

Kevin's Review - 35 NCLEX Practice Questions

1. The nurse is caring for a hospitalized client with a diagnosis of ulcerative colitis. Which finding, if noted on assessment of the client, would the nurse report to the physician? A. Bloody diarrhea

- A. Bloody diarrhea
- B. Hypotension
- C. A hemoglobin of 12 mg/dL
- D. Rebound tenderness

Correct Answer: D. Rebound tenderness

Rebound tenderness may indicate peritonitis. During the physical exam, pertinent findings include fever and abdominal tenderness to palpation which usually is diffuse with wall rigidity in more septic presentations. Signs of peritonitis must be reported to the physician. It is important to conduct a thorough exam as certain thoracic or pelvic pathologies can mimic peritoneal irritation (empyema causing diaphragmatic irritation and cystitis/pyelonephritis causing peritoneum adjacent pain).

- **Option A:** Bloody diarrhea is expected to occur in ulcerative colitis. Ulcerative colitis's main symptom is bloody diarrhea, with or without mucus. Associated symptoms also include urgency or tenesmus, abdominal pain, malaise, weight loss, and fever, depending on the extent and severity of the disease.
- **Option B:** Because of the blood loss, the client may be hypotensive. In ulcerative colitis, bleeding can arise from the lining of the rectum or large intestine, and this blood can be visible in the stool. The bleeding generally comes from the ulcers that have formed in the lining of the large intestine or rectum.
- **Option C:** Because of the blood loss, the hemoglobin level may be lower than normal. It may also be necessary to treat the loss of blood that has happened. If the client developed anemia from blood loss, he may need to supplement with iron, folic acid, or vitamin B12, depending on what your health provider says. In serious cases of blood loss, a blood transfusion might be required.

2. General anesthetics potentiate the effects of which of the following drugs?

- A. Depolarizing agents
- B. Skeletal muscle relaxants
- C. Volatile liquids
- D. Inhalation anesthetics

Correct Answer: B. Skeletal muscle relaxants

The effects of skeletal muscle relaxants are potentiated with the use of general anesthetics. Skeletal muscle relaxants are drugs that are used to relax and reduce tension in muscles. They are more simply referred to as muscle relaxants. Some work in the brain or spinal cord to block or dampen down excessively stimulated nerve pathways.

- **Option A:** Depolarizing agents do not interact with general anesthetics. Depolarizing agents produce their block by binding to and activating the ACh receptor, at first causing muscle contraction, then paralysis. They bind to the receptor and cause depolarization by opening channels just like acetylcholine does.

- **Option C:** Desflurane, isoflurane, and sevoflurane are the most widely used volatile anesthetics today. They are often combined with nitrous oxide. Older, less popular, volatile anesthetics include halothane, enflurane, and methoxyflurane.
- **Option D:** Inhalation anesthetics (nitrous oxide, halothane, isoflurane, desflurane, sevoflurane most commonly used agents in practice today) are used for induction and maintenance of general anesthesia in the operating room. The volatile anesthetics (halothane, isoflurane, desflurane, and sevoflurane) are liquids at room temperature and require the use of vaporizers for inhalational administration.

3. Fluconazole (Diflucan) can be administered to a client with:

- A. Pneumococcal meningitis
- B. Oral thrush
- C. Cryptococcal meningitis
- D. Pneumococcal pneumonia

Correct Answer: C. Cryptococcal meningitis

Fluconazole (Diflucan) is a drug given for the treatment of cryptococcal meningitis. The combination of amphotericin B and flucytosine has proved the most effective measure to clear the infection, and it showed a greater survival benefit over amphotericin alone. However, due to its cost, flucytosine is often unavailable in poor-resource settings where the disease burden is significant. A and D are incorrect because pneumococcal meningitis and pneumonia are not caused by fungal infections.

- **Option A:** Antibiotics and supportive care are critical in all cases of bacterial meningitis. The type of antibiotic is based on the presumed organism causing the infection. The clinician must take into account patient demographics and past medical history in order to provide the best antimicrobial coverage.
- **Option B:** Oral thrush is treated with a more mild antifungal, such as nystatin. Oral candidiasis or thrush is an infection of the oral cavity by *Candida albicans*. It was first described in 1838 by pediatrician Francois Veilleux. Oral candidiasis is generally obtained secondary to immune suppression, whether a patient's oral cavity has decreased immune function or if it is systemic.
- **Option D:** Antibiotic treatment for invasive pneumococcal infections typically includes 'broad-spectrum' antibiotics until results of antibiotic sensitivity testing are available. Broad-spectrum antibiotics work against a wide range of bacteria. Once the sensitivity of the bacteria is known, a more targeted (or 'narrow-spectrum') antibiotic may be selected.

4. Which of the following complications of an abdominal aortic repair is indicated by detection of a hematoma in the perineal area?

- A. Hernia
- B. Stage 1 pressure ulcer
- C. Retroperitoneal rupture at the repair site
- D. Rapid expansion of the aneurysm

Correct Answer: C. Retroperitoneal rupture at the repair site

Blood collects in the retroperitoneal space and is exhibited as a hematoma in the perineal area. This rupture is most commonly caused by leakage at the repair site.

- **Option A:** A hernia doesn't cause vascular disturbances. A hernia is the abnormal exit of tissue or an organ, such as the bowel, through the wall of the cavity in which it normally resides. Hernias come in a number of types. Most commonly they involve the abdomen, specifically the groin. Groin hernias are most commonly of the inguinal type but may also be femoral.
- **Option B:** A pressure ulcer does not cause significant bleeding, and does not cause a hematoma. Bedsores — also called pressure ulcers and decubitus ulcers — are injuries to the skin and underlying tissue resulting from prolonged pressure on the skin. Bedsores most often develop on skin that covers bony areas of the body, such as the heels, ankles, hips, and tailbone.
- **Option D:** Because no bleeding occurs with the rapid expansion of the aneurysm, a hematoma won't form. The fast growth of abdominal aortic aneurysm (AAA) diameter is claimed to be an indication for aneurysm repair. If fast growth is a valid indication for operative repair then an episode of measured fast growth should be followed by sustained rapid expansion and a high risk of rupture.

5. A 12-year-old boy, Timmy, presents to a pediatric clinic accompanied by his parents. He has a history of recurrent sore throat infections over the past 6 months. His mother reports that although they initially completed antibiotic courses, the last two times, Timmy only took antibiotics for a couple of days until he felt better, and they still have the leftover medication at home. Upon examination, the healthcare provider notes erythema and exudate in Timmy's pharynx along with tender, enlarged cervical lymph nodes. A rapid antigen detection test (RADT) confirms the presence of Group A beta-hemolytic streptococci (GABHS). Given Timmy's history of inadequate antibiotic treatment, the healthcare provider is concerned about the potential complications that may arise from repeated, partially treated GABHS infections. Which of the following conditions is a known complication that may result from unresolved or partially treated GABHS infection?

