USMLE™

Step 3

EXPLANATIONS TO RELEASED ITEMS

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1. **The correct answer is A.** The history and physical in this 21-year-old man raises the possibility of HIV infection. There is a strong suggestion of homosexuality, given that the rectal examination demonstrates multiple perianal contusions and blood oozing from the anal orifice. Furthermore, this man has generalized lymphadenopathy; his chief complaint is of pulmonary distress with an x-ray consistent with *Pneumocystis carinii* pneumonia. Since the patient has become increasingly short of breath and is febrile, he should be treated with intravenous therapy.

   There is nothing here to suggest the possibility of a gram-negative pneumonia, so gentamicin **(choice B)** is wrong.

   The use of oral erythromycin **(choice C)** might be appropriate in a patient in whom Mycoplasma pneumonia is suspected; however, as described above, the strong suspicion of HIV infection makes this a less likely diagnosis than pneumocystis.

   Isoniazid and rifampin **(choice D)** is not indicated in this case because the findings are more consistent with *Pneumocystis carinii* pneumonia than with tuberculosis.

   Aspirin, fluids, and rest **(choice E)** are inappropriate management for this patient with Pneumocystis carinii pneumonia.

2. **The correct answer is C.** The basic issue in this question is that of patient compliance. In an ideal world, all patients would take the appropriate therapy at the appropriate times. However, in actual practice, patients are not entirely compliant and therefore, management of their medical issues needs to be tailored to that fact. For this patient, it is clearly stated that she "sometimes" uses condoms and has "great trouble" remembering to take her oral contraceptive pills. Therefore, a long-acting birth control agent that does not require compliance is ideal.

   Advising her to continue to take oral contraceptives **(choice A)** fails to acknowledge the compliance issues with this patient and amounts to wishful thinking on the part of a caregiver.

   Intrauterine devices **(choice B)** or "IUDs" are not typically recommended for birth control in young women when there are other more reasonable options. In the early 1970s, these devices were very popular, however by the mid 1970s concerns over infection and increased risk of spontaneous abortions effectively led to their near total absence in clinical medicine. Today's IUDs are safer but a big concern, still debated by many, is the increased risk of pelvic inflammatory disease with use of these devices.

   Tubal ligation **(choice D)** is not a reasonable option for this patient. She is young (age 17), unmarried, and may want to have children again in the future when her social situation is more amenable to children.

   A diaphragm **(choice E)** is also not appropriate for this patient for similar compliance issues discussed above. Since she is unable to reliably use condoms or take pills, it is highly likely that she will be unable to reliably place a this device *prior* to sexual intercourse.

3. **The correct answer is A.** This description of a 19-year-old African-American student includes a number of signs and symptoms consistent with anemia; i.e., marked fatigue, striking pallor, and soft blowing systolic murmur (flow murmur).

Petechial hemorrhages may suggest a platelet disorder or vasculitis. The most important first study at this time would be a CBC, which would reveal his hematocrit as well as his platelet count. Although choices **(choices B, C, D, and E)** may all be appropriate, they would not be the first tests ordered.

4. **The correct answer is E.** The treatment of scoliosis is dependent on the age of the patient and curve progression. Premenarchal females have a greater chance of curve progression then females one to two years after menarche with similar curves. Curves of less than 25 degrees are observed and reevaluated every four to six months. The stage of pubertal development is important to note because a patient who has attained menarche will only have a small amount of additional growth; therefore, scoliosis will not progress.

   Arm length **(choice A)** may make one suspicious for diseases or problems associated with scoliosis, such as Marfan syndrome; however, it is not the most important finding when evaluating scoliosis.

   A complete physical examination in a child or adolescent with scoliosis is essential because the deformity may be suggestive of an underlying disease process. However, blood pressure and body weight **(choices B and C)** usually do not play an important role in the diagnosis and treatment of scoliosis.

   The cardiac examination **(choice D)** may point to Marfan syndrome if a heart murmur is present such as mitral valve prolapse; however, most patients with scoliosis have the idiopathic form that occurs in healthy neurologically normal children. The etiology of idiopathic scoliosis is unknown.

5. **The correct answer is A.** This infant is moderately to severely dehydrated. The history of watery stools and the associated physical findings suggest a child in dire need of rehydration therapy. Dry mucous membranes, poor skin turgor, skin tenting, sunken fontanels and weight loss are all consistent with moderate to severe dehydration. The lethargy and somnolence suggest more severe dehydration. Intravenous rehydration therapy, or in the case where suitable venous access cannot be obtained, interosseous therapy, is the immediate intervention in this case. The goals of therapy should include replacement of any deficits, any ongoing losses and daily maintenance requirements.

   Educating the mother **(choice B)** about dehydration is appropriate, but not prior to intervention to assist the infant.

   Obtaining serum electrolytes and initiating oral rehydration therapy **(choice C)** is inappropriate. This child will be unable to tolerate substantial oral intake due to somnolence. Additionally, electrolytes will be consistent with profound dehydration:

   elevated creatinine, hypokalemia and hypernatremia. These results are expected and will not alter management in any capacity.

   It will be important to diagnose why this child has watery stool **(choice D)** but the diagnostic workup of the stool should not take precedence over therapy of the infant.

   It is entirely possible that breast-feeding **(choice E)** is associated with the cause for the watery stools, but these specific issues of future prevention of dehydration are best dealt with after the child has been successfully rehydrated.

6. **The correct answer is E.** The patient is presenting with signs of septic shock from pyelonephritis, including nausea, confusion, chills, fever, flank pain, and cloudy urine. The hemorrhagic extremity lesions are most likely a sign of septicemia and toxemia. Immediate treatment with intravenous antibiotics is necessary to prevent cardiopulmonary collapse and death.

   Diabetic ketoacidosis **(choice A)** is a possibility, but the cloudy urine, chills, fever, and hypotension point to developing pyelonephritis and septic shock in this patient. Diabetic ketoacidosis alone would be unlikely to give a fever and chills.

   Hyperosmolar coma **(choice B)** typically presents with decreased consciousness in the absence of signs of sepsis. The cloudy urine, chills, fever, and hypotension point to developing pyelonephritis and septic shock in this patient.

   Meningitis **(choice C)** is unlikely because the neck is supple. Meningitis cannot be definitively excluded without a lumbar puncture, however. In this patient, the signs and symptoms clearly point to pyelonephritis and sepsis, and another source of infection does not need to be worked up at this time.

   Pneumonia **(choice D)** is unlikely because the lungs are clear. This could be confirmed by a chest x-ray. However, the patient in this case has signs and symptoms consistent with pyelonephritis and sepsis.

7. **The correct answer is A.** This patient is young and quite ill. She has multiple medical issues active at once and therefore, the question requires focus on the physical findings. A history of insulin dependent diabetes, coupled with the presence of retinopathy on exam, is an indication that this patient has poorly controlled diabetes. The physical findings of fever and right CVA pain associated with a history of multiple recurrent urinary infections makes clear that this patient has an active infection. The danger for her is that of diabetic ketoacidosis or severe renal damage. In the case of anuria, the most common cause in poorly controlled diabetics is papillary necrosis. Renal papillary necrosis occurs in about 2 out of 10,000 people. It is most commonly associated with analgesic nephropathy and it also occurs in patients with diabetic nephropathy. Diabetics with retinal lesions have a 20-50% incidence of concomitant renal disease. Anuria is the setting of severe diabetes is almost always associated with acute tubular necrosis (ATN) from a cell death such as that with papillary necrosis.

   Bladder outlet obstruction **(choice B)** or renal lithiasis **(choice D)** are unlikely is this patient since she has no history of renal calculi.

   Neurogenic bladder **(choice C)** commonly occurs with advanced diabetes as part of the general autonomic neuropathy. However, it is not an acute occurrence and since the patient had no history of generalized autonomic dysfunction or bladder dysfunction, this is unlikely to be the cause of her anuria.

   Tumor encroachment on the ureters **(choice E)** is highly unlikely given that there is no component of this patient's history or physical exam that suggests tumor.

8. **The correct answer is A.** In approximately 10% of HBV-infected patients, an immune complex–mediated "serum sickness–like" reaction is seen. Fever, glomerulonephritis, arthralgias, and a urticarial maculopapular rash may also be

present. An arthritis-like picture involving the joints of the hands, wrists, and elbows may also be seen.

These symptoms resolve with the onset of jaundice, and hence are related to the progress of liver disease **(choice B).**

The presence of HBsAg in the blood implies infectivity **(choice C)** via both sexual contact and exposure to blood.

In 5-10% of cases, HBV infection progresses to chronic hepatitis **(choice D);** from there there's a 1% chance of progressing to fulminant hepatitis.

Once the patient is already infected, administering hepatitis B immunoglobulin is of no benefit **(choice E).**

9. The correct answer is B. The history of psychiatric illness in this patient is meant to be a red herring of sorts. The physician-patient relationship is the concept at the core of this question•specifically, does the personality of the patient play a role in how a physician behaves? The answer generally speaking is no, it does not. Each patient should be approached in the same professional and courteous manner. All patients should be informed about issues concerning their care and they should be made to feel comfortable. This standard approach may not be "effective" for all patients in that some patients may report that their physician is "cold" or "aloof" while others might report that the physician is "friendly" or "quite personable." This is common when dealing with a diversity of patient types.

Triggering his paranoia **(choice A)** by offering "excessive" details about procedures is not the issue. Details and the method of how a physician approaches informed consent should not be dictated by patient illness but by the rules governing informed consent. By attenuating details to "save" the patient from discomfort may compromise the informed consent process.

Engaging in an overly friendly behavior **(choice C),** for the reasons mentioned above, is not the appropriate manner in which to approach the formation of a physician patient relationship.

Having the psychiatrist **(choice D)** discuss medical treatment options is inappropriate since the psychiatrist is not an internist and therefore, is not qualified to discuss such options.

Communicating with people other than the patient **(choice E)** is a violation of patient confidentiality and cannot be done without the permission of the patient.

10. The correct answer is B. The mother, whose age is unspecified, but is likely less than 60 years old, has no major risk factors for cardiac disease and her cholesterol levels are not elevated enough to trigger concern for a familial hypercholesterolemia. For these reasons, her child does not require any immediate attention but should wait until roughly two years old when his diet is free of breast milk and other sources of high fat content that infants often require.

For these reasons, decreasing the child's fat intake **(choice A),** or immediate attention to possible hyperlipidemia **(choice C)** or **(choice D)** is unwarranted. If a cholesterol panel is desired, it must be done after a fast.

There is no reason to refer this child to a specialist **(choice E)** since the mother has no evidence of an inherited lipid disorder and therefore the child is highly unlikely to have a congenital hyperlipidemia.

11. The correct answer is E. This patient most likely has aortic insufficiency. One of the hallmark physical findings of this valvular lesion is the presence of a wide pulse pressure secondary to the diastolic run-off back into the ventricle. Other signs such as Quincke's pulse or Musset's sign may also be present.

A bifid pulse **(choice A)** is seen with hypertrophic cardiomyopathy and is best appreciated by palpation of the carotid artery. This bifid pulse occurs as a result of no obstruction to blood flowing out from the left heart chamber in the beginning, followed by an obstruction in the middle of systole, and finally by a lessening of the obstruction at the end of systole.

Low amplitude pulse **(choice B)** is seen with peripheral arteriosclerosis.

Pulsus alternans **(choice C)** where one pulse feels large, the next pulse feels small, is appreciated with severe congestive heart failure.

Pulsus paradoxus **(choice D)** is an exaggeration of a normally present fall is systolic blood pressure with inspiration. Normal decrease in systolic pressure should be 10 mm Hg or less but with pulsus paradoxus, it can be 15-20 mm Hg. This is most commonly seen with constrictive or restrictive diseases of the heart or pericardium.

12. The correct answer is D. This patient complains of a variety of symptoms, but they are localizing. She complains of paresthesias and dysesthesias in her right hand, this in association with increased deep tendon reflexes of her upper extremities. She also has pain behind her left eye in association with partial atrophy of her left optic nerve. This patient has classic symptoms of multiple sclerosis and with inflammation of the orbital portion of the optic nerve, usually unilateral. Weakness is a very important symptom in MS, and is particularly important when it occurs in only one area of the body (localized or focal weakness). MRI is the diagnostic modality of choice to ascertain the presence of the characteristic demyelinating lesions.

CSF fluid analysis **(choice A)** may reveal elevated protein levels but this finding is neither sensitive nor specific.

Electromyography **(choice B)** will determine where along the motor neuron-neuromuscular conduit the cause for the weakness lies. Specifically it will determine if the weakness is due to intrinsic muscle weakness. Since this is not a diagnostic test, it is not superior to an MRI in this setting.

This patient has clear physical findings that are consistent with some sort of organic disturbance. The MMPI **(choice C)** is reserved for people in whom a primary psychiatric disorder is suspected (conversion or somatoform disorder). It provides clear, valid descriptions of people's problems, symptoms, and characteristics in broadly accepted clinical language.

Serum protein electrophoresis or SPEP **(choice D)** is useful for diagnosing immunoglobulin deficiency or excess (macroglobulinemias).

13. The correct answer is B. This child has a hemangioma. These are congenital birthmarks, the cause of which has not been definitively determined. Hemangiomas that are flat and appear reddish in color are called "superficial" and those that are deep beneath the skin and appear bluish in color are called "deep" hemangiomas. Hemangiomas can grow for up to 18 months and then begin a long slow regression known as involution. This involution can last from 3-10 years.

Steroids, given either intravenously **(choice A)** or topically **(choice E),** are not useful as there is no evidence that the marks are secondary to an inflammatory process.

Radiation therapy **(choice C)** is not effective for this type of lesion.

Surgical excision **(choice D)** has been shown to reduce the need for corrective surgery after "involution" has occurred; or to, at least, minimize extensive corrective surgeries in the future. The current standard of therapy however is to observe and follow the involution over time. This approach spares many children the need for general anesthesia and surgery.

14. The correct answer is B. The urinalysis in this scenario is significant for a tea-colored appearance, concentrated urine, proteinuria, hematuria, and red blood cell casts. The presence of red blood cell casts indicates that the origin of the bleeding is glomerular in nature, and thus is pathognomonic for acute glomerulonephritis. Postinfectious glomerulonephritis is the most common cause of acute glomerulonephritis in children, with group A beta-hemolytic streptococci being the most frequently associated bacterial etiology. Presenting clinical signs can include an asymptomatic individual with microscopic hematuria, or symptoms such as low-grade fever, malaise, lethargy, abdominal pain, and headache.

Urinalysis in cystitis **(choice A)** reveals pyuria, bacteriuria, and hematuria. Urinalysis in nephrotic syndrome **(choice C)** reveals proteinuria. Urinalysis in pyelonephritis **(choice D)** reveals pyuria, bacteriuria, hematuria, and white blood cell casts. Urinalysis in renal calculi **(choice E)** typically reveals hematuria and, in some instances, crystals.

15. The correct answer is C. Explore with the patient her reasons for not feeling comfortable with sharing this information. In this manner, you can discuss specific reasons for her reluctance to involve her parents, and counsel her appropriately.

An attempt to persuade her to share the information with a parent **(choice A)** may only exacerbate an already tenuous relationship with her parents.

Explaining that by law you are unable to maintain confidentiality **(choice B)** is incorrect. She requires counseling and telling her that you an unable to maintain confidentiality will only make it more difficult for her to trust you. A minor is typically considered to be an "emancipated minor" and capable of making independent medical decisions if they become pregnant or have a sexually transmitted disease, therefore breaching confidentiality is incorrect.

Indicating that she will not be able to hide her pregnancy for long **(choice D)** is a nonproductive argument, and does not preempt a discussion.

It is a clear breech of doctor-patient confidentiality to reassure, and then notify a parent **(choice E).**

Note that when items involve the physician–patient relationship, certain legal and ethical principles are usually being addressed. In this item, the girl is a minor, and you are probably familiar with both her history and the family situation. There is a tacit assumption in this long-term relationship that some degree of trust has been established, which means that you are obligated to try to determine more about her reluctance to share this information with her parents, or at least to attempt to learn more about her feelings on the matter. A general rule on these types of items is to select the response that will "facilitate communication and elicit information" whenever there is such an option.

16. The correct answer is B. Measuring arterial blood pressures in the upper and lower extremities is the appropriate next step when evaluating an infant for congenital heart disease. This is especially helpful when considering coarctation of the aorta, as such infants may demonstrate a difference in the pulsations and blood pressures of the upper and lower extremities.

Funduscopic examination **(choice A)** is not the most appropriate examination in this child, who is suspected of having congenital heart disease. The funduscopic examination was used as a distracter because the question mentions that the infant is Jewish. The examiners are attempting to distract the test-taker by suggesting that this Jewish infant has Tay-Sachs disease, which is a neurodegenerative disorder prevalent in the Ashkenazi Jewish population. Children with Tay-Sachs disease may have a "cherry-red spot" in the macular region on funduscopic examination.

Abdominal ultrasonography **(choice C)** would be done to rule out renal disease.

