**1.**A 42-year-old woman is brought to the emergency department 10 minutes after being involved in a highspeed motor vehicle collision in which she was a restrained passenger. On arrival, she has shortness of breath and  
abdominal pain. Her pulse is 135/min, respirations are 30/min, and blood pressure is 80/40 mm Hg. Breath sounds  
are decreased at the left lung base. An x-ray of the chest shows opacification of the left lower lung field with loss of  
the diaphragmatic shadow. Placement of a chest tube yields a small amount of air followed by greenish fluid. Which  
of the following is the most appropriate next step in management?

(A) CT scan of the abdomen  
(B) CT scan of the chest  
(C) Thoracoscopy  
(D) Laparotomy  
(E) Thoracotomy

**2.** A 37-year-old woman comes to the emergency department because of a 3-day history of increasingly severe  
abdominal pain, nausea, and vomiting. Twelve years ago, she had a hysterectomy because of severe dysfunctional  
uterine bleeding. Her temperature is 37°C (98.6°F), blood pressure is 106/70 mm Hg, pulse is 110/min, and  
respirations are 12/min. Examination shows a distended, tympanic abdomen with diffuse tenderness but no  
guarding; bowel sounds are hypoactive. Her leukocyte count is 10,000/mm3, and hematocrit is 44%. An x-ray of the  
abdomen is shown. Which of the following is the most appropriate initial step in management?  
(A) CT scan of the abdomen  
(B) Intravenous neostigmine therapy  
(C) Esophagogastroduodenoscopy  
(D) Nasogastric intubation  
(E) Laparotomy

**3.**A 52-year-old woman comes to the emergency department because of a 1-week history of low-grade fever and  
increasing abdominal cramps that are exacerbated by bowel movements. She began a course of amoxicillinclavulanate and metronidazole 2 days ago but has had no relief of her symptoms. She has had intermittent  
constipation for the past 12 years. She has not had nausea, vomiting, urinary symptoms, or bloody stools. She has a  
3-year history of hypertension. She underwent total abdominal hysterectomy and bilateral salpingo-oophorectomy 5  
years ago because of leiomyomata uteri. She is 165 cm (5 ft 5 in) tall and weighs 86 kg (190 lb); BMI is 32 kg/m2.  
Her temperature is 38.1°C (100.6°F), pulse is 75/min, and blood pressure is 150/80 mm Hg. The lungs are clear to  
auscultation. Cardiac examination shows no abnormalities. The abdomen is soft, and there is tenderness to palpation  
of the left lower quadrant with guarding but no rebound. Bowel sounds are normal. The stool is brown, and test for  
occult blood is negative. Her hemoglobin concentration is 14.5 g/dL, leukocyte count is 15,000/mm3, and platelet  
count is 280,000/mm3; serum studies and urinalysis show no abnormalities. Which of the following is the most  
appropriate next step in diagnosis?  
(A) Examination of the stool for ova and parasites  
(B) Test of the stool for *Clostridium difficile* toxin  
(C) Endoscopic retrograde cholangiopancreatography  
(D) Pelvic ultrasonography  
(E) CT scan of the abdomen with contrast  
(F) Colonoscopy

**4.**A previously healthy 47-year-old man comes to the physician because of a 6.8-kg (15-lb) weight loss over the past  
6 months. He spent 2 weeks in Mexico 3 months ago. Since returning, he has noticed that his stools have changed in  
size and consistency. He has not had fever, night sweats, or change in appetite. He takes no medications. He has  
smoked one pack of cigarettes daily for 20 years. He appears healthy and well nourished. His temperature is 37°C  
(98.6°F), pulse is 105/min, respirations are 16/min, and blood pressure is 130/78 mm Hg. Examination shows pale  
conjunctivae. The abdomen is soft with no organomegaly. Rectal examination shows a normal prostate with no  
masses. Test of the stool for occult blood is positive. Laboratory studies show:  
Hemoglobin 11 g/dL  
Mean corpuscular volume 72 μm3  
Platelet count 300,000/mm3  
Red cell distribution width 16% (N=13%–15%)  
Which of the following is the most appropriate next step in diagnosis?  
(A) Second complete blood count in 3 months  
(B) CT scan of the abdomen  
(C) Colonoscopy  
(D) Esophagogastroduodenoscopy  
(E) Sigmoidoscopy

**5.**A 22-year-old man comes to the physician for a routine health maintenance examination. He feels well. He has had a  
painless left scrotal mass since childhood. Examination shows a 6-cm, soft, nontender left scrotal mass that  
transilluminates; there are no bowel sounds in the mass. Examination of the testis shows no abnormalities. Which of  
the following is the most likely cause of the mass?  
(A) Accumulation of scrotal adipose tissue  
(B) Cryptorchidism of the left testis  
(C) Dilation of the pampiniform plexus of veins around the testis  
(D) Persistence of a patent processus vaginalis  
(E) Torsion of the left testis