- A. Influenza
- B. Sickle cell anemia
- C. Histoplasmosis
- D. Rheumatic Fever
- E. Glomerulonephritis
- F. Scarlet Fever

Correct Answer: D. Rheumatic Fever

Rheumatic fever is a known serious complication of untreated or inadequately treated GABHS pharyngitis. It is an inflammatory disease that can affect many of the body's connective tissues — especially those of the heart, joints, brain, or skin.

- **Option A:** Influenza is caused by viruses usually known as type A, B, and C, not by a bacterial infection like GABHS.
- **Option B:** Sickle cell anemia is a genetic disorder and is not related to GABHS infections.

- **Option C:** Histoplasmosis is a pulmonary fungal infection caused by spores of *Histoplasma capsulatum*.
- **Option E:** Although post-streptococcal glomerulonephritis (PSGN) can occur after certain strains of streptococcal infections, it is not as directly related to untreated pharyngeal infections by GABHS as rheumatic fever is. The scenario provided focuses on recurrent sore throat infections which more align with rheumatic fever as a complication.
- **Option F:** While scarlet fever is associated with certain strains of GABHS, it isn't a result of unresolved or inadequately treated GABHS pharyngitis like rheumatic fever. Scarlet fever tends to manifest shortly after a GABHS infection with a characteristic rash.

6. A 50-year-old male patient, who is a known case of congestive heart failure and was recently diagnosed with osteoarthritis, is admitted to the ER. The patient's wife reports that he might have taken an overdose of aspirin in an attempt to manage his joint pain. Given his medical history and the potential implications of aspirin overdose, which of the following complications should a nurse most closely monitor for during the acute management of this patient.

- A. Onset of pulmonary edema
- B. Metabolic alkalosis
- C. Respiratory alkalosis
- D. Parkinson's disease type symptoms

Correct Answer: A. Onset of pulmonary edema

Aspirin overdose can lead to metabolic acidosis and cause pulmonary edema development. Early symptoms of aspirin poisoning also include tinnitus, hyperventilation, vomiting, dehydration, and fever. Late signs include drowsiness, bizarre behavior, unsteady walking, and coma. Abnormal breathing caused by aspirin poisoning is usually rapid and deep. Pulmonary edema may be related to an increase in permeability within the capillaries of the lung leading to "protein leakage" and transudation of fluid in both renal and pulmonary tissues. The alteration in renal tubule permeability may lead to a change in colloid osmotic pressure and thus facilitate pulmonary edema (via Medscape).

- **Option B:** Aspirin overdose causes metabolic acidosis, not alkalosis. Metabolic alkalosis is a primary increase in serum bicarbonate (HCO_3^-) concentration.
- **Option C:** Respiratory alkalosis is a disturbance in acid and base balance due to alveolar hyperventilation.
- **Option D:** Parkinson's type symptoms include tremors, bradykinesia, rigid muscles, impaired posture and balance, speech changes, and loss of automatic movements.

7. A labyrinthectomy can be performed to treat Meniere's syndrome. This procedure results in:

- A. Anosmia
- B. Absence of pain
- C. Reduction in cerumen
- D. Permanent irreversible deafness

Correct Answer: D. Permanent irreversible deafness.

The labyrinth is the inner ear and consists of the vestibule, cochlea, semicircular canals, utricle, saccule, cochlear duct, and membranous semicircular canals. A labyrinthectomy is performed to alleviate the symptoms of vertigo but results in deafness, because the organ of Corti and cochlear nerve are located in the inner ear. Its goal is to ablate abnormal signals from a diseased vestibular system in order to facilitate central compensation, and it is generally very successful.

- **Option A:** Anosmia is the inability to perceive smell/odor. It can be temporary or permanent and acquired or congenital. There are many causes. Neurological causes can include disturbances to the sensory nerves that make up the olfactory bulb or anywhere along the path in which the signal of smell is transferred to the brain.
- **Option B:** Total hearing loss, not absence of pain, in the operated ear is expected. Vertigo control rates are high (95 to 100%), but there is a significant possibility of persistent disequilibrium.
- **Option C:** The dizziness resulting from a stable vestibulopathy (such as loss of a vestibular organ, or one-time damage to a vestibular organ) can typically be alleviated by central compensation, which can be facilitated by physiotherapy and rehabilitation. Labyrinthectomy is one option for the surgical ablation of the affected organ(s) of the vestibular system, essentially converting an unstable vestibulopathy to a stable one.

8. Which of the following conditions is linked to more than 50% of clients with abdominal aortic aneurysms?

- A. DM
- B. HPN
- C. PVD
- D. Syphilis

Correct Answer: B. HPN

Continuous pressure on the vessel walls from hypertension causes the walls to weaken and an aneurysm to occur. The association between hypertension and AAA could potentially be confounded by other risk factors because hypertension is more common among persons with overweight and obesity, less physical activity, who smoke and who have unhealthy diets.

- **Option A:** Diabetes mellitus doesn't have a direct link to an aneurysm. Diabetes mellitus (DM) is a strong cardiovascular risk factor; however, multiple epidemiological studies have confirmed that a negative relationship exists between DM and abdominal aortic aneurysm (AAA) presence, growth, and rupture. Arteries from patients with DM are often harder and more calcified than those from patients without DM; however, increased vessel wall calcification alone does not appear to explain the reduced rate of aortic expansion seen in diabetic patients.
- **Option C:** Atherosclerotic changes can occur with peripheral vascular diseases and are linked to aneurysms, but the link isn't as strong as it is with hypertension.
- **Option D:** Only 1% of clients with syphilis experience an aneurysm. Classically, syphilitic aneurysms occur in 90% of cases on the thoracic aorta, and in 10% in the abdominal aorta [3, 7–9]. Infection of the aortic wall develops during the secondary or bacteremic phase of syphilis, having a latent period from infection until the clinical presentation ranging from 5 to 50 years.

9. A male client seeks medical evaluation for fatigue, night sweats, and a 20-lb weight loss in 6 weeks. To confirm that the client has been infected with the human immunodeficiency virus (HIV), the nurse expects the physician to order:

- A. E-rosette immunofluorescence
- B. Quantification of T-lymphocytes.
- C. Enzyme-linked immunosorbent assay (ELISA).
- D. Western blot test with ELISA.

Correct Answer: D. Western blot test with ELISA.

HIV infection is detected by analyzing blood for antibodies to HIV, which form approximately 2 to 12 weeks after exposure to HIV and denote infection. The Western blot test — electrophoresis of antibody proteins — is more than 98% accurate in detecting HIV antibodies when used in conjunction with the ELISA. It isn't specific when used alone.