Likewise, although both a chest x-ray film **(choice D)** and an electrocardiograph **(choice E)** should be included in the evaluation of this patient, they are not the most appropriate next step. Always do the least invasive study on your patient.

17. The correct answer is A. Beta thalassemia, an autosomal recessive trait, has a carrier incidence of approximately 1:33. For a patient to be affected significantly enough to put her fetus at risk, she would have a mild microcytic hypochromic anemia (Hct 28–32%, MCV < 80); a normal blood count and red cell index rules out such a carrier status.

Hemoglobin electrophoresis **(choice B)** can be used for confirmation of her carrier status (Hgb A2 > 3.5%).

The red cell osmotic fragility test **(choice C)** is used to determine the presence of hereditary stomacytosis, an uncommon autosomal dominant disorder affecting the red cell membrane.

RFLP analysis **(choice D)** of her beta globin gene is expensive, time-consuming, and unnecessary, since sufficient information can be obtained from a CBC with red cell indices.

Reticulocyte count **(choice E)** merely tells you that the patient is manufacturing new red cells, and is depressed with anemias of chronic diseases and aplastic anemia.

18. The correct answer is E. The concern with infectious mononucleosis, a disease caused by the Epstein-Barr virus, is for splenomegaly. The issue of contact sports after a course of mono relates solely to when the risk of splenic injury has declined. No treatment other than rest is needed in the vast majority of cases. The spleen, being part of the lymphatic system, will generally regress in size in accord with the decline in physical signs, such as swollen lymph nodes.

Waiting until next season **(choice A)** is too long and, although likely to allow a large margin of safety, will unnecessarily keep the student from playing his sport.

The Monospot test **(choice B)** is the diagnostic test that detects the antibody generated against the EBV (heterophil antibody) in the blood of the patient. Since the immune response is last quite long, a negative Monospot test may take years to become present.

Waiting for the patient to be symptom free **(choice C)** is also too long as fatigue may persist for months after the resolution of the lymph node enlargement.

The CBC **(choice D)** may return to normal well before the lymph nodes have regressed in size.

19. The correct answer is A. This 34-year-old man's past medical history includes multiple prior infections, including mononucleosis, hepatitis B, prostatitis, and tinea versicolor. Furthermore, he has had a subacute illness with weight loss, fevers, and a nonproductive cough. The history of hepatitis B and prostatitis in a young man with these symptoms should always suggest the possibility of HIV infection transmitted through homosexual activity. Of the listed infections (impetigo **[choice B],** infectious mononucleosis **[choice C],** prostatitis **[choice D]),** hepatitis B is the infection most likely to be transmitted sexually.

20. The correct answer is A. Although the history is suggestive of HIV, it is not entirely clear from the history whether the sexually transmitted disease was obtained through homosexual or heterosexual activity. In a 34-year-old man in this country, HIV is more often associated with homosexual than heterosexual transmission. However, the most appropriate phrasing of a question about sexual orientation is the one that asks for a detailed sexual history in a neutral manner.

Asking about homosexual relations **(choice B),** the number of girlfriends **(choice C),** and how many times he has had sex with other men **(choice D)** are not the most appropriate way to inquire about his sexual orientation. It is best to ask a broad, neutral, nonleading question.

Asking about his views on homosexuality **(choice E)** is inappropriate and irrelevant.

21. The correct answer is A. This question clearly describes a situation in which a colleague may be behaving inappropriately with a female patient. This is suggested by the "no charge" fee and his defensive posture when questioned. This choice indicates awareness by the physician of a possible inappropriate physician-patient relationship, and indicates a willingness to help. It would not be appropriate to accuse the colleague directly, given the lack of evidence. On the other hand, there is clearly enough information given in this question to raise suspicion.

Choices B, C, D, and **E** are not the most appropriate response because they may make your colleague defensive.

22. The correct answer is C. This patient has no clear localizing signs of symptoms in the case as presented. The only clues to her illness come from the family history of anxiety and the fact that her history is essentially unremarkable. Her report of any problems during the episode is equally unimpressive with her denying any pain and speaking in complete and coherent sentences. Of the choices given, psychogenic illness is the most likely answer.

An acute dystonic reaction **(choice A)** is most often seen with low potency neuroleptic agents such as haloperidol (butyrophenone class of drugs). It is for this reason that central anticholinergic agents such as benztropine are given to patients that receive haloperidol.

Hyperthermia **(choice B)** is unlikely in this patient given her clear and lucid mental status. Although the room is described as being hot, this is more of a red herring that a legitimate, useful piece of information. This form of hyperthermia called "heat stroke" has symptoms that include strong, fast pulse, very high temperature, confusion, strange, or angry behavior. The person may feel chilled, nauseated, or dizzy, and soon becomes unconscious.

Toxic shock syndrome **(choice D)** is caused by a staphylococcal infection most often related to prolonged insertion of tampons. There is no history of such an antecedent event with this patient.

Vasovagal syncope **(choice E)** is characterized by a brief loss of consciousness, with possible bradycardia (the vagal) and loss of peripheral pulses (the vaso portion). The person then is restored to their normal pre-event status with no residual deficits. The event usually lasts 10-15 seconds.

23. The correct answer is B. Lupus is a chronic inflammatory disease that can affect various parts of the body, especially the skin, joints, blood, and kidneys. Arthralgia and skin rashes are very common findings in these patients. The ANA antibody test is often used as a first test in the diagnostic evaluation of lupus. Laboratory tests which measure complement levels in the blood are also of some value. Complement is a blood protein that, with antibodies, destroys bacteria. It is an "amplifier" of immune function. If the total blood complement level is low, or the C3 or C4 complement values are low, and the person also has a positive ANA, some weight is added to the diagnosis of lupus. Low C3 and C4 complement levels in individuals with positive ANA test results may also be indicative of lupus kidney disease.

Decreased helper (CD4) T cells **(choice A)** are characteristic of certain hereditary T-cell deficiencies as well as acquired ones such as AIDS.

Increased B cells **(choice C)** are characteristic of certain leukemias, lymphomas, or disorders such as multiple myeloma.

Serum antimicrosomal antibodies **(choice D)** are characteristic of subacute lymphocytic thyroiditis. This occurs most often in the postpartum period but may also occur sporadically. Antimicrosomal antibodies are present in 50 to 80% of patients, while antithyroid peroxidase antibodies are present in nearly all patients.

Serum antiplatelet antibodies **(choice E)** are found in disorders such as heparin-induced thrombocytopenia and certain idiopathic thrombocytopenias.

24. The correct answer is A. The patient described has diverticulosis leading to diverticulitis. You must start antibiotics that cover the gram-positive cocci, gram-negative bacilli and anaerobes found in the abdomen. Cefoxitin fits the bill.

Immediate surgery **(choice B)** is too aggressive, particularly without even an attempt at antibiotic therapy.

Ciprofloxacin **(choice C)** is inappropriate as it has poor gram-positive coverage and no anaerobic coverage.

Continuing the present therapy **(choice D)** is incorrect because the worsening pain and chills imply infection.

Colonoscopy **(choice E)** is dangerous in diverticulitis because it can lead to perforation.

25. The correct answer is B. A high fiber diet is the appropriate therapy to try to prevent the formation of further diverticula.

Annual endoscopy **(choice A),** a low-residue diet **(choice C),** reassurance **(choice D),** and prophylactic antibiotics are not indicated.

26. The correct answer is A. Deafness in man may be inherited. Homozygosity at any of several different loci is generally required to produce deafness. If two deaf people marry, they have the same phenotype, namely deafness, but they may not have the same genotype.

If they are homozygous for deafness at the same locus, they would produce only deaf children **(choice B).** Therefore, it is impossible to estimate the risk without further evaluation.

If they are homozygous for deafness at different loci, they would produce children with normal hearing **(choice C)** that carry the allele for deafness at each of two different loci.

Involvement of only the male children **(choice D)** might indicate X-linked inheritance, but the pedigrees show affected females from both families.

Amniocentesis **(choice E),** a procedure in which a small amount of amniotic fluid is withdrawn from the amniotic sac surrounding the fetus, and is cultured for fetal cells, is best used for the diagnosis of chromosomal abnormalities and enzyme deficiencies. The defects involved in deafness cannot be detected using this procedure.

27. The correct answer is E. Sinusitis is a clinical diagnosis and for that reason, no additional testing is mandated when therapy is to be undertaken. This patient has the cardinal manifestations of acute sinusitis: tooth ache, sinus fullness, pain on palpation and purulent discharge. He requires therapy aimed at the most common offending organisms *Streptococcus pneumonia* and *Haemophilus influenza* type B.

A CT scan of the sinuses **(choice A)** is not necessary. This imaging test is usually reserved for patients that are unable to be subjected to an adequate physical examination such as patients in an ICU that have fever of unknown origin.

Plain films of the head **(choice B)** are not sensitive for opacification of the sinuses and are therefore not routinely done.

Transillumination of the sinus **(choice C)** is not a confirmatory test since it is not 100% sensitive (has some false negatives) or specific (has some false positives). In the setting of a highly suspicious physical exam such as this patient's, sinus transillumination, if positive, further supports the diagnosis, but if negative, fails to detract from its likelihood.

Consultation with a dentist **(choice D)** is unnecessary since the patient does not have an isolated tooth ache but it is in association with sinus tenderness and nasal discharge; hallmarks of sinusitis.

28. The correct answer is C. Sinusitis is an infection loculated within the chambers of the sinuses and longer courses of therapy of 2-3 weeks are often necessary to achieve sufficient penetration.

Surgery **(choice A)** is seldom required.

Rates of penicillin allergy **(choice B)** are generally only around 10%.

(Choice D) is wrong because many antibiotics such as macrolides like clarithromycin are useful for sinusitis even though they are bacteriostatic, not bactericidal.

Two antibiotics **(choice E)** are seldom needed and usually only with refractory cases of previously treated sinusitis.

29. The correct answer is B. Headache, fever and stiff neck are all signs of meningeal infection, **choice B.** Sinusitis is known to occasionally lead to meningitis.

There is no description of a rash such as would be found with an allergic reaction **(choice A)** and this would be a rare cause of meningeal signs such as a stiff neck.

Cavernous sinus thrombosis **(choice C)** presents with gaze palsies from involvement of the third, fourth and sixth cranial nerves, which are clearly described as normal here.

There is no description of involvement of the mastoid air cells **(choice D)** such as tenderness over the mastoid process or lateral displacement of the pinna. In addition, mastoid involvement alone does not give a stiff neck.

Obstruction of the maxillary sinus alone **(choice E)** does not result in the stiff neck or ear pain.

30. The correct answer is C. This choice demonstrates that the physician is acting as the patient's advocate, and is accepting his version as the truth. On the other hand, while it is possible that the patient has indeed continued to smoke, this may be insufficient reason to deny him a lung transplant. Contacting the transplant program

to determine whether there are other reasons for rejecting the patient as a candidate is appropriate. Advising him to stop smoking implies that the physician does not believe that the patient has already stopped. The Americans with Disabilities Act **(choice B)** does not govern a transplantation program's eligibility criteria. A transplant program may establish its own exclusion criteria based upon medical necessity and the likelihood of transplantation success.

Advising him to stop smoking and referring him to another transplant program **(choice A)** is inappropriate because you should first find out the contact the transplant program to determine whether there are other reasons for rejecting the patient as a candidate.

(Choice D) is factually incorrect, and **(choice E)** is not the ideal fashion in which to communicate with the transplant program. A verbal dialogue is far superior than merely submitting a written correspondence.

31. The correct answer is C. Before making the diagnosis of hypertension, measurements should be made on three separate occasions. A two-week period is an appropriate interval between exams. Therefore measuring her blood pressure after exercising **(choice E),** reexamining her after her next menstrual cycle **(choice B),** reexamining her in 4 months **(choice D),** and advising her to return in 6 months **(choice A)** are inappropriate management.

32. The correct answer is A. Besides a low-salt diet and antihypertensive medications, all patients should be counseled regarding maintaining or striving for their ideal body weight, and engaging in aerobic activities if no contraindications exist.

Restricting her physical activity **(choice B)** will not contribute to better blood pressure control. In addition, advising her to seek less stressful employment **(choice C),** taking a daily aspirin **(choice D),** and using a combination oral contraceptive **(choice E)** are not indicated.

33. The correct answer is A. She has fortunately remained asymptomatic with a blood pressure that has declined to the normal range. She most likely suffers from essential hypertension and, since this is a lifelong disorder, she will most likely require long-term antihypertensive therapy and therefore discontinuing it **(choice B),** and reducing the dose **(choice E)** are inappropriate at this time.

A chest x-ray and electrocardiogram **(choice C)** and laboratory studies **(choice D)** are not indicated at this time.

34. The correct answer is E. The successful completion of intercourse depends on both psychologic and physical factors. Although this patient is the victim of spousal abuse, there is no indication that she is unable to achieve sexual gratification (quite the opposite is true) suggesting that she is physically and psychologically able to achieve orgasm. The issue is rather pain with a specific form of sexual activity: vaginal intercourse. In the absence of other findings such as blood (cervical cancer), this is most likely due to vaginal muscle tension or spasm.

A change in vaginal flora **(choice A)** may occur depending on the stage of menstruation, infection, antibiotic usage or diet, but this change is not associated with vaginal pain in the absence of vaginal discharge or smell.

A conversion disorder **(choice B)** is a psychiatric illness whereby physical symptoms are manifest solely as a function of mental illness. As mentioned above, this patient appears to be quite able psychologically to attain orgasm. In addition, conversion disorder, according the DSM IV, has specific diagnostic criteria. Among these is that the symptom or deficit is not limited to pain or sexual dysfunction.

Inadequate lubrication **(choice C)** is not likely to be the cause as this does not cause such severe pain and, most importantly, is cured by the addition of lubrication. There is no evidence that such a cure was the case with this patient.

Vestibular gland inflammation **(choice D)** is characterized by burning or itching of the vulva, with tenderness surrounding the vaginal opening.

35. The correct answer is B. Hypokalemia is a very common side effect of nonpotassium-sparing diuretics (e.g., chlorthalidone). This is often more pronounced in the older age group. Patients usually complain of muscle weakness, fatigue, and cramps. Constipation and ileus characterize the smooth muscle involvement, whereas hyporeflexia, flaccid paralysis, and tetany are signs of severe hypokalemia. ***Please note that as of this printing of this document we believe that the letter on the answer key for this item is incorrect.

Diabetes mellitus **(choice A)** may present with these symptoms, but in the absence of a blood sugar level (random or fasting), these symptoms are not diagnostic, nor are they explanatory.

Hypomagnesemia **(choice C)** is characterized by neuromuscular and CNS hyperirritability, which manifests as tremors, athetoid movements, jerking, nystagmus, and a positive Babinski. Muscle weakness, cramps, and tremors are the more common symptoms.

Hyponatremia, **(choice D)** if induced by diuretics, is usually due to unmonitored use of the diuretic. Hyponatremia, if severe (i.e., <120), may manifest as seizures, nausea, vomiting, confusion, and headache, depending on the state of hydration. Fifty mg of chlorthalidone/day, however, is not likely to do so in a 67-year-old who apparently has called the doctor's office.

Metabolic acidosis **(choice E)** should be diagnosed on the basis of an ABG and electrolyte result; there is no predisposing condition in this patient. It manifests as rapid shallow breathing (Kussmaul breathing) in order to blow out the excessive carbon dioxide being produced at tissue level.

36. The correct answer is E. This study reveals nearly identical incidence of death between the patients treated with digoxin (34.8%) and the patients treated with placebo (35.1%), and the 95% confidence intervals include the value 1.0. Therefore, the study reveals no effect on mortality rates.

A beneficial effect on mortality rates **(choice A)** is not correct as the percent of deaths for people receiving digoxin is nearly identical to that of persons receiving placebo.

A beneficial effect on patients with CHF **(choice B)** is incorrect because the trial was concerned with morbidity and mortality, and not other clinical parameters associated with CHF.

There is no data given to suggest that the study was of insufficient size or of limited power **(choice C).**

No effect on CHF **(choice D)** is incorrect because the study was only concerned with the effect of digoxin on long-term morbidity and mortality, and did not look at other factors, such as potential improvement of clinical symptoms.

37. The correct answer is A. It is important to differentiate whether the patient's abdominal pain is due to an underlying organic, psychogenic, or functional cause. A full history must be taken to determine the nature and characteristics of the pain and any associated symptoms. The initial interview should be performed with the entire family together; however, the patient and parents should then be interviewed separately. At this point, the physician may be able to discern if the abdominal pain is a manifestation of a stress in the home or school environment. The patient may also be more forthcoming when interviewed alone, and may verbalize any fears or complaints more easily.

Getting information from the school **(choice B)** is important; however, it is not the most appropriate first step.

A comprehensive physical examination should then be performed, which would include an abdominal and rectal examination **(choice C).**

Screening laboratory evaluation is usually brief, and includes a urinalysis and urine culture, complete blood count, and erythrocyte sedimentation rate. Liver chemistry profile **(choice D)** is not typically included.

