Excisional biopsy is indicated for this pigmented lesion that exhibits several of the warning signs of melanoma including asymmetry, irregular border, color variegation and the presence of itching and tenderness for more than 2 weeks.

#### 4. Answer: A

Gout affects the great toe, knees, wrists, and elbows most commonly. Monosodium urate crystals appear negatively birefringent under polarized light.

#### 5. Answer: B

Patients with pre-existing heart block already have slowed conduction through the AV node. Beta blockers will further block sympathetic impulses from reaching the heart causing the HR to decrease and AV conduction to decrease. Beta blockers will enhance any heart block already present and can cause progression to complete heart block.

#### 6. Answer: E

A slipped capital femoral epiphysis is a separation of the ball of the hip joint from the femur at growth plate. A slipped capital femoral epiphysis may affect both hips. A displacement occurs in the upper epiphysis while the bone is still growing. Slipped capital femoral epiphysis occurs in about 2 out of every 100,000 children. It is more common in growing children ages 11 to 15, especially boys, It is also more common in children who are obese, and in children who are growing rapidly. Children with hormone imbalances caused by other conditions are at particular risk for this disorder.

7. Answer: D

Alpha1-antitrypsin (AAT) deficiency, first described in 1963, is one of the most common inherited disorders among white persons. Its primary manifestation is early-onset panacinar emphysema. About 1-3% of patients with diagnosed chronic obstructive pulmonary disease (COPD) are predicted to have alpha1-antitrypsin deficiency. Slowly progressive dyspnea is the primary symptom.

8. Answer: D

Ventricular tachycardia is a moderately regular, wide complex rhythm, associated with structural heart disease with a usual rate of 160-240 BPM

9. Answer: C

Mycoplasma is a common cause of pneumonia in young patients, associated with gradual onset of symptoms which include constitutional symptoms and nonproductive cough. The chest x-ray often appears worse than the patient with patchy infiltrates.

10. Answer: B

Amenorrhea, oligomenorrhea with anovulation, or infertility is present in approximately 90% of women with prolactinoma (prolactin-secreting pituitary tumor). These menstrual disorders usually present concurrently with galactorrhea (spontaneous flow of milk from the breasts) if it is present but may either precede or follow it. The amenorrhea is usually secondary and may follow pregnancy or oral contraceptive use.

11. Answer: C

Symptoms of pulmonary embolism include difficulty breathing, chest pain on inspiration and palpitations. Clinical signs include low blood oxygenation and cyanosis, rapid breathing and a rapid heart rate. Severe cases of pulmonary embolism can lead to collapse, abnormally low blood pressure, and sudden death. Diagnosis is based on these clinical findings in combination with laboratory tests and imaging studies. Treatment is typically with anticoagulant medication. Severe cases may require thrombolysis or may require surgical intervention.

12. Answer: C

The CT scan is very good in diagnosing diverticulitis. Images reveal localized thickening and hyperemia (increased blood flow) involving a segment of the colon wall, with inflammatory changes extending into the fatty tissues surrounding the colon. The diagnosis of acute diverticulitis is made confidently when the involved segment contains diverticula.

13. Answer: B

Esophageal candidiasis is an opportunistic infection of the esophagus by *Candida albicans*. The disease occurs in patients in immunocompromised states. Symptoms include: difficulty swallowing, fever (only if the fungus spreads further), oral thrush and painful swallowing.

14. Answer: C

There are no symptoms in the early stages of diabetic nephropathy. The only sign of kidney damage may be microalbumin in the urine. Normally, protein is not found in urine except during periods of high fever, strenuous exercise, pregnancy or infection.

15. Answer: B

Aortic dissection symptoms may be similar to other heart problems such as a myocardial infarction. Sudden severe chest or upper back pain, often described as a tearing, ripping or shearing sensation, that radiates to the neck or down the back is the most common presenting complaint.