**6.**A 22-year-old man is brought to the emergency department 30 minutes after he sustained a gunshot wound to the  
abdomen. His pulse is 120/min, respirations are 28/min, and blood pressure is 70/40 mm Hg. Breath sounds are  
normal on the right and decreased on the left. Abdominal examination shows an entrance wound in the left upper  
quadrant at the midclavicular line below the left costal margin. There is an exit wound laterally in the left axillary  
line at the 4th rib. Intravenous fluid resuscitation is begun. Which of the following is the most appropriate next step  
in management?  
(A) Upright x-ray of the chest  
(B) CT scan of the chest  
(C) Intubation and mechanical ventilation  
(D) Peritoneal lavage  
(E) Left tube thoracostomy

**7.**A previously healthy 18-year-old man is brought to the emergency department because of abdominal pain and  
nausea for 6 hours. He has had decreased appetite for the past week. He takes no medications. He drinks one to two  
beers daily and occasionally more on weekends. He does not use illicit drugs. His temperature is 37.8°C (100°F),  
pulse is 120/min, respirations are 24/min, and blood pressure is 105/60 mm Hg. Abdominal examination shows  
diffuse tenderness with no guarding or rebound. Bowel sounds are normal. Laboratory studies show:  
Serum  
Na+ 135 mEq/L  
Cl− 98 mEq/L  
K+ 3.8 mEq/L  
HCO3− 16 mEq/L  
Glucose 360 mg/dL  
Ketones present  
Urine ketones present  
Arterial blood gas analysis on room air shows a pH of 7.30. Which of the following is the most likely diagnosis?  
(A) Acute appendicitis  
(B) Acute pancreatitis  
(C) Alcoholic ketoacidosis  
(D) Diabetic ketoacidosis  
(E) Lactic acidosis

**8.**An obese 33-year-old woman has had four 12-hour episodes of severe, sharp, penetrating pain in the right upper  
quadrant of the abdomen associated with vomiting but no fever. She has no diarrhea, dysuria, or jaundice and is  
asymptomatic between episodes. There is slight tenderness to deep palpation in the right upper quadrant. Which of  
the following is the most appropriate next step in diagnosis?  
(A) Supine and erect x-rays of the abdomen  
(B) Upper gastrointestinal series  
(C) Ultrasonography of the upper abdomen  
(D) CT scan of the abdomen  
(E) HIDA scan of the biliary tract

**9.**A 42-year-old woman comes to the physician because of an 8-week history of intermittent nausea and abdominal  
pain that occurs 20 to 30 minutes after eating. The pain extends from the epigastrium to the right upper quadrant and  
is sometimes felt in the right scapula; it lasts about 30 minutes and is not relieved by antacids. The last episode  
occurred after she ate a hamburger and french fries. She has not had vomiting. She is currently asymptomatic. She is  
165 cm (5 ft 5 in) tall and weighs 104 kg (230 lb); BMI is 38 kg/m2. Examination shows no other abnormalities.  
Which of the following is the most appropriate next step in management?  
(A) Abdominal ultrasonography of the right upper quadrant  
(B) Upper gastrointestinal series with small bowel follow-through  
(C) CT scan of the abdomen  
(D) Endoscopic retrograde cholangiopancreatography  
(E) Elective cholecystectomy  
(F) Immediate cholecystectomy

**10.**An 18-year-old man is brought to the emergency department 10 minutes after he sustained a stab wound to his chest.  
On arrival, he is unresponsive to painful stimuli. His pulse is 130/min, respirations are 8/min and shallow, and  
palpable systolic blood pressure is 60 mm Hg. He is intubated and mechanically ventilated, and infusion of 0.9%  
saline is begun. After 5 minutes, his pulse is 130/min, and blood pressure is 70/40 mm Hg. Examination shows a 2-  
cm wound at the left sixth intercostal space at the midclavicular line. There is jugular venous distention. Breath  
sounds are normal. The trachea is at the midline. Heart sounds are not audible. Which of the following is the most  
appropriate next step in management?