Further evaluation is performed, possibly with an x-ray of the abdomen **(choice E)** if any of the features of the abdominal pain are consistent with an underlying organic disorder.

38. The correct answer is C. Depending upon the specialty of medicine and the state in which the physician practices, the state medical board determines whether a physician known to have abused narcotics can practice medicine again. In anesthesia, for example, a rehabilitated physician can no longer practice anesthesia, but may continue to practice in another specialty. These regulations vary widely from state to state and from profession to profession. The key factor is the successful completion of a board-mandated drug rehabilitation program. The state medical board determines his privilege to practice, not The American Board of Surgery **(choice A),** the credentials committee **(choice B),** the U.S. Drug Enforcement Agency **(choice D).**

As stated above, the state medical board determines whether a physician known to have abused narcotics can practice medicine again, and it is usually after the successful completion of a board-mandated drug rehabilitation program. He will not be permitted to practice **(choice E)** is incorrect.

39. The correct answer is B. The tenderness over the right temporal area of the patient's scalp is worrisome for temporal arteritis, which is often associated with an elevated erythrocyte sedimentation rate. Prompt treatment with steroids is often indicated to prevent blindness. The diagnosis can be established with a temporal artery biopsy.

Increasing her dose of NSAIDs **(choice A)** is incorrect. The most common treatments for pain are the non-steroidal anti-inflammatory drugs, or NSAIDs. If this is ineffective, oral steroids such as prednisone should be started.

Since this patient does not have signs or symptoms consistent with any type of arthritis (no joint disease; arthritis is a disease of joints), a serum RF **(choice C)** is not useful.

A radiograph of the cervical spine **(choice D)** is not indicated here as this patient does not describe radicular symptoms that could be attributed to compression of single nerve root. Rather, her symptoms are of generalized weakness. This is not a symptom that a cervical disc could be responsible for.

This patient has clear physical findings that suggest a diagnosis and require examination. She does not require a psychiatric evaluation **(choice E).**

40. The correct answer is D. This patient has inadequately treated insulin-dependent diabetes. The goal serum glucose for therapy is < 120 mg/dL. Since there is no indication that the insulin type is incorrect (hypoglycemia) **(choice B),** the patient simply requires an increased dosage of his current insulin type.

Metformin **(choice A)** is an oral antihyperglycemic agent that acts by increasing peripheral utilization of glucose. The primary purpose of medications such as this is to delay or avoid the requirement for exogenous insulin. Once a patient is on insulin, these drugs are of little benefit. Secondarily, most patients with non-insulin dependent diabetes have relative "insulin resistance" and it is for this reason that glucose utilization drugs are employed as first line management.

This patient's symptoms of increased weight loss and appetite **(choice C)** are a function of his poor glucose control, not of inadequate caloric intake. Poorly controlled insulin dependent diabetics are often thin as they waste muscle to liberate glucose in an attempt to provide glucose for the body. The defect is with the inability to utilize the glucose already present so the end result is hyperglycemia and muscle wasting. For similar reasons, there is no need to alter his caloric distribution **(choice E).**

41. The correct answer is C. This choice demonstrates that the physician is in the position of offering guidance for care of this elderly woman.

Choices A and D indicate that the physician is disapproving of the daughter's care, and in admonishing her, demonstrates a lack of empathy.

Choices B and E are inappropriate suggestions, but **choice C** indicates a safe, practical, and noninvasive approach to treatment of this patient.

42. The correct answer is B. The most common cause of chronic renal failure in the United States is diabetes mellitus. This patient has dialysis dependent renal failure and very specific social constraints on her ability to receive therapy. For this reason, the initiation of dialysis at home would suit both her medical needs and her social needs.

Physicians do not make decisions about excluding patients from care **(choice A)** based upon social, financial or any other factor. Physicians present to their patients all of the options for their care and assist the patient in making the best decision for them. The physician acts as the patient advocate. If the patient refuses dialysis after being presented with that option by her physician, that is her right.

Peritoneal dialysis **(choice C)** is an option for this patient, but generally, hemodialysis is utilized first for a number of reasons. Once patients have exhausted access to their circulation, or they have a specific contra-indication to hemodialysis, a peritoneal dialysis catheter can be placed and PD can be utilized.

There is no evidence that this 75-year-old woman is incapable of making decisions for herself. Since there is no competency issue, she is not mandated to appoint a health care proxy **(choice D).**

Given this patient's social situation, offering her the ultimatum of arranging her own transportation in order to receive HD **(choice E)** effectively precludes her from receiving therapy. This is inappropriate. A social worker should be involved with the planning of HD for this patient so that the appropriate home-health services are made available to her.

43. The correct answer is B. Although emotion may suggest a proper course of action during such a clinical scenario, the issues are clear, and therefore, so is the course of action. This patient has requested that his medical condition not be discussed with anyone, including his wife. Therefore, the most that can be done is for proper clinical advice to be offered to the patient. Making yourself available as needed for your patient and offering a method by which he could inform is wife are both appropriate adjunctive measures.

Contacting the state health department **(choice A)** is not appropriate for two reasons. First, reporting of non-HIV sexually transmitted diseases is not mandated in all states. Secondly, the state health department, even when informed of a case of gonococcus, is not does not inform all contacts of the index patient of that patient's diagnosis.

Bringing the patient's wife to the office **(choice C)** for a group discussion is inappropriate because the patient has specifically requested that his wife not be informed of his medical condition. For similar reasons, telephoning the wife **(choice D)** after the patient leaves the office is absolutely inappropriate and is in clear violation of the physician-patient confidentiality.

Offering treatment to his wife **(choice E)** or performing tests on her without informed consent is a violation of practice ethics. If the wife is to receive treatment, her diagnosis must be revealed and a discussion of the type of therapy, the risks and the benefits must be had.

44. The correct answer is A. Again, although emotion may suggest a course of action, the issues in this scenario are clear. The wife and the husband are both patients. After the husband informs the wife, it is acceptable to discuss with her options for treatment. The first obligation is to offer appropriate therapy to the patient. Although having personal concerns about the state of their marriage or the mood of the wife, these are not germane to the primary issue of establishing medical care for the patient.

Delegating responsibility for calling this patient to a nurse **(choice B)** or any other member of the office staff is inappropriate. Part of the physician-patient relationship which is implied but rarely stated is that a patient has the right to have sensitive issues discussed with the caregiver who understands both their physical and mental health the best. Delegation of discussion of issues such as cancer, death, failed therapy and the need for therapy is part of the "treatment" offered by physicians to their patients and cannot be delegated.

If house calls are not part of the standard practice for a physician **(choice C)** then there is no need to initiate a house call in this case.

Referring the patient and his wife to a marriage counselor **(choice D)** is not part of the management of the medical issue in this case. The patient (the husband) and his wife (also a patient) require medical treatment for an infectious disease. If they also request information on marriage counselors or psychiatrists **(choice E)** it is then appropriate to make such recommendations. This should not be done prior to management of the primary medical issue however. Additionally, giving the patient an anti-depressant medication in the absence of a DSM diagnosis of depression is not appropriate.

45. The correct answer is C. The cardinal symptom reported by this patient is fatigue (lack of energy). Of the substances listed, marijuana is most likely to produce that symptom. The characteristic signs of abuse of this drug are fatigue, lethargy, and somnolence.

Amphetamine **(choice A)** is a stimulant that acts via indirect release of catecholamines (epinephrine and norepinephrine) from adrenergic nerve terminals. It is associated with excess energy and with prolonged use, psychosis.

Cocaine **(choice B)** is also a stimulant. It acts via inhibition of catecholamine (dopamine and norepinephrine) synaptic reuptake and therefore prolongs the availability of these transmitters in the synaptic cleft. Cocaine usage is associated with a profound sense of euphoria, energy and mania.

Phencyclidine **(choice D)** also known as PCP is a hallucinogen. The symptoms of abuse of this drug are clear and relate to hallucinations and delusions.

Psilocybin **(choice E)** is a variety of mushroom. There are dozens of species of psilocybin or "magic mushrooms" belonging primarily to the genera *Psilocybe, Panaeolus,* and *Copelandia.* The effects of their ingestion resemble a shorter acting LSD trip, producing significant physical, visual, and perceptual changes. The primary distinguishable feature of most psilocybin-containing mushrooms is that they bruise blue when handled.

46. The correct answer is C. Cocaine toxicity results from its intensive activation of the sympathetic nervous system, producing vasoconstriction and hypertension. Vasoconstriction produces decreased placental perfusion and placental insufficiency. Hypertension may result in placental abruption. There may be coexisting factors contributing to placental abruption in cocaine addicts. In addition to an increased risk of abruption, there is an increased incidence of congenital anomalies, particularly of the gastrointestinal and urinary tracts, when cocaine has been abused during pregnancy. This fact may also be used in a persuasive manner to convince the patient to discontinue her abuse of cocaine. Other potential risks to the cocaine-abusing gravida include premature labor, premature delivery, and intrauterine growth retardation. If a patient refuses treatment, continued visits and inquiries about substance abuse are appropriate. Any positive efforts by the patient to discontinue use should be encouraged. Documentation of referral efforts and the fact that the patient was informed about the effects of illicit drugs on the pregnancy should be made. There is no effective chemical detoxification or replacement therapy for cocaine addicts. Treatment emphasizes abstinence and psychosocial counseling.

Because the lifestyle of cocaine addicts may include abuse of other illicit substances, sociopathic behavior, and prostitution, systemic resistance to infection may be reduced. Intravenous use of cocaine could predispose the patient to hepatitis and HIV. Prostitution leads to an increased risk of sexually transmitted diseases, and to mental and physical abuse. In this case, there is no information given with regard to these possibilities.

Therefore, the chance of an increased risk of chorioamnionitis **(choice A)** cannot be determined.

Risks for gestational diabetes include maternal age over 25 years, previous macrosomic infant, previous unexplained fetal demise, previous pregnancy with gestational diabetes, strong family history of diabetes mellitus, and obesity. Although this patient is over 25 years of age, which is a risk factor for the development of gestational diabetes, cocaine abuse is not a documented risk for the development of gestational diabetes **(choice B).**

Major risks for placenta previa **(choice D)** are previous placenta previa, increasing parity, previous cesarean delivery, and multifetal gestation. Cocaine abuse is not a documented risk for the development of placenta previa. Because the patient has had a previous cesarean section, she is also at risk for placenta accreta, increta, and percreta.

Patients who are at high risk for developing preeclampsia include adolescents, nulliparas, patients of low socioeconomic status, chronic hypertensive patients, insulin-dependent diabetics, and patients with multifetal pregnancy. Cocaine abuse is not a documented risk for the development of preeclampsia **(choice E).** Often the presenting signs of acute cocaine intoxication mimic those of preeclampsia.

47. The correct answer is B. This patient calls with symptoms suggestive of Lyme disease. However, two important observations must be made. The first is that the patient is without symptoms except for itching. Secondly, her history, although suggestive, is in no way diagnostic of erythema chronica migrans and the initial stages of Lyme disease. Since this patient is not acutely ill with signs or symptoms requiring immediate attention, suggesting symptomatic over-the-counter relief with an antihistamine while planning for a morning visit is entirely appropriate.

Sending the patient to a dermatologist **(choice A)** is unnecessary at this time. The patient has not even been examined by the primary physician and therefore, there is no basis for a referral to a specialist. Specialists manage patients that require specialized expertise. In order for the determination of specialized expertise to me made, the patient must first be examined.

Again, since there is no indication of fever or a history suggestive of a definitive diagnosis, prescribing antibiotics **(choice C)** is not appropriate at this time since there is no diagnosis for their use.

Informing the patient that you are unable to offer any therapy **(choice D)** is false. Physicians are able to manage patients as best they see fit with the data available to them. There is no medical ethics or legal constraint from managing patients with an uncomfortable affliction by telephone with follow-up in a reasonable period of time.

Since there are no signs or symptoms reported by the patient suggestive of the need for immediate medical attention, there is no need to refer her to the emergency room **(choice E).**

48. **The correct answer is D.** Tanner staging reveals information about pubertal development. Testicular enlargement is usually the first sign of pubertal development. Most boys reach adult height during the latter half of puberty (Tanner stage 4). Since this boy's rating is Tanner stage 2, there is evidence that he will probably grow several more inches in height. Since this is the case, there is no indication that he is near his final height **(choice A),** has a deficiency in growth hormone **(choice B),** should increase his daily caloric intake **(choice C),** or that he will need testosterone injections **(choice E).**

49. **The correct answer is E.** This boy has two of the cardinal findings of inflammation: dolor and tumor (pain and swelling), the others, rubor (redness), calor (heat) and functio lata (loss of function) are also important to look for on exam. Since it is clear that the child has an active infection, the best answer choice of the ones given is to refer him to a surgeon for surgical drainage.

Reassuring him and starting aspirin (an anti-inflammatory agent) **(choice B)** or codeine (a pain therapy) **(choice C)** fails to address the etiology, and in fact, may simply mask the underlying process. It is critical to not treat symptoms unless management of the underlying issues is also addressed.

Applying cold **(choice D)** or hot **(choice E)** packs to the ear are again, a symptom based management strategy. This may provide some analgesia and respite from the process, but the underlying etiology, in this case an infection, will go untreated and will likely progress.

50. **The correct answer is C.** This patient almost certainly has pyloric stenosis. The history and current presentation of poor weight gain, projectile vomiting and dehydration are consistent with this diagnosis. On physical examination, the stenosis is often appreciated on palpation of the abdomen as an "olive." However, physical exam has poor sensitivity and specificity and therefore requires a more definitive diagnostic strategy. Ultrasound is the best modality for this purpose.

There is no evidence that this child has reflux **(choice A)** and in fact, the projectile vomiting suggests something more ominous, an obstruction. Since he is in not at risk for aspiration from reflux, there is no need for elevation of the head of the bed.

Ordering supine and decubitus films of the abdomen **(choice B)** is useful for the diagnosis of free air. The presentation of this child is not consistent with perforation, but rather obstruction.

An upper gastrointestinal barium study **(choice D)** is not appropriate since the barium needs to be swallowed and this child has demonstrated that he unable to perform this task without vomiting. Aspiration of barium into the lungs can cause severe pulmonary disease and possibly death.

For similar reasons, placing this child on an oral feeding solution **(choice E)** will not be effective. The child requires diagnosis in addition to therapy and the primary presenting symptom is projectile vomiting with oral intake.

51. The correct answer is D. Ultrasound is the best modality for diagnosis of pyloric stenosis but it is *highly operator dependent.* The use of the machine, the placement of the probe and the interpretation of the images are all areas where operator variation can lead to inappropriate diagnosis. Therefore the sensitivity and specificity of ultrasound depends very much on the above factors.

A CT scan **(choice A)** is neither necessary to assist with the diagnosis nor is it very operator dependent. The pyloric stenosis is such that the hypertrophied pylorus is not readily appreciated on a CT scan and the protocols for CT imaging are highly standardized and not subject to operator variability.

Gastric emptying studies **(choice B)** with radionucleotides are not useful in he diagnosis of pyloric stenosis since they require both time and the ability to retain the mix in the stomach for it to empty. In addition, since the loss of signal of the radionucleotide is clearly quantifiable, there is little operator dependence of this study. These studies are useful in the diagnosis of diabetic gastropathy.

Routine X ray films **(choice C)** are of little use in the diagnosis of pyloric stenosis. They are however highly variable in interpretation with is the reason why most plain films today, when used in the diagnosis of high-risk lesions such as cancer, are confirmed with more sensitive and less variable imaging modalities such as CT or MRI.

Upper and lower gastrointestinal barium studies **(choice E)** are not useful in the diagnosis of pyloric stenosis since the barium will be ejected from the stomach by vomiting. The variability of the study is also minimal since the presence or absence of barium in the GI tract is usually easily discernable.

52. The correct answer is D. Herpes zoster (shingles) is characterized by a vesicular rash that is preceded by the bandlike burning pain described here. It usually involves only one or two dermatomes. It is always a reactivation/flare-up of a previous Varicella infection. In this patient, there is no abdominal tenderness, which decreases the likelihood of an intra-abdominal organ being involved.

Acalculous cholecystitis **(choice A)** is a diagnosis made more commonly in the ICU. The patient is usually post-op, in shock, or critically ill.

Chronic relapsing pancreatitis **(choice B)** is characterized by a boring or cramping epigastric pain radiating to the back. It is more commonly seen in alcoholics, who will have some abdominal tenderness. Amylase and lipase levels may support the diagnosis if they come back high.

Diverticulitis of the cecum **(choice C)** is an acute appendicitis-like condition, and should appear with pain in the right lower quadrant. It is usually associated with fever, nausea, and leukocytosis.

Penetrating duodenal ulcer **(choice E)** is characterized by severe abdominal pain and tenderness, fever, tachycardia, and a pneumoperitoneum. It is a surgical emergency.