16. Answer: D

The diagnosis of acute pancreatitis depends on a combination of clinical assessment and laboratory testing. Although the serum amylase is the cornerstone laboratory test used in establishing the diagnosis of acute pancreatitis, there are limitations in the sensitivity and specificity that may be important for the clinician to recognize. The serum lipase level may be especially useful in patients with alcohol-induced acute pancreatitis.

17. Answer: D

Posttraumatic Stress Disorder (PTSD) is seen large numbers of American combat veterans due to the lingering effects of combat stress.

18. Answer: A

The right iliopsoas muscle lies under the appendix when the patient is supine, so a positive psoas sign on the right may suggest appendicitis. A positive psoas sign may also be present in a patient with a psoas abscess.

19. Answer: E

Often a nondisplaced radial head fracture cannot be seen directly on plain radiographs. In those instances, the only clue may be an enlarged posterior fat pad visible on the lateral view. A visible posterior fat pad indicates fluid (e.g., blood) with the joint. In the setting of trauma, the presumption is an occult radial head fracture is present

20. Answer: C

This patient most likely has scabies. Skin scraping and demonstration of the organism, ova or feces under microscopy will confirm the diagnosis.

21. Answer: C

Arterial embolism requires prompt treatment and hospitalization. The goals of treatment are to control symptoms and to improve the interrupted blood flow to the affected area of the body. The cause of the clot, if found, should be treated to prevent further problems. Medications include: anticoagulants (heparin), antiplatelet medications, IV painkillers and at times thrombolytics.

22. Answer: B

Loss of tympanic membrane mobility during pneumo-insufflation is the most reliable sign for diagnosing acute otitis media.

23. Answer: A

Closed-angle glaucoma accounts for less than 10% of glaucoma cases in the United States, about 10% of those patients with closed angles present with acute angle closure crises characterized by sudden ocular pain, seeing halos around lights, red eye, very high intraocular pressure (>30 mmHg), nausea and vomiting, sudden decreased vision, and a fixed, mid-dilated pupil. Acute angle closure is an ocular emergency.

24. Answer: B

Pre-eclampsia is the hypertension associated with proteinuria. This occurs in greater frequency in nulliparous, adolescent and black women. Pre-eclampsia is diagnosed when a pregnant woman develops high blood pressure (two separate readings taken at least six hours apart of 140 or more in systolic blood pressure and/or 90 or more in diastolic blood pressure) and 300 mg of protein in a 24-hour urine sample

25. Answer: C

Tension pneumothorax must be treated as a medical emergency. If the tension in the pleural space is not relieved, the patient is likely to die from inadequate cardiac output or marked hypoxemia. A large-bore needle should be inserted into the pleural space through the second anterior intercostal space. If large amounts of gas escape from the needle after insertion, the diagnosis is confirmed. The needle should be left in place until a thoracostomy tube can be inserted.

26. Answer: A

One of the benign tumors that result in facial paralysis is an acoustic neuroma. As it expands, it can put pressure on the facial nerve and cause facial paralysis.

27. Answer: C

Esophageal cancer has various subtypes, primarily squamous cell cancer (approx. 90-95% of all esophageal cancer worldwide) and adenocarcinoma (approx. 50-80% of all esophageal cancer in the United States). Squamous cell cancer arises from the cells that line the upper part of the esophagus. Adenocarcinoma arises from glandular cells that are present at the junction of the esophagus and stomach. Esophageal tumors usually lead to dysphagia, pain and other symptoms and are diagnosed with biopsy. Small and localized tumors are treated surgically with curative intent. Larger tumors tend not to be operable and hence are treated with palliative care; their growth can still be delayed with chemotherapy or radiation or a combination of the two.

