1. A healthy 18-year-old woman comes for a routine health maintenance examination. Menses occur at regular 28-day intervals. Her last menstrual period was 2 weeks ago. She is sexually active with one partner, and she and her partner use condoms inconsistently for contraception. Her maternal grandmother was diagnosed with breast cancer at the age of 65 years, her paternal grandfather was diagnosed with colon cancer at the age of 72 years, and her maternal grandfather died of a myocardial infarction at the age of 66 years. Examination shows no abnormalities. Which of the following is the most appropriate screening test for this patient?

- A) Complete blood count
- B) Fasting serum lipid studies
- C) Test of the stool for occult blood
- D) Testing for *Neisseria gonorrhoeae* and *Chlamydia trachomatis*
- E) Urinalysis

2. A 14-month-old girl is brought to the physician because of a 14-hour history of irritability and episodes of drawing her knees toward her chest. During this period, she has vomited nonbilious fluid twice and had a bowel movement containing a small amount of blood. She had an upper respiratory tract infection 2 weeks ago. She is listless except for intermittent episodes of discomfort. Her temperature is 38°C (100.4°F). Abdominal examination shows right-sided tenderness without guarding or rebound; bowel sounds are present. Rectal examination shows bright red blood and mucus. An x-ray of the abdomen shows no abnormalities. Which of the following is the most appropriate next step in management?

- A) X-ray of the upper gastrointestinal tract with contrast
- B) Water-soluble contrast enema
- C) Corticosteroid enemas
- D) Admission to the hospital for total parenteral nutrition
- E) Immediate laparotomy

The response options for the next **2** items are the same. Select one answer for each item in the set.

For each patient with cognitive impairment, select the most likely diagnosis.

- A) Acute stress disorder
- B) Dementia, Alzheimer's type
- C) Dissociative amnesia
- D) General paresis
- E) Head trauma
- F) Hepatolenticular degeneration (Wilson's disease)
- G) HIV encephalitis
- H) Huntington's disease
- I) Major depressive disorder
- J) Multi-infarct (vascular) dementia
- K) Niacin deficiency
- L) Normal-pressure hydrocephalus
- M) Parkinson's disease
- N) Pick's disease
- O) Schizophrenia, catatonic type
- P) Normal aging

3. An 82-year-old woman is brought to the physician by her granddaughter because of a 6-week history of increasing forgetfulness. She is a retired schoolteacher and lives independently. Her granddaughter is concerned because on several occasions she has left the stove on when she went to bed. During conversations with her granddaughter, she has difficulty remembering past events and seems unconcerned about her memory lapses. The patient describes trouble sleeping through the night and has had a decreased appetite resulting in a 4.5-kg (10-lb) weight loss over the past month. She has a history of similar symptoms 2 and 5 years ago that were successfully treated with medication. She appears unkempt and has poor personal hygiene. Her temperature is 37°C (98.6°F), blood pressure is 110/70 mm Hg, and pulse is 80/min and regular. Mental status examination shows psychomotor retardation, a flat affect, impaired ability to recall past events, and trouble repeating three numbers in sequence. She is unable to recall the names of recent presidents. Her serum urea nitrogen concentration is 25 mg/dL, and serum creatinine concentration is 1.7 mg/dL.

For each patient with cognitive impairment, select the most likely diagnosis.

- A) Acute stress disorder
- B) Dementia, Alzheimer's type
- C) Dissociative amnesia
- D) General paresis
- E) Head trauma
- F) Hepatolenticular degeneration (Wilson's disease)
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- K) Niacin deficiency
- L) Normal-pressure hydrocephalus
- M) Parkinson's disease
- N) Pick's disease
- O) Schizophrenia, catatonic type
- P) Normal aging

4. A 42-year-old computer science professor is brought to the physician by her husband, who reports insidious changes in his wife's personality and behavior. He reports that she believes that aliens have been speaking to her and tampering with their heating and air-conditioning systems. He says that she was upset when she turned 40 years old, and her symptoms have developed since that time. She was adopted, and her family history is unknown. Physical examination shows vermicular movements of the tongue and bilateral writhing motions of the upper extremities. Mental status examination shows indifference to her condition and mild to moderate difficulty with memory and calculations.

5. A 15-year-old girl is brought to the physician by her parents because of an 8-hour history of difficulty breathing. She has a history of asthma treated with oral montelukast and inhaled salmeterol and fluticasone. She has been hospitalized three times for exacerbation of asthma; the most recent hospitalization was 3 months ago. She appears to be in moderate distress. Examination shows labored breathing with intercostal retractions. Expiratory wheezes are heard. The patient says that she sometimes forgets to take her medication and does not believe that she needs it. Which of the following is the most appropriate next step to increase the likelihood that this patient will become compliant with her medication regimen?