- **Option A:** E-rosette immunofluorescence is used to detect viruses in general; it doesn't confirm HIV infection.
- **Option B:** Quantification of T-lymphocytes is a useful monitoring test but isn't diagnostic for HIV.
- **Option C:** The ELISA test detects HIV antibody particles but may yield inaccurate results; a positive ELISA result must be confirmed by the Western blot test.

10. Among the following components thorough pain assessment, which is the most significant?

- A. Effect
- B. Cause
- C. Causing factors
- D. Intensity

Correct Answer: D. Intensity

Intensity is the major indicative of severity of pain and it is important for the evaluation of the treatment. Severity of pain may include the intensity graded by the patient or the impact pain has on function. Intensity may be assessed with certain scales that will be reviewed below. The impact on function may include changes with activities of daily living, activity level, and work-related duties. Pain may have an impact on sleep, mood, appetite, or social relationships.

- **Option A:** The effect of pain is an important factor during assessment, especially on the activities of daily living, but it is not the most significant. Factors that relieve pain should be assessed not only to aid in diagnosis, but also with determining what has been attempted and what helps or does not help with their pain. Determining how the patient alleviates pain may also assess for healthy coping behaviors.
- **Option B:** Various stimuli may exacerbate pain, and determining these factors can aid in establishing the pathophysiologic mechanisms of pain. The history of pain or "pain history" is the physician's initial tool to assess a patient in pain. A detailed history and physical examination is essential, not only to narrow the diagnoses but also to guide further diagnostic studies, if appropriate.

- **Option C:** Causing factors are not a part of the components in assessing pain. Different disease processes may present with similar pain characteristics. Vascular and neurogenic claudication symptoms are a classic example. However, patients with similar pathology may describe different types of pain or may have no pain at all (eg, spinal cord lesions, diabetic neuropathy).

11. The following clients are presented with signs and symptoms of heat-related illness. Which of them needs to be attended first?

- A. A relatively healthy homemaker who reports that the air conditioner has been broken for days and who manifest fatigue, hypotension, tachypnea, and profuse sweating.
- B. An elderly person who complains of dizziness and syncope after standing in the sun for several hours to view a parade.
- C. A homeless person who is a poor historian; has altered mental status, poor muscle coordination, and hot, dry ashen skin; and whose duration of heat exposure is unknown.
- D. A marathon runner who complains of severe leg cramps and nausea, and manifests weakness, pallor, diaphoresis, and tachycardia.

Correct Answer: C. A homeless person who is a poor historian; has altered mental status, poor muscle coordination, and hot, dry ashen skin; and whose duration of heat exposure is unknown.

The signs and symptoms manifested by the homeless person indicate that a heat stroke is happening, a medical emergency, which can lead to brain damage. Also, there must be clinical signs of central nervous system dysfunction that may include ataxia, delirium, or seizures, in the setting of exposure to hot weather or strenuous physical exertion. Patients who present with heat stroke typically have vital sign abnormalities to include an elevated core body temperature, sinus tachycardia, tachypnea, a widened pulse pressure, and a quarter of patients will be hypotensive.

- **Option A:** The homemaker is experiencing heat exhaustion, which can be managed by fluids and cooling measures. It is important to differentiate where the patient is on the heat illness continuum. The signs and symptoms of heat exhaustion may present similarly include cramping, fatigue, dizziness, nausea, vomiting, headache. If progression to end-organ damage occurs it then becomes heat injury.
- **Option B:** The elderly client is at risk for heat syncope and should be advised to rest in a cool area and avoid similar situations. Heat syncope is the temporary, self-limited dizziness, weakness, or loss of consciousness during prolonged standing or positional changes in a hot environment, including physical activity. The thinking is that it is due to a combination of dehydration, pooling of blood in the venous system, decreased cardiac filling, and low blood pressure, which leads to decreased cerebral blood flow.
- **Option D:** The runner is experiencing heat cramps, which can be managed with fluid and rest. Heat cramps: include involuntary spasmodic contractions of large muscle groups as opposed to an isolated muscle spasm/cramp that can also occur during or after exertion. This condition is due to a relative deficiency of sodium, potassium, chloride, or magnesium. Other symptoms may include nausea, vomiting, fatigue, weakness, sweating, and tachycardia.

12. A nurse is making initial rounds at the beginning of the shift and notices that the parenteral nutrition (PN) bag of an assigned client is empty. Which of the following solutions readily available on the nursing unit should the nurse hang until another PN solution is mixed and delivered to the nursing unit?

- A. 10% dextrose in water.
- B. 5% dextrose in water.
- C. 5% dextrose in normal saline.
- D. 5% dextrose in lactated Ringer solution.

Correct Answer: A. 10% dextrose in water.

The client is at risk of hypoglycemia. Hence the nurse will hang a solution that has the highest amount of glucose until the new parenteral nutrition solution becomes readily available. Crystalloid fluids are a subset of intravenous solutions that are frequently used in the clinical setting. Crystalloid fluids are the first choice for fluid resuscitation in the presence of hypovolemia, hemorrhage, sepsis, and dehydration.

- **Option B:** Option B is also a crystalloid fluid, but contains less glucose than option A. Other clinical applications include acting as a solution for intravenous medication delivery, to deliver maintenance fluid in patients with limited or no enteral nutrition, blood pressure management, and to increase diuresis to avoid nephrotoxic drug or toxin-mediated end-organ damage.
- **Option C:** Dextrose 5 in .9 Sodium Chloride is a prescription medicine used to treat the symptoms of hypoglycemia. Dextrose 5 in .9 Sodium Chloride may be used alone or with other medications. Dextrose 5 in .9 Sodium Chloride belongs to a class of drugs called Glucose-Elevating Agents; Metabolic and Endocrine, Other.
- **Option D:** 5% Dextrose in Lactated Ringer's Injection provides electrolytes and calories, and is a source of water for hydration. It is capable of inducing diuresis depending on the clinical condition of the patient. This solution also contains lactate which produces a metabolic alkalizing effect.

13. A patient with no known allergies is to receive penicillin every 6 hours. When administering the medication, the nurse observes a fine rash on the patient's skin. The most appropriate nursing action would be to:

- A. Withhold the medication and notify the physician.
- B. Administer the medication and notify the physician.
- C. Administer the medication with an antihistamine.
- D. Apply cornstarch soaks to the rash.

Correct Answer: A. Withhold the medication and notify the physician

Initial sensitivity to penicillin is commonly manifested by a skin rash, even in individuals who have not been allergic to it previously. Because of the danger of anaphylactic shock, the nurse should withhold the drug and notify the physician, who may choose to substitute another drug.