28. Answer: E

Ulcerative colitis is an inflammatory bowel disease (IBD). It is a form of colitis, a disease of the colon that includes characteristic ulcers or open sores. The main symptom of active disease is usually constant diarrhea mixed with blood, of gradual onset. IBD is often confused with irritable bowel syndrome with (IBS), a troublesome, but much less serious, condition. Ulcerative colitis has similarities to Crohn's, another form of IBD. Ulcerative colitis is an intermittent disease, with periods of exacerbated symptoms, and periods that are relatively symptom-free. Although dietary modification may reduce the discomfort of a person with the disease, ulcerative colitis is not thought to be caused by dietary factors. Ulcerative colitis is treated as an autoimmune disease. Treatment is with anti-inflammatory drugs, immunosuppression, and biological therapy, targeting specific components of the immune response.

29. Answer: C

Emphysema is a long-term, progressive disease that primarily causes shortness with the destruction of lung tissue involved in air exchange. Emphysema is an obstructive lung disease and the anatomy of the lung due to in part to the destruction of lung tissue around smaller airways. This tissue normally holds the bronchioles open, allowing air to leave the lungs on exhalation. When this tissue is damaged, these airways collapse, making it difficult for the lungs to empty and the air becomes trapped contributing to the "barrel" chest and the use of accessory muscles.

30. Answer: C

Rickets is a softening of bones in children due to deficiency or impaired metabolism of vitamin D, magnesium, phosphorus or calcium, potentially leading to fractures and deformity. Rickets is among the most frequent childhood diseases in many developing countries. The predominant cause is a vitamin D deficiency, but lack of adequate calcium in the diet may also lead to rickets.

31. Answer: D

Cardiac tamponade's classic presentation consists of the Beck triad, although this is not always present. The triad includes hypotension, jugular venous distention, and muffled heart tones. However, jugular venous distention is common in supine patients without tamponade and may not be seen in hypovolemic patients with tamponade. In addition, muffled heart sounds are difficult to hear during a noisy resuscitation. Although not commonly seen, electrical alternans on electrocardiogram (ECG) (positive and negative QRS axis alternating with each beat) is pathognomonic for the condition. A FAST exam can rapidly confirm the diagnosis.

32. Answer: B

Splinting in neutral position relieves impingement of the median nerve, thus improving symptoms of carpal tunnel.

33. Answer: B

Since the patient is 36 weeks gestation and it has been greater than 12 hours since the leakage of fluid, labor should be induced to minimize infection.

34. Answer: E

Giant cell arteritis (GCA), also called temporal arteritis, is a type of vasculitis in which the walls of the medium-sized and large-sized arteries of the body become inflamed. This inflammation restricts blood flow through the affected blood vessels causing pain and sometimes more serious complications. GCA most often affects the arteries near the temple and those in the scalp, head, neck and arms it occurs in people older than 50 years. Women are more often affected than men. Early diagnosis and treatment with corticosteroids and serious complications as blindness can be prevented.

35. Answer: D

Dressler Syndrome occurs post MI as a type of post-inflammatory pericarditis.

36. Answer: B

People infected with the bacteria release it into their stool. The bacteria can spread from an infected person to contaminate water or food, or directly to another person. Outbreaks of shigellosis are associated with poor sanitation, contaminated food and water, and crowded living conditions. There are about 18,000 cases of shigellosis per year in the United States. The condition is most commonly seen in day care centers and similar places. Symptoms usually develop about 1 to 7 days (average 3 days) after contact with the bacteria. Symptoms include: acute abdominal pain or cramping, fever, blood, mucus, or pus in stool, tenesmus, nausea and vomiting, and diarrhea.

37. Answer: A

Anorexia nervosa is an eating disorder that makes people lose more weight than is considered healthy for their age and height. Persons with this disorder may have an intense fear of weight gain, even when they are underweight. They may diet or exercise too much, or use other methods to lose weight. The exact causes of anorexia nervosa are unknown. Many factors probably are involved. Genes and hormones may play a role. Social attitudes promoting very thin body types may also be involved.

38. Answer: A

Antisocial personality is associated with a disregard for the rights of others; there are no feelings of compassion or remorse for harming others.