(A) Chest x-ray  
(B) Echocardiography  
(C) Bronchoscopy  
(D) Pericardiocentesis  
(E) Placement of a right chest tube

**11.** A 52-year-old woman comes to the emergency department because of a 1-week history of low-grade fever and increasing  
abdominal cramps that are exacerbated by bowel movements. She began a course of amoxicillin-clavulanate and  
metronidazole 2 days ago but has had no relief of her symptoms. She has had intermittent constipation for the past 12 years.  
She has not had nausea, vomiting, urinary symptoms, or bloody stools. She has a 3-year history of hypertension. She  
underwent total abdominal hysterectomy and bilateral salpingo-oophorectomy 5 years ago because of leiomyomata uteri. She  
is 165 cm (5 ft 5 in) tall and weighs 86 kg (190 lb); BMI is 32 kg/m2. Her temperature is 38.1°C (100.6°F), pulse is 75/min,  
and blood pressure is 150/80 mm Hg. The lungs are clear to auscultation. Cardiac examination shows no abnormalities. The  
abdomen is soft, and there is tenderness to palpation of the left lower quadrant with guarding but no rebound. Bowel sounds  
are normal. The stool is brown, and test for occult blood is negative. Her hemoglobin concentration is 14.5 g/dL, leukocyte  
count is 15,000/mm3, and platelet count is 280,000/mm3; serum studies and urinalysis show no abnormalities. Which of the  
following is the most appropriate next step in diagnosis?

(A) Examination of the stool for ova and parasites  
(B) Test of the stool for *Clostridium difficile* toxin  
(C) Endoscopic retrograde cholangiopancreatography  
(D) Pelvic ultrasonography  
(E) CT scan of the abdomen with contrast  
(F) Colonoscopy

**12.**A 22-year-old man comes to the physician for a routine health maintenance examination. He feels well. He has had a painless  
left scrotal mass since childhood. Examination shows a 6-cm, soft, nontender left scrotal mass that transilluminates; there are  
no bowel sounds in the mass. Examination of the testis shows no abnormalities. Which of the following is the most likely  
cause of the mass?

(A) Accumulation of scrotal adipose tissue  
(B) Cryptorchidism of the left testis  
(C) Dilation of the pampiniform plexus of veins around the testis  
(D) Persistence of a patent processus vaginalis  
(E) Torsion of the left testis

**13.**A 47-year-old woman with end-stage renal disease comes to the physician because of increased shortness of breath since her  
last hemodialysis 2 days ago. Her pulse is 88/min and regular, respirations are 26/min and slightly labored, and blood  
pressure is 176/110 mm Hg. Examination shows jugular venous distention and pitting edema below the knees. Diffuse  
crackles are heard. Cardiac examination shows no murmurs, rubs, or gallops. Laboratory studies show:  
Serum  
Na+ 138 mEq/L  
Cl− 100 mEq/L  
Arterial blood gas analysis on room air:  
pH 7.30  
PCO2 28 mm Hg  
PO2 88 mm Hg  
HCO3− 14 mEq/L  
Which of the following is the most likely acid-base status of this patient?

(A) Metabolic acidosis, respiratory compensation  
(B) Metabolic acidosis, uncompensated  
(C) Metabolic alkalosis, respiratory compensation  
(D) Metabolic alkalosis, uncompensated  
(E) Respiratory acidosis, renal compensation  
(F) Respiratory acidosis, uncompensated  
(G) Respiratory alkalosis, renal compensation  
(H) Respiratory alkalosis, uncompensated  
(I) Normal acid-base balance

**14.**A 65-year-old man who is quadriplegic as a result of multiple sclerosis is hospitalized for treatment of left lower lobe  
pneumonia. His temperature is 38.1°C (100.5°F), pulse is 95/min, respirations are 12/min, and blood pressure is 120/80 mm  
Hg. He appears malnourished. Rhonchi are heard at the left lower lobe of the lung on auscultation. Examination of the heart,  
lymph nodes, abdomen, and extremities shows no abnormalities. There is a 1-cm area of erythema over the sacrum with  
intact skin and no induration. Neurologic examination shows quadriparesis. Test of the stool for occult blood is negative.

Which of the following is the most effective intervention for this patient's skin lesion?  
(A) Frequent turning  
(B) Use of wet to dry dressings  
(C) Whirlpool therapy  
(D) Broad-spectrum antibiotic therapy  
(E) Surgical debridement

**15.**A previously healthy 18-year-old man is brought to the emergency department because of abdominal pain and nausea for 6  
hours. He has had decreased appetite for the past week. He takes no medications. He drinks one to two beers daily and  
occasionally more on weekends. He does not use illicit drugs. His temperature is 37.8°C (100°F), pulse is 120/min,  
respirations are 24/min, and blood pressure is 105/60 mm Hg. Abdominal examination shows diffuse tenderness with no  
guarding or rebound. Bowel sounds are normal. Laboratory studies show:  
Serum  
Na+ 135 mEq/L  
Cl− 98 mEq/L  
K+ 3.8 mEq/L  
HCO3− 16 mEq/L  
Glucose 360 mg/dL  
Ketones present  
Urine ketones present  
Arterial blood gas analysis on room air shows a pH of 7.30. Which of the following is the most likely diagnosis?