- **Option B:** To determine if a patient has an IgE mediated penicillin allergy, the only validated test currently available in the United States is penicillin skin testing. A board-certified allergist should perform the test. It involves a skin-prick with the application of the major and minor determinants as well as a control. The area of skin is examined 15 minutes later. If a wheal of at least 3 mm and concomitant erythema develop, the test is positive. The test should not be performed if the reaction to penicillin was a severe non-IgE mediated reaction.
- **Option C:** Administering an antihistamine is a dependent nursing intervention that requires a written physician's order. Treatment for acute IgE mediated reaction to penicillin depends on severity. Patients presenting in acute anaphylaxis need to have immediate treatment with IM

epinephrine (1 mg/ml) 0.3 mg to 0.5 mg every 5 to 15 minutes until resolution of symptoms. Adjunctive therapies include H1 and H2 antihistamines including diphenhydramine 25 mg to 50 mg intravenously (IV) and ranitidine 50 mg IV, respectively.

- **Option D:** Although applying cornstarch to the rash may relieve discomfort, it is not the nurse's top priority in such a potentially life-threatening situation. Cutaneous symptoms are often the first and most common finding of an allergic reaction, however, are absent in 10% to 20% of patients experiencing an allergic reaction. Common cutaneous symptoms are generalized urticaria, flushing, pruritus, and angioedema.

14. The client is being discharged from the ambulatory care unit following cataract removal. The nurse provides instructions regarding home care. Which of the following, if stated by the client, indicates an understanding of the instructions?

- A. "I will take Aspirin if I have any discomfort."
- B. "I will sleep on the side that I was operated on."
- C. "I will wear my eye shield at night and my glasses during the day."
- D. "I will not lift anything if it weighs more than 10 pounds."

Correct Answer: C. "I will wear my eye shield at night and my glasses during the day."

The client is instructed to wear a metal or plastic shield to protect the eye from accidental and is instructed not to rub the eye. Glasses may be worn during the day. Following cataract surgery, if the client was operated under topical anesthesia, the surgeon will directly prescribe post-operative dark glasses. If the client has undergone surgery under local anesthesia, he will have an eye pad and plastic shield over the eye. The eye pad is usually removed 2 hours after the surgery at the hospital.

- **Option A:** Aspirin or medications containing aspirin are not to be administered or taken by the client and the client is instructed to take acetaminophen as needed for pain. Use the eye drops as prescribed. They are usually for preventing infection and controlling eye pressure. Note that some eye drops need to be kept in the refrigerator. Mild pain is expected. Over-the-counter painkillers such as Paracetamol can be used to relieve the pain, provided the person has no allergy to the medicine.
- **Option B:** The client is instructed not to sleep on the side of the body on which the operation occurred. Sleeping in any position is acceptable, but the person should avoid direct pressure on the operated eye. A protective eye shield should be worn during sleep or nap for at least the first week after surgery. This helps to prevent accidental injury to his eye during sleep.
- **Option D:** The client is not to lift more than 5 pounds. There is no need to totally restrict physical activities. Bending is avoided one day after surgery. The client may do simple exercises like walking and yoga but strenuous exercises, aerobics, or headstands must be avoided. As far as possible, vigorous coughing and sneezing should be avoided because this can cause an increase in eye pressure. Notify a doctor if the person coughs frequently.

15. Dyspnea, cough, expectoration, weakness, and edema are classic signs and symptoms of which of the following conditions?

- A. Pericarditis

- B. Hypertension
- C. MI
- D. Heart failure

Correct Answer: D. Heart failure

These are the classic signs of failure. Acute and subacute presentations (days to weeks) are characterized by shortness of breath at rest and/or with exertion, orthopnea, paroxysmal nocturnal dyspnea, and right upper quadrant discomfort due to acute hepatic congestion (right heart failure). Chronic presentations (months) differ in that fatigue, anorexia, abdominal distension, and peripheral edema may be more pronounced than dyspnea.

- **Option A:** Pericarditis is exhibited by a feeling of fullness in the chest and auscultation of a pericardial friction rub. The classic presentation is with chest pain that is central, severe, pleuritic (worsened with deep inspiration) and positional (improved by sitting up and leaning forward). The pain may also be radiating and may involve the ridges of the trapezius muscle if the phrenic nerve is inflamed as it traverses the pericardium.
- **Option B:** Hypertension is usually exhibited by headaches, visual disturbances, and a flushed face. Some cases present directly with symptoms of end-organ damage as stroke-like symptoms or hypertensive encephalopathy, chest pain, shortness of breath, and acute pulmonary edema.
- **Option D:** MI causes heart failure but isn't related to these symptoms. Myocardial ischemia can present as chest pain, upper extremity pain, mandibular, or epigastric discomfort that occurs during exertion or at rest. Myocardial ischemia can also present as dyspnea or fatigue, which are known to be ischemic equivalents.

16. The nurse just received the client's morning laboratory results. Which of these results is of most concern?

- A. Serum sodium level of 134 mEq/L
- B. Serum potassium level of 5.2 mEq/L
- C. Serum magnesium level of 0.8 mEq/L
- D. Serum calcium level of 10.6 mg/dL

Correct Answer: C. Serum magnesium level of 0.8 mEq/L

With a magnesium level this low, the client is at risk for ECG changes and life-threatening ventricular dysrhythmias. Normal serum magnesium levels are between 1.46 and 2.68 mg/dL. Hypomagnesemia can be attributed to chronic disease, alcohol use disorder, gastrointestinal losses, renal losses, and other conditions. Signs and symptoms of hypomagnesemia include anything from mild tremors and generalized weakness to cardiac ischemia and death.

- **Option A:** Hyponatremia is defined as a serum sodium concentration of less than 135 mEq/L but can vary to some extent depending upon the set values of varied laboratories. Patients with mild-to-moderate hyponatremia (greater than 120 mEq/L) or gradual decrease in sodium (greater than 48 hours) have minimal symptoms.
- **Option B:** Hyperkalemia is defined as a serum or plasma potassium level above the upper limits of normal, usually greater than 5.0 mEq/L to 5.5 mEq/L. While mild hyperkalemia is usually asymptomatic, high levels of potassium may cause life-threatening cardiac arrhythmias, muscle weakness or paralysis.

- **Option D:** Hypercalcemia is defined as serum calcium concentration two standard deviations above the mean values. The normal serum calcium ranges from 8.8 mg/dL-10.8 mg/dL. Primary hyperparathyroidism and malignancy accounts for 90% of the cases of hypercalcemia.

17. Stephen is a 62 y.o. patient that has had a liver biopsy. Which of the following groups of signs alert you to a possible pneumothorax?

- A. Dyspnea and reduced or absent breath sound over the right lung.
- B. Tachycardia, hypotension, and cool, clammy skin.
- C. Fever, rebound tenderness, and abdominal rigidity.
- D. Redness, warmth, and drainage at the biopsy site.