53. The correct answer is D. This question calls on the physician to deal with a common practice problem: personal relationship issues within a patient's family that impede optimal medical practice. The physician should deal directly with these issues, acknowledge them, but seek the best possible outcome. The key here is not just achieving a certain end, but achieving that end in the proper way.

The task of the physician in this instance is to help the mother deal with her negative emotions, recognizing them as real, but educating her as to what the physician thinks is best for the child. The mother is distressed and needs assistance in coping with her anger. After dealing with the anger, she is likely to be more receptive to the rationale for why the father needs to be contacted. Note that this option involves an emotionally charged conversation with the mother, one that most physicians would like to avoid. Helping her deal with this anger not only facilitates her approaching the father, it also helps her have a more balanced assessment of the care her son might require.

Confidentiality restrictions do not allow the physician to establish direct contact with the father. The harm to the child has already been done, and there is no current threat of harm to "self or other" to vitiate his confidentiality protection. The mother is the direct link to the father, and that linkage should be used, not disposed of. The mother can get the father to contact the physician, but the physician cannot directly contact the father. Remember that you only have the mother's naming of him as the basis for any contact, and that you have no physician-patient relationship with him.

Working with the father's physician **(choice A)** clearly violates the tenets of confidentiality. You have no right to know who the father's physician is.

Contacting the father directly **(choice B)** is will likely be seen as intrusive and violates the father's right to confidentiality.

Simply documenting that you tried **(choice C)** is not good enough. The exam requires you to seek a solution, not merely protect yourself legally by documenting that you made an attempt. Find a solution. There will be one in one of the other options.

Any direct contact reaching out to the father **(choice E)** violates his confidentiality regardless if the contact is by telephone or letter.

54. **The correct answer is D.** Starting transfusion with packed erythrocytes is the most appropriate management because this patient has severe iron deficiency anemia. Pallor is the most important clue to iron deficiency anemia. However, patients may also have other symptoms such as tachycardia, tachypnea, heart murmurs, and hepatomegaly. In patients with hemoglobin under 4 g/dL, a blood transfusion with packed erythrocytes should be given slowly. The quantity of packed erythrocytes administered should be sufficient to raise the level of hemoglobin to a safe level while awaiting the response to iron therapy.

Oral folate therapy **(choice A)** is given to patients with megaloblastic anemia. The patient in this scenario has a mean corpuscular volume of 48 mm^3, which is consistent with a microcytic anemia. This patient's diet consists almost exclusively of milk, which does not provide an adequate source of iron. Therefore, this infant has iron deficiency anemia.

Administering parenteral iron therapy **(choice B)** would not be of any benefit in this case because the response to parenteral iron is no more rapid or complete than that with oral administration of iron. Repletion of iron stores usually takes one to three months. The patient described in this case has severe anemia and is symptomatic, and therefore needs a blood transfusion.

Parenteral vitamin B 12 (cyanocobalamin) therapy **(choice C)** is given to patients with macrocytic anemia caused by vitamin B 12 (Cobalamin) deficiency.

Beginning transfusion with whole blood **(choice E)** is not the most appropriate choice because the patient only needs red blood cells, not all the components of whole blood. In addition, because of the dangers associated with hypervolemia and cardiac dilatation, it is important to give only 2-3 of packed cells at any one time. Furosemide may be administered as a diuretic if needed.

55. **The correct answer is D.** The only drug listed that is strongly associated with depression is propranolol, an antihypertensive that acts by nonspecifically blocking beta adrenergic receptors. If it is clinically feasible, the physician should consider discontinuing beta antagonists in any patient who develops depression. In addition to depression, other central nervous system (CNS) effects caused by propranolol include lassitude, vivid dreams, and insomnia. Rarely, it can produce psychotic reactions. Peripheral side effects caused by propranolol that are predictable consequences of beta blockade include exacerbation of asthma and other forms of airway obstruction, depression of myocardial contractility and excitability, blockade of premonitory signs in diabetes, and peripheral vascular insuffiency. Peripheral side effects not clearly attributable to beta blockade include nausea, vomiting, diarrhea, and constipation.

The other answer options are either not associated or not as strongly associated with depression:

Benztropine **(choice A),** a muscarinic cholinergic antagonist, is generally used in parkinsonism and for neuroleptic-induced extrapyramidal effects. CNS side effects include drowsiness, inattention, confusion, agitation, delusions, and hallucinations. Peripheral side effects include dryness of the mouth, mydriasis, blurring of vision, urinary retention, constipation, nausea and vomiting, tachycardia, and cardiac arrythmias.

Digoxin **(choice B),** a cardiac glycoside, is indicated for heart failure and atrial fibrillation. Central nervous system effects include nausea and vomiting (at least in part due to chemoreceptor trigger zone stimulation), and less commonly, disorientation and hallucinations, changes in color perception, agitation, and convulsions. The most common cardiac side effects include atrioventricular junctional rhythm, premature ventricular depolarizations, bigeminal rhythm, and second-degree atrioventicular blockade.

Haloperidol **(choice C)** is a high potency neuroleptic; its primary mechanism of action is to block dopaminergic receptors. Adverse CNS side effects include extrapyramidal side effects such as parkinsonism, akathisia, acute dystonic reactions, and tardive dyskinesia. Peripheral side effects caused by blockade of alpha adrenergic and muscarinic receptors are of less consequence as the CNS effects.

Ranitidine **(choice E)** is a histamine-2 (H_2) antagonist used to diminish gastric acid secretions in patients with peptic duodenal and gastric ulcers, gastroesophageal reflux disease, and Zollinger-Ellison syndrome. CNS side effects are rare with ranitidine use.

56. The correct answer is B. Lithium is indicated for the manic phases of bipolar disorder. Caution should be used when using lithium and diuretics concomitantly because diuretics may reduce the renal clearance of lithium, thereby increasing the risk of lithium toxicity. Patients receiving this combined therapy should have lithium levels monitored closely and the lithium dosage should be adjusted if necessary. Other drugs that may lead to increased lithium levels include NSAIDs, angiotensin converting enzyme (ACE) inhibitors, and metronidazole.

Haloperidol **(choice A,** an antipsychotic), ranitidine **(choice C,** an H_2 antagonist), sertraline **(choice D,** an SSRI antidepressant), and warfarin **(choice E,** an anticoagulant) are not known to have significant drug interactions with hydrochlorothiazide.

57. The correct answer is C. This patient has multiple sclerosis. This is a demyelinating disorder of the central nervous system. The important information about localization of this lesion comes from the history and physical examination. The patient reports loss of vision and exam reveals normal extra-ocular movements with pallor of the optic disk. This is consistent with loss of cranial nerve two (the optic nerve) which conveys sensory information from the retina to the brain.

The medial longitudinal fasciculus (MLF) **(choice A)** is often damaged in MS secondary to loss of myelin. The MLF is a bundle of fibers mainly in the midbrain. It has descending fibers from the medial vestibular nucleus and ascending fibers from nuclei of cranial nerves VI, IV, and III. These fibers are involved in actions such as vestibular reflexes and visual tracking. This is what makes your eyes turn right when you turn your head left.

The oculomotor nerve (CN III) **(choice B)** provides motor innervation for the external eye muscles with the exception of the lateral rectus (CN IV) and superior oblique CN VI). Is also conveys parasympathetic innervation via the ciliary ganglia.

The trigeminal nerve **(choice D)** is a major cranial nerve (CN V) having both motor and sensory components. It provides sensory innervation for the face via three branches (orbital, maxillary and mandibular) and motor innervation for the muscles of mastication.

Damage to the visual cortex **(choice E)** would result in a very specific field deficit *bilaterally.* If the entire cortex were affected (by ischemic injury for example), the visual loss would be d complete bilateral.

58. The correct answer is C. This vignette is lengthy and the patient appears to have many complex issues. Careful attention to her history however allows the diagnosis to ascertained with near certainty. The drop attacks are characterized by incontinence with weakness and loss of feeling in her legs. These symptoms point to a neurologic defect that affects both the parasympathetic and motor functions of the nervous system. Atlantooccipital joint subluxation is a common problem for patients with advanced RA, as this patient clearly suffers from. If the cervical spine were to suffer impingement from such subluxation, it would be expected that motor loss below the level of the impingement as well as loss of bladder control from interruption of the parasympathetic outflow (cranial component).

Adrenal insufficiency **(choice A)** is characterized by hypotension, salt wasting and fatigue. This patient gives no history suggestive of orthostasis (position blood pressure changes) or of a salt craving. She also fails to disclose any history, which could explain the cause of her adrenal insufficiency. The events she describes are recent in onset precluding long-standing adrenal insufficiency. She has taken no adrenal suppressing medications (prednisone) and has not had a severe infection (meningococcus for example).

Anxiety **(choice B)** is a DSM recognized diagnosis and requires, among other criteria, that all organic explanations for the syncopal events have been excluded. Given the very specific neurologic symptoms that this patient complains of, pursuing anxiety as a diagnosis without first pursuing *bona fide* organic diagnoses is incorrect.

Cardiac arrhythmia **(choice D)** capable of "dropping someone" is almost always ventricular tachycardia. The patient does not describe a sudden "drop attack" where she is walking or talking one second and is then "out". She rather describes very discrete neurological findings of leg numbness and weakness suggesting a radicular origin to her symptoms.

Although cerebral ischemia **(choice E)** manifest as transient ischemic attacks are possible, there are at least two reasons making this diagnosis unlikely. First, the neurological symptoms reported by the patient are bilateral and involve sensory and motor, making bilateral carotid disease (anterior and middle cerebral artery distribution) to the motor and sensory cortex very unlikely. Secondly, the patient has long-standing RA making this the diagnosis of choice to exclude as an etiology.

59. The correct answer is A. This child suffers from lead poisoning. Prior to the 1970s, lead was used in paint, gasoline, water pipes, and many other products. During the demolition of older structures, lead is released and can become ingested by humans, primarily children. Exposure to excessive levels of lead can cause brain damage; affect a child's growth; damage kidneys; impair hearing; cause vomiting,

headaches, and appetite loss; and cause learning and behavioral problems. Lead eventually becomes associated with mitochondria in red blood cells and appears as basophilic granules via H & E staining. This is a form of sideroblastic anemia.

Degranulation of eosinophils **(choice B)** is characteristic of allergic responses mediated via IgE.

Diminished platelet numbers **(choice C)** or thrombocytopenia is not a characteristic of lead poisoning. It has a myriad of causes but diseases such as ITP or TTP (idiopathic or thrombotic thrombocytopenia) are common causes related to immune dysfunction or microvascular thrombosis respectively.

Howell Jolly bodies **(choice D)** are inclusions of nuclear chromatin remnants and are characteristic of severe hemolytic anemias. Howell-Jolly bodies are spherical blue-black inclusions of red blood cells seen on Wright-stained smears.

Macrocytic erythrocytes **(choice E)** are seen in megaloblastic anemias due to vitamin B 12 or folate deficiencies. A macrocyte is usually defined as a red blood cell with a volume greater than 100 fL.

60. The correct answer is B. The physical findings described clearly suggest a probable colon perforation at the site of the polypectomy, and therefore surgical consultation is warranted. There is no reason to suspect ischemia **(choice A),** and any further instrumentation of the colon **(choices C and D)** is contraindicated. The patient should be prepped for probable surgery with antibiotics and not hydrocortisone **(choice E)** since she is already at risk for peritonitis.

61. The correct answer is A. This history is typical of Klinefelter syndrome. In Klinefelter, boys have an extra X chromosome. Despite this fact, they are normal in appearance before puberty. After puberty, they have gynecomastia, small and firm testes, and disproportionately long legs and arms. The test most likely to establish the chromosome pattern is karyotype from peripheral leukocytes.

Serum estrogen and testosterone concentration measurements **(choice B)** are useful in differentiating the types of pseudohermaphroditism.

Estrogen, testosterone, and LH levels **(choice C)** are high in cases of complete testicular feminization, incomplete testicular feminization, and Reifenstein Müllerian duct syndrome.

Serum prolactin level **(choice D)** is useful in determining females with prolactinoma (of which one possible etiology is secondary amenorrhea).

Testicular ultrasonography **(choice E)** is useful for evaluating a testicular mass for potential neoplasm. These usually consist of a solid, irregular mass.

62. The correct answer is E. Physiologic jaundice is very common in newborns, with a total serum bilirubin concentration of less than 13 mg/dL and a normal direct serum bilirubin concentration. There should be no change in childcare **(choice D)** or feeding **(choice A and C)** of the neonate.

Phenobarbital **(choice B)** is not indicated because this patient has physiologic jaundice and no therapy is required.

63. The correct answer is C. Erythema toxicum is a benign rash that has a "flea-bite" appearance with scattered erythematous macules that may contain papulopustular centers filled with eosinophils. Routine skin care with soap and water is indicated.

Iodine **(choice A),** polymyxin ointment **(choice B),** entsufon **(choice D),** and hydrocortisone **(choice E)** are not indicated.

64. The correct answer is A. Aspiration of the joint should be done in this patient because she has clinical findings suspicious for septic arthritis. These clinical findings include redness and warmth around the knee, large effusion, and pain upon movement of the joint. Diagnostic arthrocentesis should be performed in all patients in whom the diagnosis of septic arthritis is considered.

Obtaining a ^{99m}technetium bone scan **(choice D)** may aid in the diagnosis of a septic joint by demonstrating increased soft tissue uptake in the region of the joint. However, this is an aid to diagnosis; the "gold standard" is the joint aspirate.

Obtaining an antinuclear antibody titer **(choice B)** would not be helpful, as we already know that this patient has juvenile rheumatoid arthritis (JRA), and an ANA depending on the type of JRA may or may not be positive. The focus should be on determining if the knee is septic; only the joint aspirate will give us this information.

Likewise, obtaining a rheumatoid factor assay **(choice C)** would not be helpful in this clinical scenario because we already know that the patient has juvenile rheumatoid arthritis, and that the rheumatoid factor may or may not be positive. The patient's knee shows evidence of an infected joint. Therefore, a joint aspirate is needed.

Obtaining x-ray films of the joint **(choice E)** may also assist in the diagnosis of septic arthritis by revealing widening of the joint space, periarticular soft tissue swelling, and changes in fat planes ad fat pads. The definitive diagnosis, however, is the joint aspirate.

65. The correct answer is C. Positive Gram stain of joint fluid would be the new symptom or finding that would best indicate the need for further diagnostic studies. This finding would be indicative of a septic knee, and the patient would need antibiotic therapy.

Decreased viscosity of joint fluid **(choice A)** would not be a specific enough finding to warrant further testing, because a decreased viscosity may be found in both acute inflammatory joint diseases as well as septic joint diseases.

Diffuse increase in ^{99m}technetium uptake around the knee on bone scan **(choice B)** is not correct. As mentioned in answer 41, the bone scan is only an aid for diagnosis. The bone scan is not conclusive for diagnosis because increased uptake of ^{99m}technetium may occur in septic arthritis, cellulitis, osteomyelitis, and noninfectious causes of inflammation. As mentioned in answer 41, the joint aspirate is the "gold standard."

Positive serum rheumatoid factor determination **(choice D)** would not be a new symptom or finding that would need further diagnostic studies, as we already know that this patient has juvenile rheumatoid arthritis.

Soft-tissue swelling seen on x-ray films **(choice E)** would be a nonspecific finding, which alone would not indicate the need for further diagnostic studies.

66. The correct answer is D. In this case the physician must act as an advocate for this woman. The question clearly describes evidence of physical abuse and an ongoing risk of possible physical harm from this husband. In this regard the physician should refer the patient to a battered women's program much in the same way that a pediatrician would contact the bureau of child welfare if he suspected child abuse. **Choices A, C, and E** offer logistical advice that do not directly address protection of the woman.

Contacting her husband's supervisor **(choice B)** would violate confidentiality. Although both the husband and wife may be patients of this physician, the woman is clearly the individual who is at ongoing risk.

67. The correct answer is B. As in the question above, the physician is addressing ongoing risk to family members. While **choices A, C, D, and E** address issues that may relate to the underlying problematic relationship, they do not address protection of family members. Here the physician's chief responsibility is to the health and protection of not only his patient, but also to others at risk.

68. The correct answer is A. Condyloma acuminata is the physical manifestation of HPV (human papilloma virus), a sexually transmitted disease. There are several serotypes of HPV, with subtypes 6 and 11 causing benign "cauliflower-like" projections and lowgrade squamous intraepithelial lesions, and subtypes 16 and 18 most commonly associated with high-grade squamous intraepithelial lesions and cervical cancer.

Condyloma lata **(choice B)** is a gray-white highly infectious lesion associated with secondary syphilis; early age at menarche has no correlation with abnormal Pap smear.

Early age of menarche **(choice C)** and nulliparity **(choice E)** has no correlation with abnormal Pap smear.

History of chlamydia **(choice D)** is a reasonable answer, since chlamydia is the most common sexually transmitted cervicitis, but it has not been associated with precancerous dysplasia.