(A) Acute appendicitis  
(B) Acute pancreatitis  
(C) Alcoholic ketoacidosis  
(D) Diabetic ketoacidosis  
(E) Lactic acidosis

**16.**A previously healthy 47-year-old man comes to the physician because of a 6.8-kg (15-lb) weight loss over the past 6 months.  
He spent 2 weeks in Mexico 3 months ago. Since returning, he has noticed that his stools have changed in size and  
consistency. He has not had fever, night sweats, or change in appetite. He takes no medications. He has smoked one pack of  
cigarettes daily for 20 years. He appears healthy and well nourished. His temperature is 37°C (98.6°F), pulse is 105/min,  
respirations are 16/min, and blood pressure is 130/78 mm Hg. Examination shows pale conjunctivae. The abdomen is soft  
with no organomegaly. Rectal examination shows a normal prostate with no masses. Test of the stool for occult blood is  
positive. Laboratory studies show:  
Hemoglobin 11 g/dL  
Mean corpuscular volume 72 μm3  
Platelet count 300,000/mm3  
Red cell distribution width 16% (N=13%–15%)  
Which of the following is the most appropriate next step in diagnosis?

(A) Second complete blood count in 3 months  
(B) CT scan of the abdomen  
(C) Colonoscopy  
(D) Esophagogastroduodenoscopy  
(E) Sigmoidoscopy

**17.**A 42-year-old woman comes to the physician because of an 8-week history of intermittent nausea and abdominal pain that  
occurs 20 to 30 minutes after eating. The pain extends from the epigastrium to the right upper quadrant and is sometimes felt  
in the right scapula; it lasts about 30 minutes and is not relieved by antacids. The last episode occurred after she ate a  
hamburger and french fries. She has not had vomiting. She is currently asymptomatic. She is 165 cm (5 ft 5 in) tall and  
weighs 104 kg (230 lb); BMI is 38 kg/m2. Examination shows no other abnormalities. Which of the following is the most  
appropriate next step in management?

(A) Abdominal ultrasonography of the right upper quadrant  
(B) Upper gastrointestinal series with small bowel follow-through  
(C) CT scan of the abdomen  
(D) Endoscopic retrograde cholangiopancreatography  
(E) Elective cholecystectomy  
(F) Immediate cholecystectomy

**18.**A 22-year-old man is brought to the emergency department 30 minutes after he sustained a gunshot wound to the abdomen.  
His pulse is 120/min, respirations are 28/min, and blood pressure is 70/40 mm Hg. Breath sounds are normal on the right and  
decreased on the left. Abdominal examination shows an entrance wound in the left upper quadrant at the midclavicular line  
below the left costal margin. There is an exit wound laterally in the left axillary line at the 4th rib. Intravenous fluid  
resuscitation is begun. Which of the following is the most appropriate next step in management?

(A) Upright x-ray of the chest  
(B) CT scan of the chest  
(C) Intubation and mechanical ventilation  
(D) Peritoneal lavage  
(E) Left tube thoracostomy

**19.**An 18-year-old man is brought to the emergency department 45 minutes after his car slid off an icy road into a telephone pole  
at approximately 35 miles per hour. He was the restrained driver, and the air bag inflated. Examination shows multiple  
contusions over the chest bilaterally; there is tenderness to palpation over the right lower chest wall. The abdomen is flat,  
soft, and nontender. A complete blood count and serum concentrations of electrolytes, urea nitrogen, and creatinine are  
within the reference range. Toxicology screening is negative. His urine is pink; urinalysis shows 80 RBC/hpf but no WBCs.  
Which of the following is the most appropriate next step in management?

(A) CT scan of the abdomen and pelvis with contrast  
(B) Magnetic resonance arteriography of the renal arteries  
(C) Intravenous administration of antibiotics  
(D) Exploratory laparotomy  
(E) No further studies are indicated

**20.**An obese 33-year-old woman has had four 12-hour episodes of severe, sharp, penetrating pain in the right upper quadrant of  
the abdomen associated with vomiting but no fever. She has no diarrhea, dysuria, or jaundice and is asymptomatic between  
episodes. There is slight tenderness to deep palpation in the right upper quadrant. Which of the following is the most  
appropriate next step in diagnosis?

(A) Supine and erect x-rays of the abdomen  
(B) Upper gastrointestinal series  
(C) Ultrasonography of the upper abdomen  
(D) CT scan of the abdomen  
(E) HIDA scan of the biliary tract

**21**.Five years after being shot in the right thigh, a 21-year-old man comes to the emergency department because of a buzzing  
sensation adjacent to the scar. At the time of the initial wound, he was discharged after 6 hours of observation with no  
fractures or soft-tissue swelling. A loud murmur is heard on auscultation; there is a thrill. He has dilated varicose veins with  
incompetent valves in the lower leg. Which of the following is the most likely diagnosis?

(A) Arterial spasm  
(B) Arteriovenous fistula  
(C) Deep venous thrombosis  
(D) Occlusion of the superficial femoral artery  
(E) Pseudoaneurysm