Correct Answer: A. Dyspnea and reduced or absent breath sounds over the right lung

Signs and symptoms of pneumothorax include dyspnea and decreased or absent breath sounds over the affected lung (right lung). A pneumothorax is defined as a collection of air outside the lung but within the pleural cavity. It occurs when air accumulates between the parietal and visceral pleura inside the chest. The air accumulation can apply pressure on the lung and make it collapse.

- **Option B:** The risk of fatal hemorrhage in patients without malignant disease is 0.04%, and the risk of nonfatal hemorrhage is 0.16%. In those with malignancy, the risk of nonfatal hemorrhage is 0.4% and 0.57% for nonfatal hemorrhage.
- **Option C:** This can occur with the inadvertent puncture of the gallbladder or in patients with obstructive jaundice and dilated bile ducts. It usually presents with abdominal pain, fever, leukocytosis. It can also be painless in some patients. Biliary scintigraphy demonstrates the leak. Treatment is usually with fluids and antibiotics. Very rarely, endoscopic procedures like ERCP or surgery may be required.
- **Option D:** This is usually clinically insignificant except in patients with obstructive jaundice like primary sclerosing cholangitis or in the post-transplant setting. Currently, there is no recommendation for treating with prophylactic antibiotics, and treatment can be offered on a case by case basis.

18. The evening nurse reviews the nursing documentation in the male client's chart and notes that the day nurse has documented that the client has a stage II pressure ulcer in the sacral area. Which of the following would the nurse expect to note on assessment of the client's sacral area?

- A. Intact skin
- B. Full-thickness skin loss
- C. Exposed bone, tendon, or muscle
- D. Partial-thickness skin loss of the dermis

Correct Answer: D. Partial-thickness skin loss of the dermis

In a stage II pressure ulcer, the skin is not intact. Partial-thickness skin loss of the dermis has occurred. It presents as a shallow open ulcer with a red-pink wound bed, without a slough. It may also present as an intact, open, or ruptured, serum-filled blister.

- **Option A:** The skin is intact in stage I.
- **Option B:** Full-thickness skin loss occurs in stage 3.
- **Option C:** Exposed bone, tendon, or muscle is present in stage 4.

19. In conferring with the treatment team, the nurse should make which of the following recommendations for a client who tells the nurse that everyday thoughts of suicide are present?

- A. A no-suicide contract
- B. Weekly outpatient therapy
- C. A second psychiatric opinion
- D. Intensive inpatient treatment

Correct Answer: D. Intensive inpatient treatment

For a client thinking about suicide on a daily basis, inpatient care would be the best intervention. Although a no-suicide contract is an important strategy, this client needs additional care. The client needs a more intensive level of care than weekly outpatient therapy. Put on either suicide precaution (one-on-one monitoring at one arm's length away) or suicide observation (15-minute visual check of mood, behavior, and verbatim statements), depending on the level of suicide potential. Protection and preservation of the client's life at all costs during a crisis is part of medical and nursing staff's responsibility. Follow unit protocol.

- **Option A:** Construct a no-suicide contract between the suicidal client and nurse. Use clear, simple language. When the contract is up, it is renegotiated (if this is accepted procedure at your institution). The no-suicide contract helps clients know what to do when they begin to feel overwhelmed by pain (e.g., "I will speak to my nurse/counselor/support group/family member when I first begin to feel the need to end my life").
- **Option B:** During the crisis period, health care workers will continue to emphasize the following four points: the crisis is temporary; unbearable pain can be survived; help is available, and you are not alone. Because of "tunnel vision", clients do not have a perspective on their lives. These statements give perspective to the client and help offer hope for the future. Keep accurate and thorough records of the client's behaviors (verbal and physical) and all nursing/physician actions.
- **Option C:** Immediate intervention is paramount, not a second psychiatric opinion. Follow unit protocol for suicide regarding creating a safe environment (taking away potential weapons— belts, sharp objects, items, and so on). Providing a safe environment during times the client is actively suicidal and impulsive; self-destructive acts are perceived as ties, the only way out of an intolerable situation.

20. It's a busy evening shift, and the hospital has just sounded an alarm for a disaster drill. The unit manager informs the nurse that they need to make room for potential mass casualty admissions. The nurse is given four clients and must decide who to prioritize for discharge to accommodate new admissions. Who should be considered FIRST for discharge?

- A. A middle-aged client with a history of being ventilator dependent for over seven (7) years and admitted with bacterial pneumonia five days ago.

- B. A young adult with diabetes mellitus Type 2 for over ten (10) years and admitted with antibiotic-induced diarrhea 24 hours ago.
- C. An elderly client with a history of hypertension, hypercholesterolemia, and lupus, and was admitted with Stevens-Johnson syndrome that morning.
- D. An adolescent with a positive HIV test and admitted for acute cellulitis of the lower leg 48 hours ago.

Correct Answer: A. A middle-aged client with a history of being ventilator dependent for over seven (7) years and admitted with bacterial pneumonia five days ago.

The best candidate for discharge is one who has had a chronic condition and is most familiar with their care. This client in option A is most likely stable and could continue medication therapy at home.

- **Option B:** The client with antibiotic-induced diarrhea still needs continuous strict monitoring as the blood sugar levels may become unstable and dehydration is still possible.
- **Option C:** Stevens-Johnson syndrome (SJS) is a rare, serious disorder of the skin and mucous membranes. It's usually a reaction to medication that starts with flu-like symptoms, followed by a painful rash that spreads and blisters.
- **Option D:** Cellulitis is often an underestimated complication of HIV disease, but they are responsible for an appreciable morbidity.

21. Following myocardial infarction, a hospitalized patient is encouraged to practice frequent leg exercises and ambulate in the hallway as directed by his physician. Which of the following choices reflects the purpose of exercise for this patient?

- A. Increases fitness and prevents future heart attacks
- B. Prevents bedsores
- C. Prevents DVT (deep vein thrombosis)
- D. Prevent constipations

Correct Answer: C. Prevents DVT (deep vein thrombosis)

Exercise is important for all hospitalized patients to prevent deep vein thrombosis. Muscular contraction promotes venous return and prevents hemostasis in the lower extremities.

- **Options A, B, and D:** This exercise is not sufficiently vigorous to increase physical fitness, nor is it intended to prevent bedsores or constipation.

22. The nurse is caring for a male client postoperatively following the creation of a colostomy. Which nursing diagnosis should the nurse include in the plan of care?

- A. Sexual dysfunction
- B. Body image, disturbed
- C. Fear related to poor prognosis
- D. Nutrition: more than body requirements, imbalanced

Correct Answer: B. Body image, disturbed

Body image, disturbed relates to loss of bowel control, the presence of a stoma, the release of fecal material onto the abdomen, the passage of flatus, odor, and the need for an appliance (external pouch). Encourage the patient/SO to verbalize feelings regarding the ostomy. Acknowledge normality of feelings of anger, depression, and grief over a loss. Discuss daily “ups and downs” that can occur.