- A) Recommend that her parents reward or punish the patient based upon compliance
- B) Negotiate a contract regarding medication compliance
- C) Refuse to see the patient if she continues to be noncompliant
- D) Begin clonidine therapy
- E) Begin fluoxetine therapy
- F) Begin methylphenidate therapy
- G) Recommend psychiatric evaluation

6. A 24-year-old man is brought to the emergency department by police 1 hour after his ex-wife found him stumbling around in the yard. His blood pressure is 100/70 mm Hg, pulse is 90/min, and respirations are 16/min. The pupils are equal and reactive to light; the sclerae are injected. During the examination, he laughs without obvious reason, makes religious statements, and asks if there is anything to eat or drink. Mental status examination shows a broad range of affect; there is no evidence of thought disorder except for mild paranoia. Which of the following is the most appropriate next step in management?

- A) Observation in the emergency department
- B) Intramuscular administration of naloxone
- C) Intravenous administration of 50% dextrose
- D) Intravenous administration of lorazepam
- E) Oral administration of chlorpromazine

7. An asymptomatic 57-year-old man comes to the physician for a routine health maintenance examination. He has smoked one pack of cigarettes daily for 37 years. His blood pressure is 180/112 mm Hg, and pulse is 82/min. Abdominal examination shows a bruit in the right upper quadrant and no masses. His hematocrit is 42%, serum urea nitrogen concentration is 23 mg/dL, and serum creatinine concentration is 1.4 mg/dL. Which of the following is the most likely cause of this patient's bruit?

- A) Accumulation of lipids in the arterial wall
- B) Hypertrophy of the arterial wall media
- C) Infiltration of arterial wall by giant cells
- D) Infiltration of round cells in the arterial wall
- E) Reflex vasodilation

8. A 52-year-old woman comes to the physician because of decreased libido; this symptom began 8 months ago, after she underwent a total abdominal hysterectomy and bilateral salpingo-oophorectomy for leiomyomata uteri and menorrhagia. She has been taking hormone replacement therapy with conjugated estrogen since the operation. Examination shows a moist, rugated vagina. Which of the following is the most likely cause of these findings?

- A) Decreased androgens
- B) Decreased estrogen
- C) Decreased follicle-stimulating hormone (FSH)
- D) Decreased luteinizing hormone (LH)
- E) Decreased progesterone
- F) Decreased prolactin
- G) Increased androgens
- H) Increased estrogen
- I) Increased FSH
- J) Increased LH
- K) Increased progesterone
- L) Increased prolactin

9. A 32-year-old woman comes to the physician because she and her husband have been unable to conceive for 2 years. They have sexual intercourse every 2 days. Menarche was at the age of 14 years. Menses occur at irregular 35- to 50-day intervals and last 10 days; they are not painful. Menstrual flow is normal. She has no history of serious illness and takes no medications. She used an oral contraceptive for 16 years for menstrual cycle regulation but discontinued it 2 years ago. Her husband's sperm count is within the reference range. The patient is 152 cm (5 ft) tall and weighs 72 kg (160 lb); BMI is 31 kg/m². Physical examination shows acne vulgaris over the face, upper shoulders, and back. The remainder of the examination, including pelvic examination, shows no abnormalities. Serum thyroid-stimulating hormone, free testosterone, dehydroepiandrosterone sulfate (DHEAS), luteinizing hormone, and follicle-stimulating hormone concentrations are within the reference ranges. Which of the following is the most likely diagnosis?

- A) Endometriosis
- B) Gonadal dysgenesis 45,X (Turner syndrome)
- C) Hyperprolactinemia
- D) Polycystic ovarian syndrome
- E) Premature ovarian failure

10. A 28-year-old woman at 28 weeks' gestation reports excessive fatigability and dyspnea. Her blood pressure is 118/74 mm Hg, pulse is 110/min and regular, and lungs are clear to auscultation. The cardiac apex is not palpable. S_1 is loud, and there is a sharp sound after S_2. A low-frequency diastolic murmur is heard at the apex that increases in intensity before S_1. Which of the following is the most likely diagnosis?

- A) Aortic regurgitation
- B) Ebstein's anomaly
- C) Mitral regurgitation
- D) Mitral stenosis
- E) Tricuspid regurgitation

11. An otherwise healthy 4-month-old girl is brought to the physician because of a birthmark on her arm that has increased in size over the past several weeks. Examination shows a 3 x 2-cm, bright red, raised, soft, nontender, compressible patch over the left forearm. Which of the following is the most appropriate next step in management?

- A) Topical corticosteroid therapy
- B) Biopsy
- C) Laser therapy
- D) Excision
- E) No intervention is necessary

12. A 67-year-old man is examined 3 days after undergoing uncomplicated coronary artery bypass grafting. He has hypertension, congestive heart failure, and hypercholesterolemia. His medications are patient-controlled morphine, a laxative, lisinopril, metoprolol, furosemide, and lovastatin. He is alert and fully oriented. His temperature is 37.8°C (100°F), pulse is 67/min, respirations are 18/min, and blood pressure is 128/72 mm Hg. Examination shows clean, dry, well-healing surgical incisions over the sternum and right lower extremity. Mental status examination shows a bright affect. A urinary catheter is in place. The patient is able to move from the bed to a chair with the help of physical therapy. He will soon be transferred from the intensive care unit. Which of the following is the most appropriate next step to prevent iatrogenic complications in this patient?