39. Answer: A

Essentials of diagnosis of Syphilis include a painless ulcer on genitalia, perianal area, rectum, pharynx, tongue, lip, or elsewhere nontender enlargement of regional lymph nodes, fluid expressed from lesion contains *T pallidum* by immunofluorescence or darkfield microscopy, serologic Non treponemal and treponemal tests.

40. Answer D:

Benign prostatic hypertrophy is the most common benign tumor in men. It includes obstructive or irritative voiding symptoms, smooth, firm, elastic enlargement of the prostate on rectal examination, absence of urinary tract infection, neurologic disorder, urethral stricture disease, prostatic or bladder malignancy.

41. Answer: D

A painless testicular mass is pathognomonic for a testicular malignancy. More commonly, patients present with testicular discomfort or swelling suggestive of epididymitis and/or orchitis. In this circumstance, a trial of antibiotics is reasonable. However, if symptoms persist or a residual abnormality remains, then testicular ultrasound examination is indicated.

42. Answer: B

This patient most likely has urge incontinence due to detrusor overactivity causing leakage from bladder contractions. This is the most common cause of incontinence in older patients and is supported by the history given. Treatment involves use of anticholinergic medications, such as oxybutynin, to relax the bladder.

43. Answer: D

Hordeolum is an infection of the Meibomian glands of the eyelid. Symptoms include pain, redness, and swelling.

44. Answer: D

Telangiectatic vessels are often visible in the lesions seen with basal cell carcinoma.

45. Answer: A

Cerebellar function is tested by finger-to-nose, heel-to-knee, rapid alternating movements, and gait.

46. Answer: B

Sarcoidosis is common in the third and fourth decades of life. There are often no lung findings noted on exam and hepatosplenomegaly is a common finding. Hypercalcemia is found in about 5% of patients with sarcoidosis and indicates need for therapy.

47. Answer: A

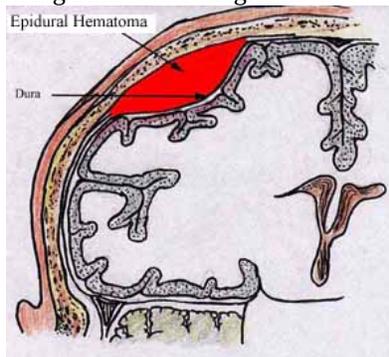
Durable remission following splenectomy is achieved in 60 to 65 percent of ITP cases, less so in older subjects. The use of splenectomy to treat ITP has diminished since the development of steroid therapy and other pharmaceutical remedies.

48. Answer: A

The daily dose-free interval sufficient to avoid tolerance to ISDN has not been well defined. Studies of nitroglycerin (an organic nitrate with a very short half-life) have shown that daily dose-free intervals of 10 to 12 hours are usually sufficient to minimize tolerance. Daily dose-free intervals that have succeeded in avoiding tolerance during trials of moderate doses (e.g., 30 mg) of immediate-release ISDN have generally been somewhat longer (at least 14 hours), but this is consistent with the longer half-lives of ISDN and its active metabolites. For the formulation of controlled-release Isosorbide dinitrate, the necessary dose-free interval must be greater than 18 hours. (FDA)

49. Answer: D

Epidural hematoma (EDH) is the accumulation of blood in the potential space between brain dura and bone. EDH occurs in approximately 2% of patients with head injuries and 5- 15% of patients with fatal head injuries. EDH is considered to be the most serious complication of head injury, requiring immediate diagnosis and surgical intervention.



50. Answer: D

Age-related macular degeneration (AMD) is a medical condition which usually affects older adults and results in a loss of vision in the center of the visual field (the macula) because of damage to the retina. In the dry (nonexudative) form, cellular debris called drusen accumulate between the retina and the choroid, and the retina can become detached. In the wet (exudative) form, which is more severe, blood vessels grow up from the choroid behind the retina, and the retina can also become detached. Drusen (singular, "druse") are tiny yellow or white accumulations of extracellular material that build up in Bruch's membrane of the eye. The presence of a few small ("hard") drusen is normal with advancing age, and most people over 40 have some hard drusen. However, the presence of larger and more numerous drusen in the macula is a common early sign of age-related macular degeneration (AMD).