69. The correct answer is E. This patient is over the age of 30, has a history of multiple hospitalizations, and presents with multiple physical complaints, the central feature of the disorder.

Persons with borderline personality disorder **(choice A)** are dramatic; however, the central presentation is not physical complaints but mood lability and intense personal relationships.

In conversion disorder **(choice B),** there is a stated stressor, and the conversion symptoms are circumscribed and short in duration.

Persons with histrionic personality disorder **(choice C)** typically seek attention with seductive behavior and emotions, but their central presentation is not usually with

physical complaints. Multiple hospitalizations and surgeries are uncommon in individuals with this disorder.

After 23 hospitalizations and 32 years of illness, the patient has had enough work-ups to rule out an occult medical disorder **(choice D).**

70. The correct answer is B. The Papanicolaou smear is a screening test for precancerous cells. Any cervical dysplasia (formerly cervical intraepithelial neoplasia I–III, now low-grade and high-grade squamous intraepithelial lesion) necessitates colposcopy for definitive diagnosis.

The diaphragm has not been associated with abnormal Pap smears, so changing the method of contraception **(choice A)** would not be of any use.

Conization of the cervix **(choice C)** is always preceded by a colposcopy, and is indicated for unsatisfactory colposcopy, inconsistency of colposcopic findings with Pap smear findings, an endocervical curettage with abnormal cells, or a lesion on colposcopy extending into the endocervix.

Reassurance and repeating the Pap smear in three months **(choice D)** can be used for ASCUS (atypical squamous cells of undetermined significance); two serial ASCUS Pap smears necessitate colposcopy.

Metronidazole **(choice E)** is indicated for inflammation of Pap, which is also referred to as inflammatory atypia.

71. The correct answer is D. Painless hematuria is an important symptom of bladder cancer. When a urinalysis reveals no active sediment indicative of renal damage, the nest most important diagnosis to exclude is bladder cancer. For this reason, a direct visualization of the bladder via cystoscopy is appropriate.

A transurethral prostate biopsy **(choice A)** is used when prostate enlargement is suspected on the basis of physical examination (enlarged gland via digital exam) or symptoms (hesitancy, post-void dribbling, frequent urinations). The biopsy helps to distinguish between benign hypertrophy and cancer.

Trimethoprim-sulfamethoxazole (TMP-SMX) **(choice B)** is an antibiotic used to treat prostatitis. There is no evidence that this patient has this diagnosis as he lacks the cardinal symptom of pain.

Since the urine sediment is free of casts and protein, there is no evidence that there is intrinsic renal disease so a bilateral renal angiography **(choice C)** is not indicated.

Infusion of the renal pelvis with silver nitrate **(choice E)** is used in the diagnosis of papillary necrosis, and because the urine sediment on this patient is without cellular debris (casts), there is no indication for this test.

72. The correct answer is A. Progesterone implants for birth control are a popular form of contraceptive device. The benefits of prolonged duration of action and no requirement for daily pills are offset for many women by the side effects of weight gain and heavy bleeding. After ruling out pregnancy (the most common cause of abnormal uterine bleeding), the most appropriate intervention to "oppose" the progesterone with estrogens to make the uterine lining for "physiologic". This intervention is fairly effective at minimizing bleeding.

A dilation and curettage **(choice B)** is not indicted as there is no evidence that this bleeding is secondary to retained endometrium or from an abortion. This patient likely has hormonal etiology to her bleeding and a D&C would be appropriate if a trial of estrogens failed to attenuate the bleeding.

A second injection of medroxyprogesterone **(choice D)** would only serve to enhance the bleeding. The current injection is effective in terms of its contraceptive purpose, the nature of this patient's problem relates to the side effects of the medication and therefore giving additional drug is incorrect.

Although reassurance and counseling **(choice C)** is important, it will not definitively address what has the potential to become a serious side effect. Excessive bleeding can lead to rapid development of iron deficiency anemia in women of childbearing age. For this reason, the bleeding does need to be controlled.

Triphasic OCT **(choice E)** is not indicated for this patient as she already has the progesterone component of the triphasic medications. The other phases (estrogen and blank pills) can be mimicked by simply adding estrogen for the appropriate two-week cycle.

73. The correct answer is D. This question inquires about what may have caused the behavior to worsen in the "past few months". A stressor coinciding with the changes in behavior would be most likely, although numerous stressors may have been listed. In this case, the birth of the sister six months previously corresponds to the worsening in the behavior. The needy infant competes for already scarce attention with the four-year-old boy.

Aggressiveness to compensate for a poor self-image caused by short stature **(choice A)** is unlikely since the question describes short stature as an ongoing problem rather than a new issue.

Cardinal features of attention-deficit/hyperactivity disorder such as inattention, impulsivity, and hyperactivity are not described in the question. Therefore, **choice B** is incorrect.

Although the father's dependence on alcohol **(choice C)** can be a significant stressor by way of lack of attention or availability, abuse of the child or the mother, or financial burden, a time frame is not given. Therefore, this choice is not the likely answer.

Toxic reaction to organic fumes from his father's clothes and work materials **(choice E)** is an unlikely answer, not only because it is very vaguely defined, but also because of the lack of medical complaints in the child such as irritation of the skin and eyes, nausea, and vomiting. A time frame is not provided, making this choice even more unlikely.

74. The correct answer is E. Hyperthyroid patients are at increased risk for cardiac arrhythmias, typically tachyarrhythmias.

Graves' ophthalmopathy **(choice A)** follows a course that is independent of thyroid disease.

Malignant degeneration **(choice B)** is not a complication of Graves disease.

Hyperthyroidism **(choice C)** does not preclude the ability to become pregnant.

There is no evidence to suggest that every Graves thyroid increases in size without surgery **(choice D).**

75. The correct answer is E. The patient shown in the picture has a lower lip lesion that is very characteristic of squamous cell carcinoma. In addition, the history of the lip being fixed to the surrounding tissues (in this case the lower mandible), is also characteristic of squamous cell cancer.

Basal cell carcinoma **(choice A)** is more often characterized by a pearly heaped up margin and should progress more slowly than the nine months described. In addition basal cell often has overlying telangiectasias.

Keratoacanthoma **(choice B)** should give a dome shaped flesh colored lesion with a keratotic center.

Leukoplakia **(choice C)** is an intraoral lesion usually on the sides of the tongue. It is white and looks like thrush but does not scrape off with a stick or tongue depressor as thrush does.

Melanoma **(choice D)** is always a purely hyperpigmented lesion and does not have all the crusting that this lesion does.

76. The correct answer is E. If you were unable to glean information from the x-rays given for this item, you would still be able to use more general knowledge of the more common types of injuries suffered by joggers and track and field athletes. Of the choices offered for this question, by far the most common is stress fracture, especially since there is certainly no obvious disruption of the bones shown, as would be expected in **choices A, B, C, or D.** Stress fractures occur as a result of repeated stress to a limb. Typically, the plane radiograph may be negative in the acute phase. A bone scan is a more sensitive test for a stress fracture. The key element of this history is the runner's intense training. Osteomyelitis is more commonly associated with local signs on x-rays such as swelling and elevation in the acute phase. Developed bone series would show changes in the cortex and/or marrow. There were no mass lesions suggestive of neoplasm.

77. The correct answer is E. Notice in this question that you are being informed of numerous psychosocial stressors for the patient, including growing old, a move from his home of 40 years, and a potentially terminal illness in his wife. A question that enumerates a list of life stressors is most often related to a developing depression and/or suicidal ideation. Suicidal ideation is consistent with the picture of a depressed patient as described in this question, namely "dejected....poor eye contact...." A patient who is alcohol-intoxicated is 50 times more likely to commit suicide. The first step in the management of depression is always an assessment for suicidal ideation.

Delirium tremens **(choice A)** is associated with a clouding of consciousness, elevated blood pressure and pulse, and cessation of alcohol drinking within 48-72 hours. None of these features are mentioned in this question.

GI bleeding **(choice B)** would presumably have been ruled out during his physical examination.

Pancreatic carcinoma **(choice C)** is sometimes an etiology of depression, even before there are physical manifestations of the carcinoma. However, this is rare and certainly not the "next step" in the evaluation.

Situational anxiety disorder **(choice D),** more commonly known as social phobia, is a fear of being humiliated in a new social situation or around strangers. These features are not described in this question.

78. The correct answer is C. The occurrence of deep venous thrombosis during pregnancy is of concern because 5-20% of patients will experience pulmonary embolism, a potential fatal complication. In the early stages of thrombosis, the clot may be loosely adherent to the vessel wall, and amenable to pharmacologic intervention. Three major types of therapeutic agents are available for treating thrombosis: agents that interfere with platelet adhesion and aggregation (aspirin, dipyridamole, ticlopidine), agents that interfere with fibrin formation (heparin and warfarin), and agents that facilitate clot lysis (streptokinase, streptodornase, tissue plasminogen activator). The preferred agent is heparin. It is a potent inhibitor of thrombin, and thus prevents the conversion of fibrinogen to fibrin. Because of its large molecular size and negative charge, it does not cross the placenta, and does not appear in breast milk. The dosage of heparin is monitored by measuring the partial prothrombin time, which should be two to three times the control value. Intravenous administration of protamine sulfate counteracts the effects of heparin quickly on a milligram-for-milligram basis. Complications of heparin therapy include hemorrhage, thrombocytopenia, and osteoporosis. Treatment is usually not of the duration to cause osteoporosis. Additionally, local measures such as leg elevation to provide good venous drainage, and wearing full leg pressure gradient elastic hose, can be undertaken. Antibiotics are indicated if an element of inflammation is present. Mention should also be made as to a possible cause for recurrent phlebitis, such as deficiency of antithrombin III, protein C, protein S, hyperhomocystinemia, dysfibrinogenemia, and resistance to activated protein C. This patient should be offered a permanent sterilization procedure at the conclusion of this pregnancy.

Warfarin is a small molecule that easily crosses the placenta, and appears in breast milk. If administered in the fourth to eight week of the first trimester, it can produce multiple congenital anomalies such as nasal cartilage hypoplasia, stippling of bones, slight intrauterine growth retardation, and brachydactyly (abnormal shortening of fingers and toes). These anomalies may be secondary to a direct teratogenic effect or a vitamin K deficiency. Use of warfarin in the second and third trimesters may also result in fetal abnormalities such as microcephaly, bifrontal narrowing, and mental retardation. These could be the result of fetal hemorrhage. Because of the mechanical forces that develop during labor, the fetus would be at increased risk of hemorrhage, especially intracranial hemorrhage. Therefore, the use of warfarin until term is not warranted **(choices A and D)** with the possible exception of a patient who has a heparin allergy, or an inability of the patient to self-administer heparin. If used under these special circumstances, it should be discontinued in anticipation of labor. The patient should be fully informed as to the potential risks of any anticoagulant therapy, and appropriate documentation should be made.

Surgery **(choice B)** is reserved for those patients in whom anticoagulants are contraindicated, or have failed on an adequate course of them. Thrombectomy is

indicated for a markedly edematous leg only if the patient is at risk for gangrene, e.g., when interstitial tissue pressure may exceed capillary perfusion pressure, a condition referred to as phlegmasia alba dolens (Latin for white, painful inflammation), or milk leg. Indications for vena caval interruption include: recurrent pulmonary emboli, patients with an absolute contraindication to anticoagulation, development of hemorrhagic complications of anticoagulation, or after embolectomy. Still, about 10% of patients will have a minor recurrence postoperatively. This patient meets none of these criteria.

The use of antiinflammatory drugs during pregnancy is generally contraindicated. Chronic maternal administration of indomethacin has been associated with gastrointestinal side effects (dyspepsia, gastroenteritis, bleeding), headaches, dizziness, depression, and psychosis. Fetal effects include oligohydramnios, constriction of the ductus arteriosus in utero, and pulmonary hypertension. Therefore, the use of indomethacin in conjunction with heparin **(choice E)** over a prolonged period of time, in this case possibly four more months, is not indicated.

79. The correct answer is A. The pattern of disease described in this diabetic man is consistent with unstable angina. Even though the electrocardiogram is unchanged presently, there is a high risk of progression of these symptoms to possible myocardial infarction. Therefore, the patient should be admitted to the hospital, monitored, and have his therapy adjusted. Many of these patients will require cardiac catheterization if their symptoms cannot be controlled with maximal medical therapy. At present, the patient is on submaximal therapy since he is only on propranolol, and may still benefit from the use of calcium channel blockers, nitrates, and aspirin. Furthermore, there is no indication from the question as to whether he is on maximal beta-blocker therapy, since his heart rate is not given. Doses of beta-blockers should be titrated to a resting heart rate of 55-60 bpm.

A coronary artery bypass surgery **(choice B)** is not the best management at this time. He requires monitoring and further evaluation to determine what the best therapy is for him.

Changing his therapy as an outpatient **(choices C and D)** is not appropriate management as is requires hospitalization for monitoring.

Advising rest from work **(choice E)** is inappropriate because he requires hospitalization for monitoring and adjustment of therapy as there is a high risk of progression of these symptoms to possible myocardial infarction.

80. The correct answer is C. The entire family has been exposed to the grandmother, who has had active tuberculosis. As close contacts, they are at risk for transmission of TB. The appropriate screening test at this time would be PPD testing. The family members should be considered at intermediate risk for TB, and therefore ,a 10-mm area of induration would be considered a positive test.

81. The correct answer is E. A negative PPD in this instance indicates (in the absence of immunosuppression of any family member) that there has been no transmission of tuberculosis. Therefore, there is no indication for active or prophylactic therapy **(choices A, B, C, and D)** of any type.

82. **The correct answer is A.** This question indicates that this 26-year-old patient has a positive PPD test, indicating prior (or recent) exposure. However, the question also clearly describes that there is no evidence of active tuberculosis, so treatment for active disease is not indicated. Since there is no information regarding prior PPD status, he should be treated with isoniazid prophylaxis for one year. Multiple drug therapy **(choice B, C, D, and E)** is not necessary for TB prophylaxis.

83. **The correct answer is E.** The growth chart that appears in this scenario reveals a girl whose growth velocity is stable, but who is many pounds above her ideal weight. Multiple factors such as genetic predisposition, familial and cultural practices, emotional factors, and activity level play a role in childhood obesity. Obesity is associated with a number of orthopedic problems such as slipped capital femoral epiphysis and Legg-Calve-Perthes disease. It is also a risk factor for adult diseases such as diabetes mellitus, hypertension, and hyperlipidemia. The differential diagnosis of obesity includes endocrine, genetic, and congenital disorders such as hypothyroidism **(choice C),** Cushing syndrome **(choice A),** and Prader-Willi syndrome. A common finding in these settings is that the patients are short (less than fifth percentile in height), and have a delayed bone age, while children with simple obesity are at or above the 50th percentile in height. The most successful interventions in children who are obese are those that are family-based and behavior-oriented. This includes a diet program, physical activity, behavior modification techniques, and parental role modeling.

This patient is not at increased risk for delayed menarche **(choice B)** or nocturnal enuresis **(choice D).**

84. **The correct answer is B.** The most successful interventions in children who are obese are those that are family-based and behavior-oriented. This includes a diet program, physical activity, behavior modification techniques, and parental role modeling. A written diet **(choice A)** and a commercial weight loss center **(choice C)** do not the complete issue.

An endocrinologist referral **(choice D)** is not indicated at this time because this patient is most likely obese from overeating.

Telling her not to worry and that she will "grow into her weight" **(choice E)** is inappropriate as this girl is at increased risk for medical disorders, such as slipped capital femoral epiphysis, and therefore she should be encouraged to lose weight

85. **The correct answer is D.** This is a classic description of injured medial collateral ligaments, which results from constant stress in valgus position. Integrity of the medial collateral ligament is tested by performing forceful abduction of the leg while placing one hand on the lateral aspect of the knee, which is flexed about 20 degrees, and pushing the leg outward with the right hand. Abduction with the opening of the joint line more than 5 mm and associated pain usually indicates rupture of the medial collateral ligament.

Choices A and B, known as the Drawer test, are found with rupture of the anterior and posterior cruciate ligament, respectively.

Choice C is seen in anterior subluxation of the lateral tibia.

Choice E describes the meniscal injury in which rotation of the tibia with varus or valgus stress results in pain associated with catching or click.

86. The correct answer is B. An isolated medial collateral ligament is usually managed conservatively. Initial treatment with rest, ice packs to reduce swelling and pain, and an exercise program would be appropriate in this patient.

A different activity for his exercise program **(choice A)** may be appropriate after initial treatment with rest, ice packs to reduce swelling and pain, and a specific exercise program.

An orthotic device **(choice C),** arthroscopy **(choice D)** and knee immobilization and crutches **(choice E)** are not the appropriate management at this time.