- A) Remove the urinary catheter
- B) Begin famotidine therapy
- C) Begin subcutaneous heparin therapy
- D) Discontinue furosemide therapy
- E) Switch from morphine to acetaminophen-hydrocodone

13. A 72-year-old man comes to the emergency department after a 5-minute episode of blindness in the right eye. Over the past month, he has had headache and pain in the jaw with chewing. His temperature is 38.1°C (100.6°F). Examination shows tender, nodular temporal arteries with decreased pulses. His erythrocyte sedimentation rate is 92 mm/h. Which of the following is the most appropriate immediate step in management?

- A) Carotid ultrasonography
- B) Aspirin therapy
- C) Cefotaxime therapy
- D) Corticosteroid therapy
- E) Temporal artery biopsy

14. A previously healthy 10-year-old boy is brought to the physician because of a 2-day history of a pruritic rash on his arms and legs. He says he first noticed the rash 24 hours after he played in a wooded area in his neighborhood and that the rash has been spreading. He has not had fever. There is a pet cat at home. The patient is alert and is scratching his arms and legs. His temperature is 37°C (98.6°F). Examination of the upper and lower extremities shows severe erythema and bullous lesions with discharge; there is a sharp line of demarcation between the rash and the unaffected skin. A photograph of the left lower extremity is shown. Which of the following is the most appropriate recommendation to prevent recurrence of this type of rash?

- A) Avoidance of the wooded area
- B) Thorough washing after playing with the cat
- C) Prophylaxis with an antibacterial agent
- D) Prophylaxis with a topical corticosteroid
- E) Prophylaxis with an oral antihistamine

15. A 37-year-old woman is brought to the emergency department because she has been unable to see out of her right eye since awakening 2 hours ago. She states that any movement of the eye is painful. Examination shows visual acuity of 20/200 in the right eye and 20/20 in the left eye. The optic fundi are normal. The left pupil reacts normally to light. The right pupil is poorly reactive to direct light. The remainder of the eye examination shows no abnormalities. Which of the following is the most likely site of the lesion?

- A) Left optic nerve
- B) Left optic radiation
- C) Left optic tract
- D) Left visual cortex
- E) Optic chiasm
- F) Retina
- G) Right optic nerve
- H) Right optic radiation
- I) Right optic tract
- J) Right visual cortex

16. A 27-year-old man comes to the physician because of a 1-week history of shortness of breath with exertion, paroxysmal nocturnal dyspnea, and swelling of his feet. He has not had chest pain or palpitations. He has been healthy except for a "bad cold" 1 month ago that resolved spontaneously after 10 days. His temperature is 37°C (98.6°F), blood pressure is 90/60 mm Hg, pulse is 120/min, and respirations are 24/min. Examination shows jugular venous distention to 8 cm. Bilateral basilar crackles are heard. Cardiac examination shows a diffuse, laterally displaced point of maximal impulse. There is a normal S_1 and S_2 and an S_3. Examination shows 2+ pretibial edema bilaterally. An ECG shows no abnormalities. Echocardiography is most likely to show which of the following?

- A) Asymmetric septal hypertrophy
- B) Bicuspid aortic valve with stenosis
- C) Diffuse hypokinesia and dilation of the ventricles
- D) Dyskinesia of the left ventricular apex
- E) Mitral valve prolapse

17. A 67-year-old woman is hospitalized because of abdominal pain and persistent copious vomiting for 24 hours. Two weeks ago, she was hospitalized for treatment of atrial fibrillation; after cardioversion to a normal sinus rhythm, she began treatment with warfarin. Yesterday at a follow-up visit, her INR was 6, and her medication was discontinued. She takes no other medications. Her temperature is 37°C (98.6°F), blood pressure is 100/78 mm Hg, pulse is 120/min and regular, and respirations are 20/min. The abdomen is distended and moderately tender; there is voluntary guarding in the epigastrium. There are no masses, organomegaly, or obvious hernias. Rectal examination shows no abnormalities. Test of the stool for occult blood is negative. Her hemoglobin concentration has decreased from 13 g/dL yesterday to 7.8 g/dL today. An ECG shows a normal sinus rhythm. Which of the following is the most likely explanation for this patient's abdominal symptoms?

- A) Internal small-bowel herniation
- B) Intestinal ischemia from a cardiac embolus
- C) Intramural hematoma of the proximal small bowel
- D) Intussusception of the small bowel
- E) Malrotation of the small bowel

18. A 25-year-old woman comes to the physician because of a 3-month history of the unexplained urge to eat a few tablespoons of cornstarch daily. The amount of cornstarch ingested has increased gradually during this time. She has leiomyomata uteri; she is otherwise healthy. Her weight is unchanged from her last visit 1 year ago; she weighs 61 kg (135 lb) and is 168 cm (66 in) tall. Her blood pressure is 120/80 mm Hg, and pulse is 100/min. Physical examination shows mild pallor. Neurologic examination shows no abnormalities. She is embarrassed about her problem. She has no compulsive behavior or obsessive thoughts. An ECG shows sinus tachycardia. Which of the following is the most appropriate next step in management?