51. Answer: C

The cause of rheumatoid arthritis (RA) is unknown. It is an autoimmune disease, which means the body's immune system mistakenly attacks healthy tissue. RA can occur at any age, but is more common in middle age. Women get RA more often than men. Infection, genes, and hormone changes may be linked to the disease. RA usually affects joints on both sides of the body equally. Wrists, fingers, knees, feet, and ankles are the most common sites.

52. Answer: D

Obstructive diseases (such as COPD and bronchiectasis) are associated with increased lung volumes (including residual volume) due to air trapping (obstruction). All the others are decreased in emphysema.

53. Answer: B

Isoniazid is associated with hepatitis (especially in patients older than 35 years of age), and peripheral neuropathy (prevented with the co-administration of vitamin B6/pyridoxine). Patients may have interactions with tyramine-containing foods.

54. Answer: C

The ocular weakness and generalized weakness that is worse with repeated use of the muscle is hallmark for myasthenia gravis. Myasthenia gravis is an autoimmune disorder of the peripheral nerves due to auto-antibodies against the POST-synaptic acetylcholine receptor, causing progressive weakness that is worse with repeated muscle use. Up to 75% of patients with myasthenia gravis have a thymus gland abnormality (such as a thymoma or hyperplasia). In the neurologic exam, the reflexes are usually normal with Myasthenia gravis.

55. Answer: A

The signs of edema, proteinuria, and hyperlipidemia are hallmark of nephrotic syndrome. 80% of nephrotic syndrome in children is due to minimal change disease and the management of choice is prednisone. >80% of children with nephrotic syndrome will have remission with steroid therapy after 3 months.

56. Answer: A

Procainamide is a class I antiarrhythmic that has been shown to prolong repolarization and the refractory period. Class I antiarrhythmics block sodium channels.

57. Answer: B

Amenorrhea (the absence of menses) is divided into primary and secondary causes. Secondary amenorrhea is defined as the absence of menses for at least 3 months in a patient with a previously normal menstruation (or 9 months in patients who was previously oligomenorrhea). Pregnancy is the most common cause of secondary amenorrhea so the first step in the workup of amenorrhea is to rule out pregnancy.

58. Answer: A

This is the classic malar rash associated with lupus erythematosus. It presents with an erythematous malar rash with sparing of the nasolabial folds. Anti nuclear antibody testing is used to screen suspected cases of systemic lupus erythematosus. Antibodies specific to SLE includes anti double-stranded DNA and Anti-Smith antibodies. Suspect lupus in the differential in a young woman presenting with fever, joint pain and a rash worsened with sun exposure.

59. Answer: C

Boerhaave syndrome is an esophageal rupture, causing the air in the esophagus to be absorbed into the soft tissues, leading to pneumomediastinum.

60. Answer: D

The signs and symptoms in this scenario are consistent with acute stroke with probable involvement of the middle cerebral artery (since the weakness is more pronounced in the upper extremities compared to the lower extremities). A CT scan of the head is recommended to rule out hemorrhagic stroke because the patient presented in less than 3 hours from the symptoms onset so he may be a candidate for thrombolytic therapy (after a hemorrhagic stroke is ruled out).

61. Answer: B

Most *Pasteurella* isolates are susceptible to oral antimicrobials such as amoxicillin, amoxicillin/clavulanic acid, minocycline, fluoroquinolones, and trimethoprim/sulfamethoxazole.

62. Answer: C

Alpha thalassemia intermedia (Hemoglobin H disease) is associated with decreased production of hemoglobin alpha chains. There are 4 genes that encode for the alpha subunit. In patients with alpha thalassemia intermedia, there is only one functioning gene. The decreased alpha chain synthesis leads to excess beta chains that form insoluble tetramers called Heinz bodies that show up as red blood cell inclusions. These patients present with a severe anemia similar to beta thalassemia major (Cooley's anemia) characterized by severe anemia, hepatosplenomegaly, frontal and maxilla overgrowth, pigmented gallstones and iron overload.