87. The correct answer is C. The indication for extensive testing in this patient was the abnormal liver enzymes. The results of this testing reveals a positive HAV antibody which is indicative of prior exposure to the hepatitis A virus. Hepatitis B virus, a DNA virus, is transmitted through parenteral or mucosal exposure to infectious blood or body fluids and can lead to chronic as well as acute infection, cirrhosis, and primary hepatocellular carcinoma. Only approximately 10% of all acute hepatitis B infections progress to chronic infection in adults. The presence of a positive HBsAg (surface antigen to hepatitis B) and HBcAg (core antigen) indicates acute, active hepatitis B infection. After infection and 1 to 6 weeks before symptoms occur HB sAg appears. The relevant question concerns the actual effect on liver enzymes. For this reasons, the patient should refrain from alcohol consumption, which also elevates liver enzymes.

There is no specific therapy for acute HBV infection. In chronic liver disease in adults, alpha-interferon **(choice A)** has been demonstrated to have approximately 40% efficacy in resolving the chronic infection, but the drug has been less effective for chronic infections acquired during early childhood.

There is no benefit to corticosteroids **(choice B)** for acute hepatitis B infections.

A hepatitis B virus DNA polymerase study **(choice D)** can be detected in the bloodstream soon after initial infection by hepatitis B at about the same time as HBV DNA (i.e. generally within a 1 week or so after infection). Tests for HBV DNA polymerase are not performed as a standard test and generally only used as indicators of disease progression, suitability for therapy and research purposes.

A liver biopsy is not indicated **(choice E)** as the etiology for the elevation in this patient's liver enzymes are known.

88. The correct answer is C. Like cryptorchidism, a patent with processus vaginalis very often allows peritoneal fluid (hydrocele) and other peritoneal contents (mainly intestines) to come in contact with the testicle. This exposes the descended testis in the scrotum to more or less similar risk factors for malignant degeneration as an undescended one.

These hernias do not close spontaneously **(choice A),** probably due to the constant crying, which maintains a high intraabdominal pressure. The main purpose of the herniorrhaphy is to prevent incarceration and malignant degeneration.

Oligospermia **(choice B)** would be a result of testicular degeneration if not operated on in time.

Many pediatric surgeons recommend herniorrhaphy before two years age, but it is not an emergency **(choice D)** unless incarcerated.

Infants run a high risk of incarceration, and hence it is important to operate early **(choice E).**

89. The correct answer is A. Despite the patient requests, there is nothing at this time to suggest any additional work-up. It is important to communicate clearly to the patient that you are not giving up, and that it is your assessment that no further testing is needed at this time. Assure him that you will continue to follow up this problem with him.

In **choices B, C, D, and E,** any further testing or consults would have a low yield result, and would cause great expense in a situation where there is low suspicion and a possibility of false positives.

90. The correct answer is C. The typical findings described in this question are far more likely to have been the result of an overuse injury related to the patient's work rather than to the motor vehicle accident.

It is inappropriate at this time to apologize for not recognizing the structural problem from the outset **(choice A)** and to discuss the possibility that he is malingering **(choice B),** since there is a reasonable likelihood that his current symptoms are related to overuse.

Cervical myelography with CT scan of the cervical spine **(choice D)** would be of no value in demonstrating the likely etiology of this patient's symptoms. These symptoms are not indicative of a condition that requires neurosurgical **(choice E)** attention, but should be treated with corrective maneuvers at work to reduce additional repetitive use injuries.

91. The correct answer is A. This question clearly describes the patient who has stable medical problems, which would not be a contraindication **(choice B)** to cataract repair under local anesthesia. Her degree of visual impairment would certainly interfere with daily activities, and suggesting surgical correction clearly indicates that the physician is aware of the importance of the patient's quality of life. Her possibly diminished mental status or history of cardiac disease **(choice C)** are not contraindications to the surgery. And there is no additional information needed to decide if she would benefit from the surgery **(choice E).**

While re-evaluating her mental status in one year **(choice D)** may be appropriate, it does nothing to improve her quality of life at the present time.

92. The correct answer is E. Seek consultation with a cardiologist, as this patient with grade 2-3/6 systolic ejection murmur (heard best at the left sternal border and over the entire precordium) associated with two episodes of pneumonia, has a cardiac abnormality.

A PPD skin test **(choice A)** is done in patients who are suspected of having tuberculosis.

Initiating an immunologic evaluation **(choice B)** should not be done in this patient because the patient is having recurrent pneumonia from heart disease, not because of immunocompromise.

Likewise, a sweat chloride determination **(choice C)** should not be done, because although the patient has had two pneumonias, these were most likely secondary to a heart defect, not cystic fibrosis.

Choice D is incorrect because a functional or innocent murmur has no significant radiation. A functional murmur has a vibratory, or "musical" quality, and a relatively short systolic ejection that is best heard along the left lower and midsternal border.

93. The correct answer is D. Rapport is defined as an empathic and trusting working relationship between a psychiatrist and patient. Rapport is usually best established by addressing the feelings of the patient. Most patients respond best to a doctor who first attempts to understand a person's emotional state and clarifies symptoms afterwards.

Asking about symptoms **(choice A)** may give you information, but it does not establish rapport. Similarly, asking about specific thoughts the patient is having **(choices B, C, and E)** will give you information, but will not establish a collaborative relationship.

94. The correct answer is E. This is a difficult question in that all of the answers are possible. However, the question asks for the most appropriate first intervention. The key to answering this question correctly is remembering that dilated pupils are most often a sign of substance intoxication or withdrawal. Cocaine, amphetamine, and hallucinogen intoxication cause bilateral pupillary dilatation, as does opiate withdrawal. These conditions also are associated with anxiety and sweating. Ordering a urine toxicology will reveal the presence of these drugs.

Haloperidol should only be administered **(choice A)** if the patient becomes acutely aggressive or severely disorganized. There is no acute aggression, although he was aggressive toward his father earlier.

A patient may only be given an IM injection **(choice B)** for sedation if there is informed consent, or if the patient is acutely at risk of harming himself or others. Neither of these two conditions exists in this question.

A family conference **(choice C)** will eventually be necessary, but your immediate concern is to calm the patient.

A CT scan **(choice D)** should only be ordered if the question gives you a clue that there is suspected head injury, focal neurological signs, or suspect conditions such as toxoplasmosis in an HIV-positive patient.

95. The correct answer is B. In the absence of an organic etiology, emotional stress (possibly arising from the arrival of a new sibling) is the most likely etiology of this child's secondary enuresis. Complete urinalysis is essential in eliminating disorders such as urinary tract infections, diabetes mellitus, and diabetes insipidus. Most

episodes of nocturnal enuresis are self-limited, and may not require additional therapy **(choice C).** The timing of the boy's bed-wetting is significant. He has just suffered a major disruption to his world—the birth of a sibling—and may be regressing in reaction to this event. Certainly this behavior is likely to refocus his parent's attention on him, which may be what he is seeking at an unconscious level. At any rate, the most logical advice from the physician should be reassurance that the bed-wetting will go away, especially if the parents reassure the boy of their continuing love for him. Telling them that he has a serious underlying emotional disorder **(choice E)** or that this is a precursor of diabetes mellitus **(choice D)** is inappropriate.

Reprimanding him **(choice A)** may only make the situation worse.

96. The correct answer is D. There is insufficient evidence from the information given that the mother is abusing her child **(choice A).** The patient describes feeling overwhelmed; engaging the mother and the two children in family therapy may be of great value in assisting her with coping mechanisms.

There is insufficient evidence from the question to indicate that she was clearly a victim of child abuse herself **(choice B)** or that she would benefit from antidepressant medication **(choice C),** although this may be a consideration upon further determination of the patient's mood and ability to adjust to her social environment.

In is incorrect to assume that she would exhibit better self-control if she were married **(choice E).**

97. The correct answer is A. The patient in question has had constitutional symptoms of fever, malaise, weight loss, and night sweats for the last four to six weeks. This interval of time indicates that this is not an acute illness, such as would be caused by diverticulitis **(choice B)** or pyelonephritis **(choice D).** There is no risk factor described for the patient to have developed malaria **(choice E).** Although patients with Hodgkin disease **(choice C)** may present with these constitutional symptoms over four to six weeks, there is no description in the physical examination of adenopathy or hepatosplenomegaly.

Furthermore, this patient has a mitral valve commissurotomy, which increases the risk of endocarditis; there is also a murmur present in association with fever. The left lower quadrant abdominal tenderness may be seen with diverticulitis, but this would present with acute symptoms over several days, and not several weeks.

98. The correct answer is D. Of the listed laboratory abnormalities (elevated ALT **(choice A),** amylase **(choice B),** bilirubin **(choice C),** and glucose **(choice E)),** the one that is most suggestive of severe pancreatic inflammation, and even necrosis, is

hypocalcemia. This is presumably due to the results of saponification of calcium by released fatty acids.

99. The correct answer is A. The definition of brain death is constantly being revised. However, if there is no electrical activity on EEG, and if there is total loss of all brain stem reflexes, then it is safe to label an already irreversibly comatose patient

as brain dead. The most definitive measure of absent brain activity is an EEG. However, remember that before interpreting a flat-line EEG, one must ascertain that the patient is not hypothermic or suffering from barbiturate overdose, since these can give the appearance of no electrical activity on an EEG.

The other choices do not fall within the core of the criteria, and hence are all incorrect in this context. The Glasgow coma scale **(choice D)** is a very good perioperative scoring system, but does not help diagnose brain death, even with an EMV score of 3. Decorticate and decerebrate posturing **(choice B)** are not diagnostic, and may be seen with lesions of the internal capsule and midbrain, respectively (among other conditions), whereas other parts of the brain may be absolutely normal. Dilated ventricles of the brain **(choice E)** can be seen in conditions such as Alzheimer's, NPH, and in elderly patients. Failure to respond to electroconvulsive stimuli **(choice C)** is not part of the criterion for brain death.

100. The correct answer is D. Hypothermia should be excluded before making a diagnosis of brain death. If present, it can be the cause of a flat EEG. **Choice C** is nonspecific and has little bearing.

Carotid blood flow **(choice A)** implies the presence of cerebral circulation, and hence the presence of some viable tissue. The absence of carotid blood flow does not help diagnosis either due to the presence of the vertebral system.

Cremasteric reflexes **(choice B)** are spinal reflexes (and not brainstem reflexes), and their presence does not exclude the diagnosis.

Elevated serum aminoglycoside concentration **(choice C)** is nonspecific, and has little bearing.

Cerebral edema **(choice E)** does not rule out brain death.

101. The correct answer is A. The patient is medically unstable, should remain on a medical service, and should not be transferred to a psychiatric service **(choice B).** Pain is the number-one cause of suicide in the terminally ill, and decreasing the pain by maximizing analgesia will help the patient face dying with dignity. Providing adequate pain relief when you are dealing with a terminally ill patient is crucial to maintaining the highest possible quality of life. If this man's pain is this severe, then adjusting the analgesic regimen is the only logical step.

There is no evidence of a clinical syndrome of major depression so an antidepressant **(choice C)** is not indicated.

Hyperalimentation **(choice D)** may be needed if the patient is not eating, or is unable to eat. This is most likely due to chemotherapy, or pain or cachexia secondary to cancer. Decreasing the pain can result in increased appetite.

A cancer patient support group **(choice E)** will be useful in the long run, but will not help the patient until the acute crisis is resolved, namely the wish to die.

102. The correct answer is E. There is no question that anorexia **(choice A),** expressions of discouragement **(choice B),** insomnia **(choice C),** and low energy **(choice D)** are symptoms of depression. Expressions of discouragement are less intense than the hopelessness seen in major depression. However, as patients become more depressed, they cling even tighter to the family for support, and

become more dependent on them, making withdrawal from the family more significant. In addition, anorexia, insomnia, and low energy may be secondary to the malignant melanoma. As the support of family members is the mainstay of most terminally ill patients, withdrawal from this support would be strong evidence of depression, or possibly even of suicidal intent. All of the rest are either situationally appropriate behaviors or could be the side effects of the disease or treatment, such as low energy, insomnia, or anorexia.

103. The correct answer is C. This patient has had a complication of delivery, i.e., a fourth-degree laceration. This means that there has been a traumatic rupture of the perineal body down through the external rectal sphincter to include the rectal mucosa. Careful repair of this injury must be undertaken lest there be continuing dysfunction, e.g., rectal incontinence, rectovaginal fistula, or dyspareunia. Postpartum surveillance includes routine assessment of breasts, extremities, abdomen, and perineum. In this case, particular attention must be paid to the condition of the perineum to be certain of healing, and the absence of infection or hematoma formation. Because perineal healing is an evolutionary process, the decision about hospital discharge cannot be made in advance. Her ability to ambulate and void well suggests a successful and uncomplicated repair. The patient's concern about bowel function should be addressed. Strategies to improve postpartum bowel function include initiating a low-residue diet, and prescribing a short course of stool softeners and a mild laxative on the first postpartum night. She should be reassured that normal bowel function can be anticipated. The status of her success at breastfeeding tomorrow is not known; however, customarily there are support sources available, e.g., family members, lactation consultants, LaLeche League, or Nursing Mothers Council, which can be recommended. The nursery can also be alerted to provide extra instruction to and observation of the patient while breastfeeding. Given appropriate reassurance and counseling, the patient's outlook may be changed by tomorrow.

The patient has a contract with her health insurance company. It is her understanding that a 48-hour stay is authorized for an obstetrical delivery. Most health care coverage makes allowance for complications of delivery such as the traumatic perineal laceration that this patient has sustained. There are many insurance carriers, and each has different terms of coverage. Therefore, it is inappropriate to assume the terms of the patient's contract **(choice A)** without further inquiry. Clarification of the terms of the insurance policy should be made.

An ethical aspect of care requires that the physician respect the patient's autonomy, i.e., her power to authorize the physician to act on her behalf. To deny her authority in the decision process **(choice B)** violates her autonomy.

The advice given in **(choice D)** is at once vague and presumptuous. The patient should be counseled in those specific activities that will advance her postpartum convalescence; e.g., rest, diet, exercise, and the expected changes in bodily functions. Should an extended stay not fall within insurance coverage under the circumstances, an appeal process should be followed. Consequently, it is misleading to imply that an appeal will be successful ("leave the insurance company to me"). An appeal can be made, but there can be no assurance that it will be successful.

As indicated above, the terms of most health insurance contracts make allowances (upon request and approval) for extended hospital stays. While it is true that a physician has "no control over the insurance company," **(choice E),** control is not

necessary in requesting insurance company approval for an extended hospital stay consistent with good medical practice. It is the physician who has an obligation to act on behalf of the patient to protect and promote her health care interests, who should request appropriate consideration from her insurance carrier. If indeed there is no allowance for an extended stay, and in good medical judgment it is indicated, an appeal process should be initiated.

104. The correct answer is A. A common postpartum complication is infection. The presentation of a puerperal infection may be atypical because of the altered physiology of the postpartum period. Abdominal distention (ileus) and lack of appetite may be the first manifestation of abdominopelvic peritonitis. Careful evaluation of the patient is required with respect to the genitourinary tract. Although endometritis is the most common postpartum infection, the differential diagnosis includes urinary tract infection, appendicitis, infected episiotomy, and pelvic thrombophlebitis. Missing in this vignette is mention of fever, which is often the first sign of infection. Risks for the development of postpartum infection include vaginal trauma (which this patient had), anemia (this patient's hemoglobin is 10.8), multiple pelvic examinations, internal fetal monitoring, prolonged rupture of the membranes, and indigent status. Continued surveillance is indicated so that the reason for distention and lack of appetite can be identified and treated.

The duration of the patient's labor is not given, but it is likely that she has not eaten solid food in some time. There may not be significant stool in her large intestine available for evacuation. Also, some narcotic medications used for analgesia during labor may contribute to decreased intestinal motility. The mild ileus that follows delivery, together with perineal discomfort and postpartum fluid loss by other routes, predisposes to sluggish bowel evacuation during the puerperium. Strategies to improve postpartum bowel function include initiating a low-residue diet, prescription of a short course of stool softeners, and a mild laxative on the first postpartum night. She should be reassured that normal bowel function can be anticipated. Therefore, a lack of bowel movement in the immediate puerperium **(choice B)** is not unusual, and is not a reason to extend her stay. Discharge instructions should include attention to achieving normal bowel function and situations relating to it that require medical attention (rectal bleeding, pain, separation of the episiotomy, foul lochial discharge, etc.).

Assistance in establishing a satisfactory breastfeeding regimen is available from alternative sources, as mentioned above. Continued hospitalization to obtain this support is not necessary **(choice C).**

A normal uterus can be expected to be palpated abdominally for about two weeks postpartum. It normally regains its nonpregnant size about four weeks after delivery. Therefore, the uterus would be expected to be palpated above the symphysis 48 hours after delivery **(choice D).** An extended hospital stay on this basis is not justified.

Lochia, the uterine discharge, is expected for about five weeks postpartum. As the uterus involutes, the color of the lochia changes from dark red (lochia rubra) to a serous, paler color (lochia serosa), and finally to a mucoid yellowish-white color (lochia alba). When the reddish color of lochia persists for more than two weeks, it indicates that small portions of the placenta have been retained, or indicates imperfect involution of the placental site. Foul-smelling lochia suggests, but does not prove, infection. Therefore, the presence of lochia for more than 24 hours is normal **(choice E),** and is not a reason to extend the patient's hospital stay.