- **Option A:** Review with the patient and/or SO sexual functioning in relation to their own situation. Understanding if nerve damage has altered normal sexual functioning helps the patient/SO to understand the need for exploring alternative methods of satisfaction.
- **Option C:** Provide opportunities for patient/SO to view and touch stoma, using the moment to point out positive signs of healing, normal appearance, and so forth. Remind the patient that it will take time to adjust, both physically and emotionally.
- **Option D:** Nutrition: less than body requirements, imbalanced is the more likely nursing diagnosis. Recommend patient increase use of yogurt, buttermilk, and acidophilus preparations. Identify odor-causing foods (e.g., cabbage, fish, beans) and temporarily restrict them from the diet. Gradually reintroduce one food at a time.

23. Because a client’s renal stone was found to be composed of uric acid, a low-purine, alkaline ash diet was ordered. Incorporation of which of the following food items into the home diet would indicate that the client understands the necessary diet modifications?

- A. Milk, apples, tomatoes, and corn.
- B. Eggs, spinach, dried peas, and gravy.
- C. Salmon, chicken, caviar, and asparagus
- D. Grapes, corn, cereals, and liver.

Correct Answer: A. Milk, apples, tomatoes, and corn.

Because a high-purine diet contributes to the formation of uric acid, a low-purine diet is advocated. An alkaline ash diet is also advocated because uric acid crystals are more likely to develop in acid urine. Foods that may be eaten as desired in a low-purine diet include milk, all fruits, tomatoes, cereals, and corn. Food allowed on an alkaline ash diet include milk, fruits (except cranberries, plums, and prunes), and vegetables (especially legumes and green vegetables). Gravy, chicken, and liver are high in purine.

- **Option B:** The diet centers on the acid-ash hypothesis, which essentially says consuming a diet rich in fruits and vegetables and with moderate amounts of protein promotes an alkaline load and a healthier lifestyle. Gravy is high in purine.
- **Option C:** The alkaline diet emphasizes consuming alkaline foods in an attempt to make the body’s pH more alkaline. That said, it is impossible to change the body’s pH through diet. Indeed, the body’s pH actually varies based on the region. Poultry is acidic and rich in purine.
- **Option D:** The diet is organized around the pH of individual foods. Some versions are less strict, meaning they may allow grains for their health benefits despite their slightly acidic pH. The alkaline diet’s emphasis on fruit and vegetables over processed foods overlaps considerably with the paleo diet, which is meant to mimic the dietary habits of our hunter-and-gatherer ancestors.

24. The clinic nurse provides instructions to a client receiving an antineoplastic medication. When implementing the plan, the nurse tells the client to?

- A. To consult with health care providers before receiving immunization.
- B. To avoid hot foods and high fiber-rich foods.
- C. To take acetylsalicylic acid as needed for headache.
- D. To drink beverages containing alcohol in moderate amount during the evening.

Correct Answer: A. To consult with health care providers before receiving immunization.

Because antineoplastic medications lower the resistance of the body, clients must be informed not to received immunizations without a health care provider's approval.

- **Option B:** Diarrhea as one of the common signs of antineoplastic medication needs to avoid spicy and high-fiber foods which can increase peristalsis.
- **Option C:** Clients need to avoid aspirin to minimize the risk of bleeding.
- **Option D:** Clients need to avoid alcohol to minimize the risk of toxicity.

25. A fifty-year-old client has a tracheostomy and requires tracheal suctioning. The first intervention in completing this procedure would be to:

- A. Change the tracheostomy dressing.
- B. Provide humidity with a trach mask.
- C. Apply oral or nasal suction.
- D. Deflate the tracheal cuff.

Correct Answer: C. Apply oral or nasal suction.

Before deflating the tracheal cuff, the nurse will apply oral or nasal suction to the airway to prevent secretions from falling into the lung. Dressing change and humidity do not relate to suctioning. Airway suctioning is a procedure routinely done in most care settings, including acute care, sub-acute care, long-term care, and home settings. Suctioning is performed when the patient is unable to effectively move secretions from the respiratory tract.

- **Option A:** Airways suctioning is indicated for multiple reasons. Most commonly suctioning is done for the removal of secretions from the respiratory tract, but sometimes also for removal of blood or other materials like meconium in specific cases. Airway suctioning is also performed for diagnostic purposes.
- **Option B:** Suctioning of the lower airways should be done in a sterile manner with single-use gloves and suction catheters to prevent contamination and secondary infection. After preparation with appropriate equipment at the bedside and monitoring continuous heart rate and oxygen saturation (as available), the patient should be suctioned with appropriately sized equipment for their airway.
- **Option D:** After preparation with appropriate equipment at the bedside and monitoring continuous heart rate and oxygen saturation (as available), the patient should be suctioned with appropriately sized equipment for their airway.

26. Captopril may be administered to a client with HF because it acts as a:

- A. Vasopressor
- B. Volume expander
- C. Vasodilator
- D. Potassium-sparing diuretic

Correct Answer: C. Vasodilator

ACE inhibitors have become the vasodilators of choice in the client with mild to severe HF. Vasodilator drugs are the only class of drugs clearly shown to improve survival in overt heart failure. ACEi improves heart failure by decreasing afterload. Apart from decreasing the afterload, it also reduces cardiac myocyte hypertrophy. The Heart Outcomes Prevention Evaluation (HOPE) Study demonstrated better outcomes for those prescribed ACE inhibitors.

- **Option A:** In 2014, the Eighth Joint National Commission (JNC8) published evidence-based guidelines for the treatment of high blood pressure in adults, which recommended that ACE inhibitors are one of four drug classes recommended for initial therapy for adults with elevated blood pressure.
- **Option B:** Current recommendations are the use of ACEi or ARB as first-line therapy for hypertension in patients with a history of diabetes. Also, the use of ACEi in diabetic hypertensive patients with no history of coronary heart disease has shown to decrease the incidence of myocardial infarction and improved heart function.
- **Option D:** The other three classes of drugs are calcium channel blockers, thiazide diuretics, and angiotensin receptor blockers, which are useful as initial therapy for the general nonblack population. Only thiazide and calcium channel blockers are recommended as initial therapy for the general black population with elevated blood pressure.

27. A male client is admitted to the substance abuse unit for alcohol detoxification. Which of the following medications is Nurse Alice most likely to administer to reduce the symptoms of alcohol withdrawal?

- A. Naloxone (Narcan)
- B. Haloperidol (Haldol)
- C. Magnesium sulfate
- D. Chlordiazepoxide (Librium)

Correct Answer: D. Chlordiazepoxide (Librium)

Chlordiazepoxide (Librium) and other tranquilizers help reduce the symptoms of alcohol withdrawal. Chlordiazepoxide is a long-acting benzodiazepine and is an FDA approved medication for adults with mild-moderate to severe anxiety disorder, preoperative apprehension and anxiety, and withdrawal symptoms of acute alcohol use disorder. Chlordiazepoxide has anti-anxiety, sedative, appetite-stimulating, and weak analgesic actions. It binds to benzodiazepine receptors at the GABA-A ligand-gated chloride channel complex and enhances GABA's inhibitory effects.