63. Answer: D

Abruptio placentae is the premature separation of the placenta from the uterine wall, most commonly occurring in the third trimester. It is classically associated with severe abdominal pain, painful uterine contractions and a rigid uterus. The most common predisposing factor for abruptio placentae is maternal hypertension (which is present in this patient).

64. Answer: C

These findings are consistent with a left bundle branch block. Left bundle branches are considered a myocardial equivalent because myocardial infarctions can present the new bundle branch blocks. Preexisting left bundle branch blocks are already associated with ST elevations. The Sgarbossa criteria can be used to determine the possibility of ST elevation MI patients with left bundle branch blocks.

65. Answer: A

Basal cell carcinoma is a malignant skin tumor. The lesion of basal cell carcinoma is usually described as a small, raised, translucent, pearly papule with central ulceration and rolled borders. Basal cell carcinoma most commonly occurs on the face, nose and trunk. Basal carcinoma is the most common type of skin cancer in the United States and is seen most commonly in fair-skinned individuals with prolonged sun exposure and patients with xeroderma.

66. Answer: C

Acute cholangitis usually presents with the triad of fever, right upper quadrant abdominal pain and jaundice. Cholangitis occurs when a stone obstructs a bile duct, leading to a subsequent infection of the bile ducts and cholestasis. An increased ALP with GGT is indicative of cholestasis.

67. Answer: C

This describes the basic pathophysiology of sarcoidosis and also explains why corticosteroids are used in the management of sarcoidosis (they blunt the immune response and decrease the granuloma formation). Sarcoidosis is suspected based on the presence of erythema nodosum (bilateral anterior shin redness that is tender to palpation), uveitis (eye pain and redness) and pulmonary involvement (nonproductive cough with a chest radiograph showing bilateral hilar lymphadenopathy). Lupus pernio is the pathognomonic skin finding in patients with sarcoidosis.

68. Answer: B

In patients older than 40 years old who present with hematuria with a negative urinalysis, one should rule out a malignancy of the urinary tract. Cystoscopy allows for possible biopsy if bladder cancer is seen.

69. Answer: C

Erysipelas is a variant of cellulitis, distinguished by well demarcated (sharp borders), marked erythema and warmth (hence the nickname St. Anthony's fire). Erysipelas occurs most commonly on the face.

70. Answer: B

The sigmoid colon (located in the left lower quadrant) is the most common site for diverticula formation. Classically diverticulitis presents with left lower quadrant pain.

71. Answer: B

Narcotics are miosis, so narcotic intoxication will cause pinpoint pupils. Narcotic withdrawal will cause the opposite, mydriasis. All of the other choices are associated with narcotic withdrawal.

72. Answer: B

Chloroquine is the drug of choice for management in chloroquine sensitive areas. For Chloroquine resistance, Atovaquone (Choice C) + Doxycycline (Choice A) or clindamycin (Choice D) can be used.

73. Answer: C

Osteomalacia is due to vitamin D deficiency in adults. It is associated with demineralization of the bone. In some areas, the demineralized bone (osteoid) can give the appearance of a fracture. This is called a Looser line or Looser zone.

74. Answer: E

Primary adrenal insufficiency is lack of the adrenal cortex production of cortisol, aldosterone (and androgen in females). The low levels of cortisol stimulate increased pituitary ACTH secretion. The increased ACTH levels cause increases in melanocyte stimulating hormone levels (both ACTH and MSH made from the same precursor molecule), leading to hyperpigmentation. In secondary, there is decreased ACTH production so there is no hyperpigmentation. All of the other symptoms can be seen in both primary and secondary insufficiency.

75. Answer: A

Naegle's rule states that pregnancies last approximately 280 days (40 weeks) so to calculate it, use the first day of the menstrual period and subtract 3 months and add seven days to get a rough estimated due date.