- A) Psychiatric assessment
- B) Complete blood count
- C) Thyroid function studies
- D) Urine toxicology screening
- E) Admission to an eating disorders clinic
- F) Antipsychotic therapy
- G) Folic acid supplementation
- H) Selective serotonin reuptake inhibitor therapy

19. A healthy 5-year-old girl is brought to the physician 5 weeks prior to a family trip to Egypt. The family plans to visit the child's grandparents in a small village. Her immunizations are up-to-date. Examination shows no abnormalities. Which of the following is the most appropriate prophylaxis for this child during her trip to Egypt?

- A) Acyclovir
- B) Ceftriaxone
- C) Isoniazid
- D) Mebendazole
- E) Mefloquine
- F) Metronidazole
- G) Penicillin

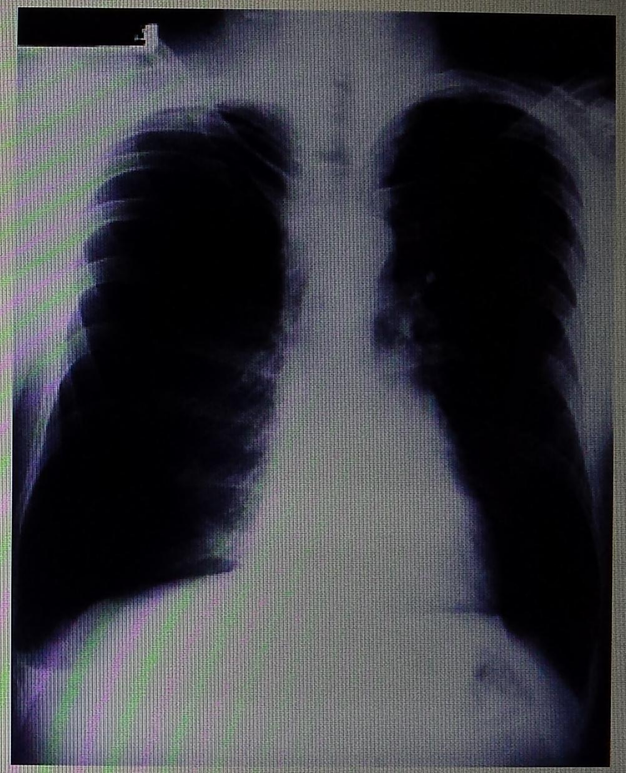
20. A 24-year-old primigravid woman at 18 weeks' gestation comes for a routine prenatal visit. She has had increased bowel movements over the past 9 weeks; the stools are sometimes covered with mucus and blood. Use of over-the-counter antidiarrheal drugs has not relieved her symptoms. Pregnancy has been otherwise uncomplicated. She has never traveled outside the USA. Examination shows erythematous, tender nodules over the anterior surface of both lower extremities; some of the nodules have a violaceous hue. The uterus is consistent in size with an 18-week gestation. Rectal examination shows no hemorrhoids or fissures. Fetal heart tones are audible by Doppler. Which of the following is the most likely diagnosis?

- A) Amebiasis
- B) Diverticulitis
- C) Hyperperistaltic diarrhea
- D) Inflammatory bowel disease
- E) Viral gastroenteritis

21. A program for the primary prevention of coronary artery disease is implemented in a community in the USA. Assuming that diagnostic procedures and detection remain the same, which of the following measures involving the disease is most effective in monitoring the program?

- A) Case fatality
- B) Hospitalization
- C) Incidence
- D) Mortality
- E) Prevalence

22. Two hours ago, a 24-year-old man had the sudden onset of pain in the right side of his chest that has become increasingly severe. He is now having difficulty breathing. His temperature, blood pressure, and pulse are normal. An x-ray of the chest is shown. Which of the following is the most appropriate next step in management?



- A) Bed rest and sedative therapy
- B) Antibiotic therapy
- C) Anticoagulant therapy
- D) Tube thoracostomy
- E) Immediate thoracotomy

23. A 27-year-old primigravid woman at 38 weeks' gestation is admitted in labor. Her pregnancy has been uncomplicated, and a routine prenatal visit 2 days ago showed no abnormalities. On admission, fetal heart tones cannot be heard. Ultrasonography shows little amniotic fluid, fetal edema, and no evidence of a fetal heartbeat. After 1½ hours, she delivers a 3175-g (7-lb) stillborn infant; examination of the infant shows no obvious abnormalities except for mild edema. The placenta and membranes appear normal. Which of the following is the most appropriate immediate course of action?