- **Option A:** Naloxone (Narcan) is administered for narcotic overdose. Naloxone is indicated for the treatment of opioid toxicity, specifically to reverse respiratory depression from opioid use. It is useful in accidental or intentional overdose and acute or chronic toxicity. Naloxone is a pure,

competitive opioid antagonist with a high affinity for the mu-opioid receptor, allowing for reversal of the effects of opioids. The onset of action varies depending on the route of administration but can be as fast as one minute when delivered intravenously (IV) or intraosseous (IO).

- **Option B:** Haloperidol (Haldol) may be given to treat clients with psychosis, severe agitation, or delirium. Haloperidol is a first-generation (typical antipsychotic) which exerts its antipsychotic action by blocking dopamine D2 receptors in the brain. When 72% of dopamine receptors are blocked, this drug achieves its maximal effect. Haloperidol is not selective for the D2 receptor. It also has noradrenergic, cholinergic, and histaminergic blocking action. The blocking of these receptors is associated with various side effects.
- **Option C:** Magnesium sulfate and other anticonvulsant medications are only administered to treat seizures if they occur during withdrawal. Magnesium sulfate administration can be oral (PO), intramuscular (IM), intraosseous (IO), or intravenous (IV). For every 1 gram of magnesium sulfate, it contains 98.6 mg or 8.12Eq of elemental magnesium. Magnesium sulfate can be combined with dextrose 5% or water to make intravenous solutions.

28. An 18-year-old male client admitted with heat stroke begins to show signs of disseminated intravascular coagulation (DIC). Which of the following laboratory findings is most consistent with DIC?

- A. Low platelet count
- B. Elevated fibrinogen levels
- C. Low levels of fibrin degradation products
- D. Reduced prothrombin time

Correct Answer: A. Low platelet count

In DIC, platelets and clotting factors are consumed, resulting in microthrombi and excessive bleeding. As clots form, fibrinogen levels decrease and the prothrombin time increases.

- **Option B:** Severe, rapidly evolving DIC is diagnosed by demonstrating thrombocytopenia, an elevated partial thromboplastin time and prothrombin time, increased levels of plasma D-dimers, and a decreasing plasma fibrinogen level.
- **Option C:** Fibrin degradation products increase as fibrinolysis takes place.
- **Option D:** Both PT and aPTT seem prolonged in about 50% of DIC cases which is attributed to the consumption of coagulation factors but can also be prolonged in impaired synthesis of coagulation factors and in massive bleeding.

29. A client is recently diagnosed with HIV and highly antiretroviral therapy is started. After the first week of therapy, the patient complains of headaches, dizziness, and nightmares. Which one of the following antiretroviral drugs is most likely associated with these symptoms?

- A. Lamivudine
- B. Efavirenz
- C. Tenofovir
- D. Saquinavir

Correct Answer: B. Efavirenz

Efavirenz is a non-nucleoside reverse transcriptase inhibitor. Side effects include rash, dizziness, confusion, headache, and nightmares.

- **Options A & C:** Lamivudine and Tenofovir side effects include headache, dizziness, nausea, diarrhea, or trouble sleeping.
- **Option D:** Saquinavir can cause headache, nausea, diarrhea, and photosensitivity.

30. Nurse Kelly, a triage nurse encountered a client who complained of mid-sternal chest pain, dizziness, and diaphoresis. Which of the following nursing action should take priority?

- A. Administer oxygen therapy via nasal cannula
- B. Notify the physician
- C. Complete history taking
- D. Put the client on ECG monitoring

Correct Answer: A. Administer oxygen therapy via nasal cannula.

The priority goal is to increase myocardial oxygenation. Place the patient on a cardiac monitor, establish intravascular access (IV) access, give 162 mg to 325 mg chewable aspirin, clopidogrel, or ticagrelor (unless bypass surgery is imminent), control pain and consider oxygen (O₂) therapy.

- **Option B:** Patients with non-ST elevation myocardial infarction (NSTEMI) and unstable angina should be admitted for cardiology consultation and workup. Patients with stable angina may be appropriate for outpatient workup.
- **Option C:** Carefully review the patient's medical history for cardiac history, coagulopathies, and kidney disease. Ask about family history, especially cardiac, and ask about social histories like drug use and tobacco use.
- **Option D:** These actions are also appropriate and should be performed immediately. Electrocardiogram (ECG) preferably in the first 10 min of arrival, (consider serial ECGs). Patients with ST-elevation on ECG patients should receive immediate reperfusion therapy either pharmacologic (thrombolytics) or transfer to the catheterization laboratory for percutaneous coronary intervention (PCI).

31. An eleven-month-old infant is brought to the pediatric clinic. The nurse suspects that the child has iron-deficiency anemia. Because iron deficiency anemia is suspected, which of the following is the most important information to obtain from the infant's parents?

- A. Normal dietary intake.
- B. Relevant socio-cultural, economic, and educational background of the family.
- C. Any evidence of blood in the stools.
- D. A history of maternal anemia during pregnancy.

Correct Answer: A. Normal dietary intake.

Iron deficiency anemia occurs commonly in children 6 to 24 months of age. For the first 4 to 5 months of infancy iron stores laid down for the baby during pregnancy are adequate. When fetal iron stores are depleted, supplemental dietary iron needs to be supplied to meet the infant's rapid growth needs. Iron deficiency may occur in the infant who drinks mostly milk, which contains no iron, and does not receive adequate dietary iron or supplemental iron.

- **Option B:** Daily dietary intake is much more related to the diagnosis of iron deficiency anemia than is the socio-cultural, economic, and educational background of the family. The cause of iron-deficiency anemia varies based on age, gender, and socioeconomic status. Iron deficiency may result from insufficient iron intake, decreased absorption, or blood loss.
- **Option C:** Iron deficiency anemia in an infant is very unlikely to be related to gastrointestinal bleeding. In developing countries, a parasitic infestation is also a significant cause of iron deficiency anemia. Dietary sources of iron are green vegetables, red meat, and iron-fortified milk formulas.
- **Option D:** Anemia during pregnancy is unlikely to be the cause of the infant's iron deficiency anemia. Fetal iron stores are drawn from the mother even if she is anemic. In neonates, breastfeeding is protective against iron deficiency due to the higher bioavailability of iron in breast milk compared to cow's milk; iron deficiency anemia is the most common form of anemia in young children on cow's milk.