76. Answer: D

This is the classic presentation of pulmonary embolism. All of the choices can be used in suspected pulmonary embolism so this question tests your ability to tell the indications and contraindications for each test. Spiral CT scan of the chest with IV contrast is considered the best initial screening test for pulmonary embolism in a patient with moderate to high clinical suspicion. There is a high clinical suspicion because she is a smoker, she is on oral contraceptives (hypercoagulability) and she had a car ride greater than 4 hours (venous stasis).

77. Answer: C

Acetaminophen poisoning can cause gastroenteritis within hours and hepatotoxicity 1 to 3 days after ingestion. Severity of hepatotoxicity after a single acute overdose is predicted by serum acetaminophen levels. Treatment is with N-acetylcysteine to prevent or minimize hepatotoxicity.

78. Answer: B

The patient has an unstable tachycardia, evident by chest pain, hypotension and persistent symptoms. Synchronized cardioversion is the first line management of unstable tachycardia. Synchronized cardioversion works by giving an electrical shock, which places all the cardiac cells in the absolute refractory period, terminating the tachyarrhythmia and allowing recovery of the sinoatrial node to become the dominant pacemaker.

79. Answer: C

In patients with mitral valve prolapse with autonomic symptoms, beta blockers can be given to reduce the symptoms. Otherwise, in the majority of patients with mitral valve prolapse without significant autonomic symptoms, observation and reassurance is the treatment of choice. This is a key point to remember. Without significant autonomic symptoms, choose reassurance.

80. Answer: B

Amiodarone is a class III antiarrhythmic. Because it contains iodine, it may cause hyperthyroid or hypothyroid disorders. Other side effects include corneal deposits with long term use and pulmonary fibrosis.

81. Answer: B

This is the classic description of CREST syndrome (limited scleroderma). CREST is a mnemonic for Calcinosis cutis, Raynaud's phenomenon, Esophageal motility disorders, Sclerodactyly and Telangiectasia. Anti-centromere antibodies are associated with limited scleroderma whereas Scl-70 antibodies are more commonly associated with diffuse scleroderma.

82. Answer: D

Unilateral Nevoid Telangiectasia Syndrome is characterized by superficial telangiectasias in a unilateral distribution and is seen in patient with underlying hepatic disease.

83. Answer: C

A DEXA scan is the diagnostic test of choice for suspected osteoporosis (defined as a T score of  $\leq -2.5$ ). All of the other choices may be used as adjuncts for osteoporosis or other suspected bone disorders but is not the diagnostic test of choice.

84. Answer: D

Anterior cruciate ligament injuries are commonly associated with sudden deceleration, pivoting injuries. It is classically associated with a pop and then swelling from hemarthrosis. Sometimes, the ruptured ACL can pull off a piece of the lateral tibial condyle at the ACL insertion site. This is known as Segond's fracture. The Lachman's test is positive in patients with ACL injuries. An anterior drawer test may also be done but Lachman's test is more sensitive than the anterior drawer test for ACL injuries.

85. Answer: B

The treatment of choice for localized non small cell carcinoma (squamous cell, bronchoalveolar and large cell and adenocarcinoma) is surgical resection.

86. Answer: B

This is a classic presentation of malignant otitis externa, which is seen commonly in diabetics. Pseudomonas aeruginosa is the most common cause of acute otitis externa as well as malignant otitis externa. Staphylococcus aureus is also a common cause of otitis externa. It can be caused by different bacteria and fungi (if due to fungal causes, Candida and Aspergillus usually predominate).

87. Answer: C

Toxic optic neuropathy can be a side effect of Ethambutol use.

88. Answer B

Janeway lesions are seen in infective endocarditis and are classically described as painless macules seen on the palms and the soles, representing embolic and immune phenomena. They are part of the modified Duke criteria as a minor criterion for suspected infective endocarditis.