105. The correct answer is B. Thyroxine is the hormone of choice for replacement therapy. It has a half-life of seven days, and any alteration in dose is not reflected for four to six weeks. Therefore, it is very unlikely that she will develop signs and symptoms of hypothyroidism **(choice A).** She will not be given the medication either through the nasogastric tube **(choice C)** or intravenously **(choice E),** nor does she require a preoperative loading dose **(choice D).**

106. The correct answer is A. The only clue in this history as to the etiology of the patient's current issues is the daily consumption of barbiturate for a number of years. This daily intake will have resulted in a certain physical and psychological tolerance that, once the medication is stopped, would result in "withdrawal" symptoms and signs. In addition, the history is quite clear that during a prior attempt to lower the dosage, the patient reportedly suffered from seizures at that time. Therefore, the most likely etiology of the seizures in this case is barbiturate withdrawal.

A cerebral concussion **(choice B)** is unlikely for three reasons. Although the fall and the patient's inability to recall any details suggests the possibility of a cranial component, no evidence of head injury exists such as a laceration or a bruise. Secondly, the history of the barbiturate use and seizures makes this diagnosis the first one that should be explored. Lastly, concussions, that is brain parenchymal bruising, do not result in seizures, but only altered mental status. A more severe injury to the brain would be required to produce seizures.

There is no evidence that this patient has an underlying epileptic disorder **(choice C).** Her history reveals seizures only as a component of decreased intake of barbiturates.

Morphine potentiation **(choice D)** by phenytoin is possible. Morphine is metabolized by the p450 system of the liver which phenytoin does down-regulate. However, morphine potentiation would result in increased morphine levels and typical results: somnolence, hypoventilation and possibly confusion. Seizures are not a consequence of excess morphine.

Warfarin **(choice E)** is an anti-coagulant which acts to prevent the on the carboxylation of factors 2, 7, 9 and 10 in the coagulation cascade. It does not cross the blood brain barrier and does not cause seizures. If the patient were adequately anti-coagulated with this drug and then suffered a fall, she could bleed into her head, which could then cause seizures and altered mental status. But this is *not* a side effect of warfarin.

107. The correct answer is D. The INR of this patient at 1.3 times control (2.0) is not excessively high. However, the hematuria suggests that this patient is prone to bleeding on this drug. Since the indication for warfarin is post-surgical deep venous thrombosis prophylaxis, the guidelines call for an INR of 1.5-2.0. The dosage of her medication can therefore be decreased slightly.

Fresh frozen plasma **(choice A)** would lead to rapid reversal of this patients' coagulation status and would also subject her to the risks of blood transfusion. Such a reversal would leave her with no deep venous thrombosis prophylaxis. Since the bleeding is not severe and the INR is not excessively elevated above target values, observation of the hematuria in conjunction with a lowered warfarin dose is all that is required.

Vitamin K **(choice B)** is an antagonist to warfarin and would result in slow normalization of the INR over two to three days. For the same reasons that FFP is not required, vitamin K therapy is also not indicated.

Protamine **(choice C)** is a reversal agent for heparin. It has no effect on warfarin actions.

Trimpethoprim-sulfamethoxazole (TMP-SMX) **(choice E)** is an antibiotic used to treat urinary tract infections. Since this patient has painless hematuria, it is unlikely that her etiology is due to infection. Pain is one of the cardinal manifestations of a UTI.

108. The correct answer is A. The key concept to understand from this question is that many drugs used for the management of pain effect pathways that also impinge upon hemostasis pathways. In this case, the concern is for the anti-platelet effects of many of the drugs listed. Of those listed, acetaminophen has no actions on the platelet.

Aspirin **(choice B)** is a permanent inhibitor of the enzymatic cascade mediating platelet aggregation and renders platelets useless for fourteen days (approximately), the time until new platelets are released from the marrow.

Codeine **(choice C)** could result in altered mental status for this patient given her recent admission issues of loss of consciousness and dehydration. It should be avoided if alternate medications of equal efficacy are available.

Naproxen **(choice D)** is a nonsteroidal anti-inflammatory agent that also inhibits the same pathway as aspirin, although not permanently. As a group, NSAIDs are non-narcotic relievers of mild to moderate pain of many causes. However, like aspirin it does produce a functional thrombocytopenia that would make this patient more likely to bleed while on warfarin.

Phenylbutazone **(choice E)** is also a nonsteroidal anti-inflammatory Because of a unique risk of bone marrow suppression, phenylbutazone is generally reserved only for shortterm use in selected patients.

109. The correct answer is A. Hypoxemia (low PO_2) and hypercapnia (high PCO_2) developing shortly after major surgery are classical for postoperative acute respiratory failure. None of the answers use that diagnosis, but **(choices A and D)** describe the two components of this complication. **(choice D),** however, is not correct because the problem is not due to the direct pharmacological effect of the anesthetic (not two hours after the end of the operation). Neither hemorrhage **(choice B)** nor cardiac irritability **(choice C)** would affect the blood gases in this way, and pulmonary embolus **(choice E)** is seen several days after surgery and bed rest, not within a couple of hours of surgery.

110. The correct answer is D. This patient has severe preeclampsia. Preeclampsia is diagnosed on the basis of her elevated blood pressure and proteinuria occurring after 20 weeks' gestation. She has severe preeclampsia on the basis of her headaches, blurred vision, and epigastric pain. This patient requires magnesium sulfate to prevent eclampsia (seizures occurring in the setting of preeclampsia). Magnesium sulfate has been shown to be the most effective agent to use for the prevention of seizures in women with preeclampsia. She also requires delivery to

arrest the disease process. Delivery is the only "cure" for preeclampsia. Bed rest pending further diagnostic studies **(choice E)** is inappropriate because delivery is necessary to prevent a worsening of the disease process that can be fatal for mother and fetus.

Chronic hypertension **(choices A and B)** is defined as hypertension that occurs either before the pregnancy or before 20 weeks' gestation. It is possible to have chronic hypertension with superimposed preeclamsia if there is a worsening of hypertension or proteinuria in a woman with an established diagnosis of chronic hypertension. Either way, the patient in this case has preeclamsia and not just chronic hypertension as these choices suggest.

Mild preeclamsia **(choice C)** is typically characterized by blood pressure between 140/90 mm Hg and 160/100 mm Hg with proteinuria of less than 5g/24h. Patients who meet this criteria are labeled as having severe preeclampsia if it is accompanied by any of the following: oliguria, altered consciousness, headache, blurred vision, pulmonary edema or cyanosis, epigastric or right upper quadrant pain, significantly altered liver function or thrombocytopenia, microangiopathic hemolysis, elevated serum creatinine levels,

intrauterine growth restriction, or oligohydramnios. The patient in this case has headaches, blurred vision, and epigastric pain; this means that she has severe preeclampsia and requires delivery, and not bed rest pending further diagnostic studies.

111. The correct answer is C. The question gives you the classic sign of opiate use: constricted pupils. Prolonged use of opiates may also induce depression.

Amitriptyline **(choice A)** can cause weight gain, and does not cause pupil constriction.

Fluoxetine **(choice B)** may result in mild weight loss of two to five pounds, but does not cause pupil constriction.

Neither perphenazine **(choice D)** nor trazodone **(choice E)** cause pupillary constriction.

112. The correct answer is C. During percutaneous placement of central venous lines, many complications are possible. Depending on the site of placement, the most serious complications vary. For all line placements however, injury to the accompanying artery poses a serious risk. In this case, the presence of a cold foot without pulses on the side ipsilateral to the line placement strongly suggests damage to the femoral artery.

A paradoxical embolism from the femoral vein **(choice A)** would require that the patient have a communication between the right and left atria, a PFO for example. Although this is possible, what is *likely* is that during the attempts to find the vein via a seeker needle, the femoral artery was injured with resultant clot.

Diabetic arteriopathy **(choice B)** manifests as peripheral vascular disease with premature atherosclerosis. This takes decades to develop on diabetics and is not an explanation for a cold, pulseless foot in a ten-year old child.

High osmolality **(choice D)** is not likely in this case. Serum osmolality depends on glucose, blood urea nitrogen and sodium. Assuming a normal sodium and renal

function, with a blood sugar of 250 mg/dL, the serum osmolality is within normal range (2 times the sodium plus glucose divided by 18 plus BUN divided by 2.8).

Thrombosis of the catheterized femoral vein **(choice E)** would not result in a cold, pulseless foot due to the presence of adequate arterial inflow and collateral venous return.

113. The correct answer is D. Diabetics in DKA are at serious risk for profound hypokalemia. The hypokalemia results from both profound dehydration and from an intracellular return of potassium to cells after the requirement to buffer the acidosis has passed. During acidosis there is an exchange of potassium for hydrogen with hydrogen moving intra-cellularly to be buffered.

Bicarbonate **(choice A)** is low in patients with DKA because they are acidotic, but this does not put the patient at risk of death directly from the low serum bicarbonate. Uncorrected acidosis can itself be lethal however.

Calcium **(choice B)** homeostasis is not severely deranged in patients with DKA.

Chloride **(choice C)** is low in patients with DKA due to their metabolic acidosis. A risk during volume repletion of patients with DKA is that when given large volumes of normal saline, they can develop a superimposed hyperchloremic (non-gap) acidosis.

Elevation of serum sodium **(choice E)** can be a problem during rehydration of DKA patients. Hyponatremia is generally not a concern during correction of DKA. Regardless, hypernatremia would result in altered mental status and possibly seizures, but not death.

114. The correct answer is E. Sulfasalazine and corticosteroids are not known to be teratogenic. The general consensus is that ulcerative colitis does not have an adverse effect on pregnancy outcome **(choice A),** and that pregnancy does not have an adverse effect on disease progression **(choice B).** Furthermore, use of the medications sulfasalazine and prednisone has not been associated with detrimental effects to the mother or the fetus **(choice C).** Some believe that occurrence of spontaneous abortions correlate with disease activity, therefore **(choice E)** is incorrect.

115. The correct answer is D. This question describes an elderly woman who is still capable of making informed decisions. However, it is clear from the description of this scenario that the daughter is trying to coerce her mother into a decision with which she does not necessarily agree. It would therefore be appropriate to speak to the patient privately in order to better ascertain the mother's true feelings regarding this situation. Note that even though the daughter is acting in what she assumes is the mother's best interest, the concept of patient autonomy dictates that the mother is allowed to make her own independent decision. **Choices A, B, C and E** are inappropriate and may make the patient and her daughter defensive.

116. The correct answer is E. Falls are a major cause of morbidity in the elderly, especially in those living alone. A very effective measure to prevent falls is to have an experienced visiting nurse assess the various hazards that may exist in the patient's home. Typical measures that are then taken include installing guardrails

around the bathtub and toilet, ensuring adequate lighting, making sure that all stairways in the home are well-lit, and that the stairs are demarcated from the adjoining floor, and eliminating loose rugs, wires, or other objects that may predispose to tripping and falling.

While advising her to walk only when accompanied by an adult **(choice A),** ensuring that she does not have orthostatic hypotension **(choice B),** providing her with assistance with activities of daily living **(choice C)** and an electric wheelchair **(choice D)** may reduce the number of falls, it is best to have her environment evaluated to reduce the hazards that she is facing in daily life.

117. The correct answer is A. The patient's signs and symptoms and the abdominal film (step-ladder pattern) are highly diagnostic of proximal small bowel obstruction. The most common cause of this in the U.S. is adhesions, usually from repeated surgical manipulation as with this patient.

A femoral hernia **(choice B)** does not present with abdominal bloating and upper GI symptoms. It is more likely to present with constipation or obstipation with a swelling in the thigh, and maybe some localized tenderness.

Gallstone ileus **(choice C)** can occur with passage of a gallstone into the distal small bowel, and then become impacted. The second possibility is if a cholecystenteric fistula has formed over time, wherein the gallstone is large enough to obstruct the SI physically—usually at the ileo-colic junction. Both of these possibilities are almost impossible since she had her gall bladder removed five years ago.

A perforated diverticulum **(choice D)** usually presents with localized signs and symptoms, and is accompanied by fever and leukocytosis.

Sigmoid colon carcinoma **(choice E)** usually presents with blood in stools, anorexia, and weight loss. It hardly ever presents as nausea and vomiting, and should show signs of large bowel obstruction.

118. The correct answer is B. The most important test to determine risk for recurrent infarction would be an exercise stress test. A submaximal exercise test can even be done before the patient is discharged from the hospital.

An electrocardiogram **(choice A)** and a 24-hour ambulatory EKG **(choice C)** would demonstrate any predispositions to arrhythmia, but would not yield any information regarding risk of ischemia.

Radionuclide ventriculography **(choice D)** and ultrasonography of the heart **(choice E)** can give useful information regarding ventricular contractility and any wall motion abnormalities, but would not yield any information regarding ischemia risk.

119. The correct answer is C. The patient has likely died. Her agonal respirations and cessation of respiratory effort suggest this. Given that the patient has clear do not resuscitate orders, the first priority is to establish that death has occurred. Pronouncement of death requires a physician.

Calling the attending physician **(choice A)** or the patient's husband **(choice B)** should not occur until it is certain that the patient has in fact died. The reasons for this are obvious. Once the patient has been pronounced dead however, these are appropriate phone calls to make.

Initiating CPR **(choice D)** is inappropriate since the patient has clearly expressed her wishes not to be resuscitated. Chest compressions, electrical cardioversion or chemical resuscitation **(choice E)** are all components that the patient expressed a desire not to have performed on her.

120. The correct answer is C. The risk of vertical transmission of HIV (from mother to child) has been revived a number of times since the initial clinical description of HIV and AIDS in the 1980s. As it currently stands, the consensus opinion on risk is approximately 50% in women with children that have not received perinatal therapy with AZT. The medication protocol reduces the risk to less than 25%. Because newborn children have antibody complements that are from their mothers, it is crucial to follow them over the first year of life as their own immune system develops.

Symptoms of AIDS **(choice A)** are not related to risk of transmission of HIV. AIDS is defined as a CD4 count of less than 500 with an HIV-associated disease present (such as PCP pneumonia or Kaposi sarcoma). The risk of infection instead relates to the viral burden in the bloodstream of the mother. This burden is quantified using HIV RNA copy number. The HIV RNA copy number relates to symptomatic AIDS in a complex manner but low copy number patients can be symptomatic and vice versa.

Untreated syphilis **(choice B)** does not alter the risk of vertical transmission of HIV from mother to child.

Since the immune system of the child is that of the mother, a positive ELISA and Western blot **(choice D)** do not necessarily indicate an infection of the child. This will not be clearly established until the child is at least six months of age.

The mode of infection **(choice E)** whether heterosexual or homosexual, does not translate into risk stratification for vertical transmission. Once the mother is infected, the source of her infection is not relevant to her ability to transmit the virus to her child. As stated above, this relates to disease burden and, additionally, exposure of the child to the birth canal (vaginal versus caesarian delivery).

121. The correct answer is A. Scenarios such as this are quite common in clinical medicine. Diagnostic errors and their study is a large field that occupies many people. The causes why physicians make diagnostic errors are legion, but many relate to "heuristic triggers" and failure to interpret new data in light of changing diagnostic hypotheses. This patient had many signs and symptoms suggestive of pneumonia. Some of these findings, such as the localized pleuritic chest pain, are not 100% specific. A more detailed history of the duration of symptoms and their rapidity of onset (rapid favors diagnosis of an embolism) would have been helpful.

Legal negligence **(choice B),** like malpractice **(choice C),** is a legal terms that reflects errors which occur outside the standard of accepted medical practice. Duty, breach, causation, damages are elements of a negligence action and such a determination can be made only by a judge. Malpractice specifically relates to care not within the accepted practice guidelines. There is no evidence from this vignette that the patient was misdiagnosed based upon practice outside this standard. She had signs and symptoms suggestive of pneumonia, a chest radiograph suggested pneumonia and she was given an antibiotic appropriate for community acquired pneumonia.

A therapeutic misadventure **(choice D)** does not apply to this case since the therapy prescribed for this patient initially was appropriate based upon the presumptive diagnosis.

A violation of the principle of non-malfeasance **(choice E)** is the correlative of the principle of beneficence: *Everyone has a duty to prevent harm to others insofar as this is possible without undue risk to oneself, where the nature of harm is defined by the values of the recipient of the action in question.* This principle does not apply to medical practice where the key principle is first *do* no harm.

122. The correct answer is C. The factor that immediately points to dissection of the aorta is that the patient has Marfan syndrome. Cardiovascular problems are the most common causes of morbidity and mortality in such patients. Mitral valve prolapse often develops early, and are seen in more than 80% of adult Marfan syndrome patients. However, of most concern is disease of the ascending aorta, of which dilation of the aortic root is most serious, since a possibly fatal subsequent dissection and rupture can occur. One must always think acute aortic dissection for a Marfan patient with sudden onset of severe chest pain. The "tearing" quality of the pain also tends to point toward aortic dissection. The pain results from stimulation of nerve endings in the adventitia, and it begins abruptly, rapidly becoming severe.