32. When developing a plan of care for the client with stress incontinence, the nurse should take into consideration that stress incontinence is best defined as the involuntary loss of urine associated with:

- A. A strong urge to urinate.
- B. Overdistention of the bladder.
- C. Activities that increase abdominal pressure.
- D. Obstruction of the urethra.

Correct Answer: C. Activities that increase abdominal pressure

Stress incontinence is the involuntary loss of urine during such activities as coughing, sneezing, laughing, or physical exertion. These activities increase abdominal and detrusor pressure. Precipitating activities include coughing, laughing, sneezing, straining, or exercising. The patient may initially present with urinary complaints of dysuria, frequency, and urgency.

- **Option A:** A strong urge to urinate is associated with urge incontinence. Urge incontinence is a type of urinary incontinence in adults, which involves sudden compelling urges to void and results in involuntary leakage of urine. This is a serious and debilitating condition and has a social stigma attached to it. To avoid the huge socioeconomic burden and high morbidity associated with this condition, early diagnosis, treatment, and referral concepts must be widely practiced among clinicians.
- **Option B:** Overdistention of the bladder can lead to overflow incontinence. Overflow urinary incontinence is the involuntary leakage of urine from an overdistended bladder due to impaired detrusor contractility and/or bladder outlet obstruction. Neurologic diseases such as spinal cord injuries, multiple sclerosis, and diabetes can impair detrusor function.
- **Option D:** Obstruction of the urethra can lead to urinary retention. Obstructive uropathy is a disorder of the urinary tract that occurs due to obstructed urinary flow and can be either structural or functional. The back-up of urine into the unilateral or bilateral kidneys, depending on the location of the obstruction, causes hydronephrosis.

33. Because a client has mitral stenosis and is a prospective valve recipient, the nurse preoperatively assesses the client's past compliance with medical regimens. Lack of compliance with which of the following regimens would pose the greatest health hazard to this client?

- A. Medication therapy
- B. Diet modification
- C. Activity restrictions
- D. Dental care

Correct Answer: A. Medication therapy

Preoperatively, anticoagulants may be prescribed for the client with advanced valvular heart disease to prevent emboli. Post-op, all clients with mechanical valves and some with bioprostheses are maintained indefinitely on anticoagulation therapy. Adhering strictly to a dosage schedule and observing specific precautions are necessary to prevent hemorrhage or thromboembolism. Some clients are maintained on lifelong antibiotic prophylaxis to prevent recurrence from rheumatic fever. Episodic prophylaxis is required to prevent infective endocarditis after dental procedures or upper respiratory, GI, or GU surgery.

- **Option B:** Eat heart-healthy foods such as fruits, vegetables, whole grains, fish, lean meats, and low-fat or nonfat dairy foods. Limit sodium, sugar, and alcohol. Stay at a healthy weight. Lose weight if needed. Be safe with medicines. Take medicines exactly as prescribed. Call a doctor or nurse call line if the clients think he is having a problem with the medicine. You will get more details on the specific medicines the doctor prescribes.
- **Option C:** Be active. Ask the doctor what type and level of exercise is safe. If the stenosis is severe, the client will likely need to restrict the level of activity. Walking may be a good choice. The client may also want to swim, bike, or do other activities.
- **Option D:** Take care of the teeth and gums. Get regular dental checkups. Good dental health is important because bacteria can spread from infected teeth and gums to the heart valves. Avoid colds and flu. Get a pneumococcal vaccine shot. If you have had one before, ask your doctor if you need another dose. Get a flu vaccine every year.

34. Mucosal barrier fortifiers are used in peptic ulcer disease management for which of the following indications?

- A. To inhibit mucus production.
- B. To neutralize acid production.
- C. To stimulate mucus production.
- D. To stimulate hydrogen ion diffusion back into the mucosa.

Correct Answer: C. To stimulate mucus production.

The mucosal barrier fortifiers stimulate mucus production and prevent hydrogen ion diffusion back into the mucosa, resulting in accelerated ulcer healing. Sucralfate, a polymer of sucrose with aluminum hydroxide, forms a protective coating on the mucosal lining, particularly in ulcerated areas. In the presence of acid, it becomes a gel that adheres to epithelial cells and ulcer craters.

- **Option A:** Misoprostol is a prostaglandin analog that increases the release of bicarbonate and mucin (a component of mucus) and reduces acid secretion by binding to prostaglandin receptors on parietal cells. Because NSAIDs (nonsteroidal anti-inflammatory drugs) inhibit prostaglandin formation, a synthetic prostaglandin such as misoprostol is sometimes given to reduce NSAID-induced damage.
- **Option B:** Antacids neutralize acid production. The antacids reduce the acid reaching the duodenum by neutralizing the acid present in the stomach. The salts' mechanism of neutralization of acid varies, and each salt has a different mechanism with the ultimate goal of acid neutralization.
- **Option D:** The mucosal barrier is the name given to the barrier in the stomach that resists the back-diffusion of hydrogen ions. The barrier is a layer of thick mucus secreted together with an alkaline fluid. Since the mucus is a gel, it entraps the alkaline fluid so that the stomach is coated.

35. Clay-colored stools indicate:

- A. Upper GI bleeding
- B. Impending constipation
- C. An effect of medication
- D. Bile obstruction

Correct Answer: D. Bile obstruction

Bile colors the stool brown. Any inflammation or obstruction that impairs bile flow will affect the stool pigment, yielding light, clay-colored stool. The liver releases bile salts into the stool, giving it a normal brown color. One may have clay-colored stools if they have a liver infection that reduces bile production, or if the flow of bile out of the liver is blocked. Yellow skin (jaundice) often occurs with clay-colored stools.

- **Option A:** Upper GI bleeding results in black or tarry stool. Melena is a black, tarry stool that is caused by GI bleeding. The black color is due to the oxidation of blood hemoglobin during the bleeding in the ileum and colon. Melena also refers to stools or vomit stained black by blood pigment or dark blood products and may indicate upper GI bleeding.
- **Option B:** Constipation is characterized by small, hard masses. The problem may arise in the colon or rectum or it may be due to an external cause. In most people, slow colonic motility that occurs after years of laxative abuse is the problem. In a few patients, the cause may be related to an outlet obstruction like rectal prolapse or a rectocele. External causes of constipation may include poor dietary habits, lack of fluid intake, overuse of certain medications, an endocrine problem like hypothyroidism or some type of an emotional issue.
- **Option C:** Many medications and foods will discolor stool – for example, drugs containing iron turn stool black; beets turn stool red. Blue feces may be caused by boric acid, chloramphenicol, or methylene blue. Causative diseases for clay feces may include alcoholic hepatitis, biliary cirrhosis, gallstones, sclerosing cholangitis, biliary strictures, or viral hepatitis. Causative medications for gray feces may include cocoa or colchicines. Potential causes for green stools may include spinach, Indomethacin, iron, or medroxyprogesterone.