89. Answer: A

Restrictive cardiomyopathy is increased ventricular rigidity to diastolic dysfunction with preserved systolic function. Because the ventricles are stiff and noncompliant, it leads to some backup of blood in the atria, leading to bilateral atrial enlargement on echocardiography.

90. Answer: D

Pneumococcal vaccine is recommended in patients over the age of 65, It is also recommended in patients between ages of 2-64 years with chronic diseases, such as congenital cardiac, pulmonary diseases, alcoholism, diabetes mellitus, asplenia, and immunocompromised patients.

91. Answer: B

In testing for development hip dysplasia/dislocation, the Barlow test can be performed. It involves adducting the hip with pressure placed on the knee pressing posteriorly. Once the hip dislocation is diagnosed, the Ortolani maneuver can be used to reduce it.

92. Answer: D

Biguanides, such as metformin, work primarily by decreasing hepatic glucose production. They have no effect on pancreatic beta cell insulin secretion, so they are not associated with hypoglycemia. Most frequent complaint of patients when taking this medication is diarrhea.

93. Answer: A

This is the classic presentation of pelvic inflammatory disease, an ascending infection of the upper reproductive tract. Patients with PID usually present with pelvic/lower abdominal pain. Cervical motion tenderness (a positive Chandelier's sign) is hallmark of PID. Gonorrhea and chlamydia are two of the most common causes of PID, so treatment will often cover these two organisms unless other organisms are suspected.

94. Answer: A

Schizophrenia is defined as functional decline, hallucinations and bizarre delusions of greater than 6 months duration with 1 month of acute symptoms. This patient has auditory hallucinations and control delusions. He also exhibits some negative symptoms. (cold, flat affect).

95. Answer: E

Tinea versicolor classically presents with erythematous plaques and fine white scales common in the scalp, face, eyebrows, beard, nasolabial folds, chest and intertriginous regions of the groin. Tinea versicolor is classically associated with Malassezia furfur, a yeast that is part of the normal flora but causes a reaction in some patients. All of the other choices can be used in the management of Tinea versicolor.

96. Answer: B

The positive fern test and cervical effacement suggests preterm labor (defined as regular uterine contractions and cervical dilation before 37 weeks gestation). An L:S ratio <2:1 indicated fetal lung immaturity so tocolytics (such as terbutaline or magnesium sulfate) can be given for 48 hours to delay delivery and allow for corticosteroid administration (to enhance fetal lung maturity). This is not used if there is suspected infection (in this vignette there is no foul discharge and the patient is afebrile).

97. Answer: E

This is a common radiograph finding due to micro infarctions leading to central endplate depression of the vertebrae

98. Answer: E

Bisphosphonates used in the treatment of osteoporosis tend to be tolerated well but can cause mild esophagitis in patients.

99. Answer: C

Lisinopril is an angiotensin converting enzyme inhibitor. Side effects of ACE inhibitors include teratogenicity and hypotension (it is used as an anti-hypertensive). Although ACE inhibitors are "renal protective", they may cause azotemia in some patients with baseline kidney disease. Dry cough and angioedema are common side effects of ACE inhibition (due to an increase in bradykinin, a potent vasodilator). The inhibition of aldosterone leads to hyperkalemia not hypokalemia.

100. Answer: D

Staphylococcus aureus is the most common organism in osteomyelitis in adults and children (including children with sickle cell disease). In patients with sickle cell disease, they are usually asplenic by adulthood (from either splenic crisis or from repeated micro infarctions to the spleen). The spleen is responsible for recognizing encapsulated organisms such as: Salmonella, Streptococcus pneumonia and Haemophilus influenza, putting these patients at increased risk of infections with these organisms. Patients with sickle cell disease have an increased incidence of Salmonella osteomyelitis (a gram negative organism such as seen in this vignette by the pink staining rod-shaped bacteria). Third generation cephalosporins, such as Ceftriaxone, have a great gram-negative coverage of certain gram-positive organisms.