- A) Notify the hospital liability department
- B) Obtain consent for fetal organ donation from the parents
- C) Recommend autopsy of the infant
- D) Tell the mother not to worry since she can get pregnant again
- E) Tell the parents that there is a 1 in 4 chance of recurrence in future pregnancies

24. A 32-year-old woman comes to the physician because of lethargy and boredom since the birth of her son 5 months ago. She worries about her ability to care for him and has had frequent palpitations. She is unable to fall back asleep after nighttime feedings. She stopped breast-feeding 1 month ago. Her son is healthy, and growth and development are normal for his age. Her blood pressure is 122/80 mm Hg, pulse is 58/min, and respirations are 18/min. Physical examination shows no abnormalities. She remembers one out of three objects after 5 minutes. Her serum cholesterol concentration is 265 mg/dL. The most appropriate next step in diagnosis is measurement of which of the following serum concentrations?

- A) Cortisol
- B) Estrogen
- C) Progesterone
- D) Prolactin
- E) Thyroid-stimulating hormone

25. A 20-year-old man comes for a routine health maintenance examination. He has a 15-year history of difficulty relaxing his hands after tightly gripping objects or after shaking hands. His father has cataracts and frontal baldness. Examination shows thin forearms. There is moderate weakness of the hands and difficulty releasing after gripping with his hands. Which of the following is the most likely diagnosis?

- A) Amyotrophic lateral sclerosis
- B) Cervical spondylosis
- C) Multiple sclerosis
- D) Myasthenia gravis
- E) Myasthenic (Lambert-Eaton) syndrome
- F) Myotonic muscular dystrophy
- G) Polymyalgia rheumatica
- H) Polymyositis
- I) Progressive neuropathic (peroneal) muscular atrophy

26. A 2-month-old boy is brought to the physician for a well-child examination. He smiles spontaneously and vocalizes without crying, but he does not appear to laugh or squeal. He will not work for a toy that is out of his reach. Which of the following is the most appropriate assessment of language and psychosocial development?

	Language development	Psychosocial development
○ A)	Normal	normal
○ B)	Normal	delayed
○ C)	Delayed	normal
○ D)	Delayed	delayed

27. A 77-year-old woman comes to the physician because of a 2-day history of cramping abdominal pain and distention accompanied by nausea and vomiting. She is otherwise healthy and has no history of abdominal operations. Her temperature is 37.4°C (99.4°F), blood pressure is 110/86 mm Hg, pulse is 112/min, and respirations are 24/min. Cardiopulmonary examination shows no abnormalities. Examination of the abdomen shows distention and mild diffuse tenderness; bowel sounds are high-pitched. An x-ray of the abdomen shows air-fluid levels throughout the small bowel and air in the liver; there is no gas in the colon or free air. Which of the following is the most likely diagnosis?

- A) Adhesive small-bowel obstruction
- B) Cecal cancer
- C) Gallstone ileus
- D) Intussusception
- E) Mesenteric infarction
- F) Ruptured appendicitis
- G) Small bowel lymphoma

28. A 32-year-old woman comes to the physician because of a 1-year history of increasingly severe dull pain in her lower back and buttocks. She also has had morning stiffness of the lower back that lasts for 1 to 2 hours. There is no history of trauma. Her job does not require heavy lifting. Her blood pressure is 110/70 mm Hg, pulse is 68/min and regular, and respirations are 16/min. Cardiopulmonary examination shows no abnormalities. There is tenderness to palpation over the sacroiliac joints bilaterally and decreased flexion and extension of the lumbar spine. An x-ray of the lumbosacral spine shows sclerosis of the sacroiliac joints. Laboratory studies are most likely to show which of the following findings in this patient?

- A) Decreased erythrocyte sedimentation rate
- B) Histocompatibility human leukocyte antigen B27
- C) Increased serum antinuclear antibody titer
- D) Increased serum carcinoembryonic antigen (CEA) concentration
- E) Positive serum rheumatoid factor

29. A previously healthy 52-year-old man comes to the physician because of a 3-month history of increased urinary volume and increased urinary frequency at night. He has had a 6.8-kg (15-lb) weight loss during this period despite no change in appetite. His father has hypertension, and his mother has hypertension and type 2 diabetes mellitus. He currently weighs 95 kg (210 lb) and is 178 cm (70 in) tall. His blood pressure is 160/85 mm Hg in both arms. Examination shows no other abnormalities. His nonfasting serum glucose concentration is 280 mg/dL. Which of the following serum concentrations is most likely to be increased in this patient?

- A) Bicarbonate
- B) Glucagon
- C) HDL-cholesterol
- D) Insulin
- E) Ketones

30. A 3-year-old boy is brought to the physician because of a 7-day history of fever and a painful swollen lymph node in his groin. This is his sixth episode of lymph node swelling; the previous episodes resolved after drainage and prolonged antibiotic therapy. He also had pneumonia at the age of 12 months that required chest tube placement for drainage. A maternal uncle died during childhood of recurrent infections. The patient is at the 5th percentile for height and weight. His temperature is 38.5°C (101.3°F). Examination shows a warm, tender, erythematous lymph node in the right inguinal area. There are several healed incisions over the inguinal area and neck from old drainage sites. Laboratory studies show:

Hematocrit	35%
Leukocyte count	17,000/mm³
Segmented neutrophils	65%
Bands	10%
Lymphocytes	25%
Platelet count	350,000/mm³

A Gram stain of the lymph node aspirate shows numerous segmented neutrophils filled with bacteria; cultures grow *Staphylococcus aureus*. Which of the following is the most likely mechanism for these findings?