All the other detractors **(choices A, B, D, or E)** are possible causes of the acute chest pain described, and would have been more suspect had the patient not had Marfan syndrome.

Therefore, further work-up would be required to make a positive diagnosis. Normally this diagnosis would need to be supported by a routine chest x-ray—which may show a dilated aortic root—and confirmed by echocardiography, magnetic resonance imaging (MRI), or computed tomography (CT) imaging studies, which tend to replace the more classical but invasive aortographic techniques.

Patients with Marfan syndrome should have yearly echocardiography to monitor the aortic diameter as well as valvulars function. Patients should use standard endocarditis prophylaxis as well. Prophylactic replacement of the aortic root is generally recommended for aortic root diameters that exceed 55 mm. Beta blockers may be effective in delaying the rate of aortic dilation.

123. The correct answer is A. Because this minor child herself has a child, she is what is known as an emancipated minor. For this reason, she is, according to the law, an adult and is capable of offering her own consent. If she did not have a child, then contacting her parents **(choice D)** or legal guardian would be required. Given this information, a court order **(choice B),** or written consent of 2 physicians **(choice C)** or her 28-year-old cousin **(choice E)** is unnecessary.

124. The correct answer is A. The most likely diagnosis in this sexually active young woman who does not use contraception and has had a recent period, is PID (pelvic inflammatory disease). The three major criteria are abdominal pain, cervical motion tenderness, and adnexal tenderness. Minor criteria are fever, elevated white blood cell count, purulent cervical discharge, and elevated ESR (erythrocyte sedimentation rate). The diagnosis is confirmed by cultures of the cervix for Chlamydia trachomatis (more common) and Neisseria gonorrhea (less common).

Culdocentesis **(choice B),** transvaginal sampling of the cul-de-sac, can be performed to confirm the diagnosis of an ectopic pregnancy; the presence of nonclotting blood is highly suggestive. Laparoscopy **(choice C)** can be performed if there is suspicion of Tubo-ovarian abscess; in this case, however, no masses are palpated.

Since the patient has recently had a menstrual period, measurement of serum hCG **(choice D)** will not provide additional information.

Ultrasonography **(choice E)** is also employed to better characterize a physical finding such as a pelvic mass.

125. The correct answer is B. This patient shows symptoms of paranoia and sympathetic stimulation. Common symptoms of cocaine use include the classic ones associated with sympathetic stimulation, such as tachycardia, hypertension, mydriasis, and sweating. Paranoia, suspiciousness, and psychosis may occur with prolonged use.

Although at low levels alcohol **(choice A)** induces some behavioral stimulation, it is a CNS depressant. Occasionally chronic alcohol use induces paranoia, but dementia and memory loss are more common symptoms.

Diazepam **(choice C),** sold under the trade name Valium, is commonly prescribed as an antianxiety drug or muscle relaxant, and does not produce the symptoms noted.

Heroin **(choice D),** like most opioids, is also a CNS depressant, and symptoms associated with its use include drowsiness, slurred speech, memory impairment, occasional perceptual disturbances, and pinpoint pupils.

Methaqualone **(choice E)** is a hypnotic and a sedative, not a stimulant.

126. The correct answer is D. This patient has an acute back syndrome that is most likely due to lumbosacral muscle sprain or strain. The normal neurologic examination does not suggest any evidence of a radiculopathy, and therefore a disc herniation is less likely. The great majority of these injuries improve with NSAID use and bedrest for approximately three days. Longer periods of bedrest, immobilization, or traction have not been demonstrated to improve outcomes when compared to three days of bedrest.

A CT scan **(choice A),** MRI **(choice B),** x-rays **(choice C),** and a orthopedic consultation **(choice E)** are not indicated at this time as this patient most likely has lumbosacral muscle sprain or strain and has no evidence of a radiculopathy, infection, or tumor.

127. The correct answer is D. The symptoms now suggest a radiculopathy because of the left lower extremity pain, and the weak left ankle -jerk reflex. Therefore, consideration of a disc bulge or herniation must be considered. The most effective diagnostic imaging of this region is an MRI of the lumbosacral spine, not an x-ray **(choice A),** CT scan **(choice B),** or diskography **(choice C).**

Observation **(choice E)** is inappropriate as she has symptoms of a radiculopathy and should be further evaluated with an MRI.

128. The correct answer is B. This boy obviously has diabetes mellitus. Treatment with insulin has reduced his serum glucose concentration, and there will also have been a concomitant shift of K^+ from the extracellular compartment into the cells. Unless replaced, this loss will have dire consequences. Therefore, the most appropriate next step is to add K^+ to the intravenous fluid.

129. The correct answer if D. The patient has CNS symptoms, and is HIV-positive. Some 15% of such patients have toxoplasmosis, making this the most likely diagnosis. The neurological symptoms of CNS toxoplasmosis will vary depending upon the site and severity of the infection. A glioblastoma **(choice A),** neurosyphilis **(choice C),** meningococcal **(choice B),** or tubercular **(choice E)** meningitis could cause some or all of the symptoms, but given the patient's history, are much less likely than toxoplasmosis. Obviously the next step in management would be to confirm the diagnosis.

130. The correct answer is B. This patient has hypertension secondary to the effects of the pseudoephedrine and her monoamine oxidase inhibitor. The inhibition of MAO-A causes the rise of norepinephrine, dopamine and serotonin in the synaptic cleft, of MAO-B only of dopamine. Pseudoephedrine displaces norepinephrine from synaptic terminals. For this reasons, nasal sprays such as the one this patient is taking are to be avoided when MAOIs are used. Phentolamine is a reversible alpha-adrenergic receptor blocker that will blunt the effects of the excess catecholamines on arteriolar vasoconstriction.

Meperidine **(choice A)** is a narcotic and is used for pain control. Managing this patient's headache is reasonable once it is certain that her hypertension is not the cause. By masking the pain and not managing the blood pressure, there remains a serious risk of hemorrhage or stroke with this patient.

A CT scan of the head **(choice C)** is not indicated as a source for this patient's headaches is evident from the history. A CT is useful when no such hints exist and there is a concern for intracranial pathology based upon the presenting signs and symptoms.

Transillumination of the sinuses **(choice D)** is a tool to aid in the diagnosis of sinusitis. This patient is known to have sinusitis by her history and therefore, re-conforming the presence of active infection will do nothing to help address her current active issue of hypertensive crisis, bordering on emergency (symptomatic).

Once it is certain that the cause of this patient's headache is not the blood pressure, it is completely reasonable to manage her solely as a sinusitis patient and prescribe oral pain medications and intra-nasal steroids **(choice E).** However, it is critical that the blood pressure first be lowered and then it can be excluded as a cause for her current symptoms.

131. The correct answer is B. Three months of immobilization is like demanding a PE. It is surprising that it took so long, and that he is not yet moderately ambulatory. In this case, the patient has already flipped an embolus to his lung, and that area of the lung and the overlying pleura is infarcted. Hence, the pain and discomfort will be related to deep breathing, and not to change in position **(choice A).**

Pain with eating and swallowing **(choices C and D)**—odynophagia—is more commonly encountered with lesions of the esophagus.

Pain with walking **(choice E),** depending on the site, can be claudication in the lower extremities, or ischemia of the myocardium and chest pain.

132. The correct answer is D. Pain and pleural frictional rub is almost diagnostic of infarction of the overlying pleura.

Pericardial rub due to pericarditis **(choice A)** is localized to the lower left side of the heart; there is no evidence for this diagnosis here.

Pneumonia **(choice B),** which is another complication of immobility, may present with similar signs and symptoms, but should be accompanied with fever and leukocytosis.

A pneumothorax **(choice C)** and a pulmonary embolus without infarction **(choice E)** do not typically present with a pleural friction rub.

133. The correct answer is A. This patient has signs (nuchal rigidity) and symptoms (fever) of meningitis. The standard of care is to initiate antibiotic therapy immediately, even before a diagnostic lumbar puncture is taken. The antibiotic of choice must both cover the likely offending organism and have good penetration into the CSF. Ceftriaxone, a third generation cephalosporin meets both of these requirements.

Ciprofloxacin **(choice B)** is a fluoroquinolone antibiotic. This has fairly good gram-negative coverage but has very poor CSF penetration.

Glucocorticoids **(choice C)** have no role in the management of severe infection and in fact, are immune suppressive agents and can exacerbate infections to the point of death.

Penicillin **(choice D)** is a good antibiotic that has activity against a number of gram-positive organisms. Owing to increasing resistance to this drug, as well as to its' poor CSF availability, it is not first line treatment for suspected meningitis.

Ticarcillin **(choice E)** is an extended spectrum penicillin that has activity against penicillin resistant organisms. It's penetration into the CSF is however still quite poor.

134. The correct answer is A. Most states have laws that mandate that a clinician who suspects physical or sexual abuse must act immediately, separating the child from the parents if necessary.

Discharge to another relative or neighbor **(choice B)** will not prevent the abusing parent from retrieving the child and inflicting further abuse. Foster care placement **(choice C)** can only be applied for after there is proof of physical abuse.

If your suspicions of abuse are high, do not send the child home with the parents under any circumstances **(choice D).**

Again, sending the child home, even with an impending social work evaluation **(choice E),** leaves the child open for continued abuse. When angered, the abusing

parent may inflict greater injury after a quiescent phase, resulting in death of the child. In a possible abuse case, the physician should take steps to both protect the child and investigate further.

135. The correct answer is E. There is no need for another physician to agree with your assessment **(choice A).** A single physician, social worker, or nurse can and must file a report with child protective services. There does not need to be a pattern of repeated suspicious injury **(choice B)** or proof of parental abuse **(choice C).** The injury need not be life-threatening **(choice D).** The injury need only be strongly suggestive of abuse.

136. The correct answer is E. The reporting physician is only liable if he does not report. The physician can be brought up on charges and suffer professional penalties only if he does not report. Civil **(choice A)** and criminal charges **(choice B)** may not be brought against the physician if the charge of abuse is incorrect. Likewise, his license may not be revoked **(choice C),** nor his state medical society membership censured **(choice D).** The law aims to foster reporting of reasonable suspicions.

137. The correct answer is B. The patient is described as a homosexual male with both sebacate and acute neurologic abnormalities. Furthermore, the neurologic signs and symptoms described clearly indicate focal findings as would be seen with a mass lesion. In a homosexual man, one would suspect the possibility of toxoplasmosis, and a CT scan of the head should be performed. Toxoplasmosis would be revealed as multiple ringenhancing lesions.

Bilateral carotid angiography **(choice A)** and an electroencephalogram **(choice C)** are not indicated at this time.

A lumbar puncture **(choice D)** would in fact be contraindicated given the possibility of a mass lesion and possible increased intracranial pressure.

While order a serum test for HIV antibodies **(choice E)** may be appropriate it will not be most useful in evaluating his current signs and symptoms.

intubation and intravenous antibiotic therapy.

138. The correct answer is E. Right apical lobar consolidation is highly suggestive of TB. The history of alcohol and drug dependence provides a stronger indication.

The chest x-ray pattern in aspergillosis **(choice A)** is often necrotizing pneumonia with target lesions, which are round foci with hemorrhagic borders.

Carcinoma **(choice B)** does not appear as a consolidation unless it is sitting over a main bronchus, in which case one would expect some weight loss and hemoptysis. It should first appear as a mass with or without hilar adenopathy.

Pneumocystis **(choice C)** typically presents with a diffuse interstitial pneumonia.

The chest x-ray findings in patients with sarcoidosis **(choice E)** usually consists of hilar and paratracheal adenopathy and either pulmonary infiltrates, however it may have a nodular character.

139. The correct answer is C. The electrocardiogram shows ST elevations in the anterolateral leads (I, aVL and V2 through V6). Furthermore, there are Q-waves forming in leads V2 and V3. Although he is younger than most patients with a myocardial infarction, the symptoms and EKG are classic. As expected with an infarction of this size, he is beginning to develop pulmonary congestion as demonstrated by the bibasilar rales.

140. The correct answer is B. A classic history such as this should always trigger a rule out diagnosis for aortic arch dissection. Traumatic dissection is very common in trauma situations and the classical description is a widened mediastinum on plain chest films. However, this finding is highly non-specific and therefore, CT imaging with contrast of the thorax is now the preferred method for ruling out this diagnosis.

Bronchoscopy **(choice A)** is used to assess the trachea and upper airways via direct visualization. It has no role in the evaluation of possible aortic injury.

A MUGA scan of the heart **(choice C)** is used to evaluate for cardiac viability. Most commonly, it is used in the evaluation of cardiac ischemia.

Thoracocentesis **(choice D)** is used to evaluate fluid present in the pleural space, a socalled pleural effusion. A needle is inserted lateral or inferior to the lung but within the pleural space to withdraw fluid for analysis.

Thoracic ultrasonography **(choice E)** could refer to imaging of the thorax or of the heart. Regardless, trans-thoracic ultrasound has limited ability to evaluate the aortic arch. A trans-esophageal ultrasound however is exquisitely sensitive for detecting aortic arch injury and allows complete inspection of the aortic root and valve, as well as the coronary cusps and sinuses.

141. The correct answer is A. The patient's clinical description is consistent with acute renal colic from nephrolithiasis. In addition, the picture clearly shows crystals. The stone is more likely to be found in the ureter. A CT scan of the abdomen is the most appropriate of the tests listed to find a ureteral stone.

CT scanning of the kidney **(choice B)** is not going to be the most helpful because the calculi are within the urinary tract, not necessarily within the kidneys.

There is no description of dysuria, frequency, or burning and there is no fever described. This would go against the need for culture **(choice C).**

Although evaluation for causes of crystalluria and kidney stones may be indicated in patients with nephrolithiasis **(choices D and E),** this is premature since we have not even found the stone yet to confirm the diagnosis.

142. The correct answer is B. An intravenous drug abuser with high fevers and a cardiac murmur should be considered to have acute bacterial endocarditis with staphylococcus until proven otherwise. The valvular lesion most commonly seen in these patients is tricuspid regurgitation. This is a systolic murmur and since it is located on the right side of the heart, it will increase in intensity with inspiration, which increases right heart filling.

A decreased S 1 intensity **(choice A)** is characteristic of acute, severe aortic regurgitation, where elevation of the left ventricular end-diastolic pressure may lead

to early closure of the mitral valve, a pulse pressure that is not particularly wide, and a soft, short diastolic murmur.

An increased intensity of the murmur with forced expiration **(choice C),** especially with the patient sitting up and leaning forward, is characteristic of aortic regurgitation. This maneuver is helpful when the murmur is soft (typically a high-pitched decrescendo diastolic murmur), and is heard best with the diaphragm of the stethoscope.

A positive Kussmaul sign (rise in jugular venous pressure with inspiration; **(choice D)** is characteristic of constrictive pericarditis, where a chronically inflamed pericardium adheres to the myocardium and interferes with venous return. The neck veins elevate with inspiration because the right atrium is unable to accommodate the increased venous return of inspiration.

A right-sided gallop **(choice E)** is characterized by an S3 gallop, and is indicative of right ventricular dysfunction resulting in either pulmonary or tricuspid origin. It is most common in the elderly where there has been progressive right ventricular dysfunction, and would be unlikely in a young intravenous drug abuser who has minimal right ventricular damage.

143. The correct answer is E. The history and physical findings suggest an infective arthritis of the metacarpophalangeal joint. This is most commonly from a puncture or cut on the dorsum of the hand; it is often seen when a fighter's fist strikes the tooth of his opponent, resulting not only in crushed tissue, but also in inoculation of organisms in the metacarpophalangeal joint, particularly into the metacarpal head. Wounds of human bites should be débrided and irrigated, not sutured, and aggressive intravenous antibiotic therapy is immediately started. All of the other choices, including splinting and exercise **(choice A and B),** are usually indicated in fracture and dislocation of phalangeal and metacarpal bones.

Splinting, antibiotics and reevaluation **(choice C)** and splinting and antibiotic therapy **(choice E)** are incorrect because he requires debridement.

144. The correct answer is D. The trick to this question is recognizing that that prochlorperazine is a directive of the antipsychotic medications (neuroleptics) such as chlorpromazine, thioridazine, and fluphenazine. Thus, it is capable of causing similar dystonic reactions, including sustained twisting of the head to the right (torticollis), impaired breathing (laryngospasm), and eyes deviated up, down, or sideways (oculogyric crisis). Diphenhydramine, 25-50 mg given intramuscularly, will relieve the symptoms of a dystonic reaction.

Chlorzoxazone **(choice A),** diazepam **(choice C),** and methocarbamol **(choice E)** are typically used for muscle spasms due to trauma, inflammation, anxiety, and/or pain.

Dantrolene **(choice B)** is used for neuroleptic malignant syndrome, a condition in which the patient develops whole-body rigidity, fever, and autonomic hyperactivity after exposure to a neuroleptic.