- A) Adenosine deaminase deficiency
- B) Consumption of complement
- C) Defective opsonization
- D) Destruction of CD4+ T lymphocytes
- E) Developmental arrest of maturation of B lymphocytes
- F) Dysmorphogenesis of the third and fourth pharyngeal pouches
- G) Impaired chemotaxis
- H) Impaired phagocytic oxidative metabolism

31. A 57-year-old man is brought to the emergency department 30 minutes after he was found on the floor of his house; he has left hip pain and shortness of breath. He has renal failure but has missed his last two dialysis treatments. His renal failure was caused by inadvertent ingestion of ethylene glycol. His renal function did not improve, and he is currently on the transplantation list. Medications include amlodipine and doxazosin. On arrival, his temperature is 37.5°C (99.5°F), blood pressure is 150/100 mm Hg, pulse is 95/min and regular, and respirations are 24/min. His breathing is rapid and deep. Crackles are heard in the lung bases. Examination shows a soft abdomen. Bowel sounds are normal. The left lower extremity is externally rotated. Laboratory studies show:

Serum	
Na^+	135 mEq/L
Cl^-	102 mEq/L
K^+	7.1 mEq/L
HCO_3^-	12 mEq/L

Arterial blood gas analysis on 4 L/min of oxygen by nasal cannula:

pH	7.22
Pco_2	31 mm Hg
Po_2	61 mm Hg

An ECG shows peaked T-waves. It will be at least 45 minutes before dialysis can be started. Which of the following is the most appropriate next step in management?

- A) Observation until dialysis is initiated
- B) Intravenous calcium gluconate
- C) Intravenous glucose and insulin
- D) Intravenous 0.9% saline
- E) Intravenous sodium bicarbonate
- F) Rectal sodium polystyrene sulfonate (Kayexalate)

32. A 6-month-old girl is brought to the physician because of poor feeding and labored breathing for 2 months. She has had recurrent respiratory tract infections since birth. Examination shows a to-and-fro murmur in the second left intercostal space, a loud S_2, bounding peripheral pulses, and a widened pulse pressure. Which of the following is the most likely diagnosis?

- A) Atrial septal defect (ostium primum type)
- B) Atrial septal defect (ostium secundum type)
- C) Atrioventricular canal
- D) Coarctation of the aorta
- E) Hypoplastic left heart syndrome
- F) Patent ductus arteriosus
- G) Tetralogy of Fallot
- H) Transposition of the great arteries
- I) Tricuspid atresia
- J) Ventricular septal defect

33. A 4-year-old boy is brought to the emergency department 20 minutes after being involved in a motor vehicle collision. He was an unrestrained passenger. On arrival, his blood pressure is 110/70 mm Hg, pulse is 100/min, and respirations are 32/min with grunting and retractions. Examination shows multiple bruises over the chest. Arterial blood gas analysis while breathing 40% oxygen shows:

pH	7.38
Pco_2	34 mm Hg
Po_2	66 mm Hg

An x-ray of the chest obtained 4 hours later shows diffuse infiltrates on the right side. Which of the following is the most likely diagnosis?

- A) Acute respiratory distress syndrome
- B) Aspiration pneumonia
- C) Fat embolism
- D) Hemothorax
- E) Pulmonary contusion

34. An 18-month-old boy is brought to the emergency department because he has not used his left arm since he fell while walking and holding hands with his 8-year-old sister 2 hours ago. On examination, he holds his left upper extremity at his side with his forearm pronated. There is no tenderness of the left lower extremity, but there is restricted movement of the elbow. The remainder of the examination shows no abnormalities. Which of the following is the most appropriate initial step in management?

- A) Passive hypersupination of the forearm
- B) Application of figure-of-8 strap
- C) Administration of analgesics and application of ice
- D) Aspiration of the elbow joint
- E) In-place splint immobilization of the elbow

35. Four hours after undergoing a cesarean delivery at term followed by tubal ligation, a 37-year-old woman, gravida 2, para 2, has dizziness and confusion. The operation was uncomplicated, and blood loss is estimated to be 800 mL. Patient-controlled epidural analgesia has been moderately effective for pain. Her blood pressure now is 80/40 mm Hg, decreased from 120/72 mm Hg intraoperatively, and pulse is 152/min, increased from 96/min intraoperatively. Breath sounds are decreased bilaterally. No murmurs are heard. Abdominal examination shows distention and tenderness. Bowel sounds are absent. The incision is intact with no drainage. She is disoriented to person, place, and time. Her hematocrit is 23%; preoperative hematocrit was 35%. Which of the following is the most likely cause of the hemodynamic changes?

- A) Epidural-related hypotension
- B) Insufficient intraoperative fluid replacement
- C) Postoperative intra-abdominal hemorrhage
- D) Supine hypotensive syndrome
- E) Underestimated intraoperative blood loss

The response options for the next **2** items are the same. Select one answer for each item in the set.

For each child with fever and cough, select the most likely diagnosis.

- A) α_1-Antitrypsin deficiency
- B) Cystic fibrosis
- C) Pneumothorax
- D) Pulmonary alveolar proteinosis
- E) Pulmonary aspergillosis
- F) Pulmonary hemorrhage
- G) Pulmonary tuberculosis

36. A 20-month-old girl is brought to the physician because of fever and cough for 2 days. She has had several similar episodes since the age of 4 months. Three months ago, she and her family visited her grandmother in Finland for 2 weeks. She is at the 25th percentile for length and 5th percentile for weight. She appears thin and pale. Her temperature is 38°C (100.4°F), pulse is 150/min, and respirations are 40/min. Examination shows mild clubbing. Wheezing and bilateral crackles are heard at the lung bases. An x-ray of the chest shows streaky densities bilaterally with mild hyperinflation.

For each child with fever and cough, select the most likely diagnosis.

- A) α_1-Antitrypsin deficiency
- B) Cystic fibrosis
- C) Pneumothorax
- D) Pulmonary alveolar proteinosis
- E) Pulmonary aspergillosis
- F) Pulmonary hemorrhage
- G) Pulmonary tuberculosis

37. A previously healthy 16-year-old boy is brought to the physician because of fever and cough with right-sided chest pain for 2 weeks. Six months ago, he visited his grandparents in Albania for 2 weeks. He weighs 54 kg (120 lb) and is 173 cm (68 in) tall. He appears thin and pale. His temperature is 38.2°C (100.8°F), pulse is 76/min, and respirations are 36/min. Examination shows shallow respirations with decreased breath sounds at the right lung base. An x-ray of the chest shows a right pleural effusion and hilar adenopathy.

38. During the past 4 months, a 32-year-old woman has had pain during sexual intercourse. She has noted vaginal dryness during sex despite a healthy libido and adequate foreplay. For 2 months, she has had a gritty sensation in her eyes. During the past 6 months, she has had three dental cavities repaired. She has had well-controlled type 1 diabetes mellitus for 10 years. She has never had an abdominal operation. Examination of the eyes shows erythema of the conjunctivae. Examination of the lungs, heart, and abdomen shows no abnormalities. Pelvic examination shows a normal-appearing introitus, vagina, and cervix. The vaginal mucosa appears dry. The uterus and adnexa are nontender and normal in size and consistency. Which of the following is the most likely diagnosis?

- A) Endometriosis
- B) Sjögren syndrome
- C) Vaginismus
- D) Zinc deficiency

39. A 32-year-old man has had mild tremulousness, increasing anxiety, and progressive fatigue over the past 2 days. He had been taking lorazepam (2–3 mg daily in divided doses) for acute anxiety since being robbed at gunpoint 4 weeks ago; he stopped taking the medication 3 days ago. He has a history of mitral valve prolapse, seasonal allergies, and dysthymic disorder. He currently takes loratadine (60 mg daily) and paroxetine (20 mg daily). Which of the following is the most likely explanation for his new symptoms?

- A) Discontinuation of lorazepam
- B) Mitral valve prolapse
- C) Panic attacks
- D) Paroxetine-loratadine interaction
- E) Post-traumatic stress disorder

40. A 67-year-old man comes to the emergency department 1 hour after the onset of vertigo, nausea, and imbalance. He has a 20-year history of poorly controlled hypertension. His pulse is 70/min, respirations are 20/min, and blood pressure is 210/115 mm Hg. Examination shows a small right pupil, mild right ptosis, and nystagmus. Neurologic examination shows weakness of the right palate. Sensation to pinprick is decreased over the right side of the face and left extremities. There is incoordination on finger-nose testing and heel-knee-shin testing on the right. Which of the following arteries is most likely to be occluded?

- A) Anterior spinal
- B) Basilar
- C) Left anterior cerebral
- D) Left internal carotid
- E) Left middle cerebral
- F) Left posterior cerebral
- G) Left vertebral
- H) Posterior spinal
- I) Right anterior cerebral
- J) Right internal carotid
- K) Right middle cerebral
- L) Right vertebral

41. A 25-year-old woman comes to the physician for a routine health maintenance examination. During the examination, she says that she is unhappy because she has been unable to find a mate. She says that it is easy to find someone to date but that all the men she dates terminate their relationship with her, despite her requests to continue dating. She feels so desperate when she is alone that she sometimes repeatedly calls or secretly follows her former boyfriends. She has three sisters; they all were raised in separate foster homes and are not close. She is 163 cm (5 ft 4 in) tall and weighs 52 kg (115 lb); BMI is 20 kg/m². Her pulse is 76/min, and blood pressure is 120/78 mm Hg. Physical examination shows well-healed, superficial lacerations on both wrists. No other abnormalities are noted. She tells the physician that he seems like a man who would always be available to her. Which of the following is the most likely diagnosis?

- A) Adjustment disorder
- B) Borderline personality disorder
- C) Delusional disorder
- D) Gender identity disorder
- E) Major depressive disorder

42. A previously healthy 32-year-old woman comes to the physician because of a 10-day history of persistent cough that keeps her awake at night and is worse with physical activity. The cough is sometimes productive of white sputum in the early morning. Her symptoms began with an upper respiratory tract infection characterized by low-grade fever, sore throat, and malaise 10 days ago. Her only medication is an over-the-counter cough suppressant. She has smoked one pack of cigarettes daily for 16 years. She is employed as a skilled nursing care assistant. She is not in distress but has a rasping cough. Her temperature is 37.4°C (99.4°F), pulse is 78/min, respirations are 12/min, and blood pressure is 130/80 mm Hg. Examination shows no pharyngitis or facial tenderness. Scattered end-expiratory wheezes are heard bilaterally. Her peak expiratory flow rate is mildly decreased. An x-ray of the chest shows no abnormalities. Which of the following is the most appropriate next step in pharmacotherapy?

- A) Nonsedating oral antihistamine
- B) Oral antibiotic
- C) Inhaled β_2-adrenergic agonist
- D) Inhaled anticholinergic
- E) Inhaled mast cell stabilizer

43. A 5-year-old boy is brought to the emergency department 30 minutes after he fainted at home after standing up from a sitting position. His symptoms began 3 days ago with diarrhea and vomiting. He has had no urine output for 18 hours. He is alert but quiet. His temperature is 37.5°C (99.5°F), blood pressure is 75/45 mm Hg, pulse is 120/min, and respirations are 28/min. Examination shows dry lips and tenting of the skin. There is no abdominal tenderness. Bowel sounds are hyperactive. The remainder of the examination shows no abnormalities. His capillary refill time is 5 seconds. Intravenous bolus doses of 0.9% saline are administered. Bladder catheterization yields 5 mL of urine. Urinalysis is most likely to show which of the following?

- A) Blood
- B) Erythrocyte casts
- C) Hyaline casts
- D) Leukocyte casts
- E) Oxalate crystals

44. A 37-year-old woman comes to the physician because of progressive shortness of breath over the past 5 years; she now has fatigue and shortness of breath with mild exertion. She has a history of mitral stenosis secondary to rheumatic fever at the age of 15 years. She was asymptomatic until 5 years ago when she developed severe shortness of breath during pregnancy. She was treated with diuretics, low-sodium diet, and bed rest, and she was able to deliver the baby at term. Her only medication is hydrochlorothiazide. Her temperature is 37°C (98.6°F), blood pressure is 110/80 mm Hg, pulse is 100/min and regular, and respirations are 26/min. Cardiac examination shows an obvious opening snap in S_2. A grade 3/6, late diastolic murmur is heard at the apex. A right ventricular lift is palpated along the left sternal border. Which of the following is most likely increased in this patient?

- A) Blood flow to the lower lung fields
- B) Diastolic filling time
- C) Left-to-right shunt of blood
- D) Left ventricular end-diastolic pressure
- E) Pulmonary artery pressure

45. A 42-year-old man is brought to the emergency department by a friend because of a 2-hour history of confusion and difficulty walking. The patient's friend says he was well when she visited him 2 days ago but found him disoriented when she came to visit him this morning. He has a 10-year history of hypertension and has not been compliant with his medication regimen. He has drunk 6 to 12 beers daily for 10 years. On arrival, he is awake but easily distracted; he is oriented to person but not to place or time. His temperature is 37.5°C (99.5°F), pulse is 90/min, and blood pressure is 140/90 mm Hg. Examination shows dysconjugate gaze and prominent nystagmus. Muscle strength is 5/5. Deep tendon reflexes are diminished bilaterally. Sensation to pinprick is decreased over the distal aspect of the lower extremities. With the assistance of one person, he is able to stand and walk with a wide base. Administration of which of the following is most appropriate at this time?

- A) Acyclovir
- B) Ceftriaxone
- C) Chlordiazepoxide
- D) Lactulose
- E) Vitamin B_1 (thiamine)

46. A 70-year-old woman has had increasing abdominal pain over the past 2 days. She has renal failure and has been receiving peritoneal dialysis for 18 months; her last treatment was 2 hours ago. She appears toxic. Her temperature is 39°C (102.2°F), and blood pressure is 140/90 mm Hg. Her abdomen is distended and diffusely tender to deep palpation with rebound tenderness. Leukocyte count is 18,000/mm^3. Which of the following is the most appropriate next step?

- A) X-rays of the abdomen
- B) Comparison of abdominal fluid amylase with serum amylase activity
- C) Gram stain of abdominal fluid
- D) Ultrasonography of the abdomen
- E) CT scan of the abdomen and pelvis