

# Kevin's Review - 35 NCLEX Practice Questions

**1. Nurse Janet is assigned in the oncology section of the hospital. Which of the following orders should the nurse question if a client is on radiation therapy?**

- A. Bland diet
- B. Aspirin every 4 hours
- C. Saline rinses every 2 hours
- D. Analgesics before meals

**Correct Answer: B. Aspirin every 4 hours**

- **Option B:** Radiation therapy makes the platelet count decrease. Thus, nursing responsibilities should be directed at promoting safety by avoiding episodes of hemorrhage or bleeding such as physical trauma and aspirin administration.
- **Options A and C:** Bland diet and saline rinses every 2 hours should also be done to manage stomatitis, a complication of radiation therapy.
- **Option D:** Analgesics are given before meals to alleviate the pain caused by stomatitis.

**2. The nurse is monitoring the progress of a client in labor. Which finding should be reported to the physician immediately?**

- A. The presence of scant bloody discharge
- B. Frequent urination
- C. The presence of green-tinged amniotic fluid
- D. Moderate uterine contractions

**Correct Answer: C. The presence of green-tinged amniotic fluid**

Green-tinged amniotic fluid is indicative of meconium staining. This finding indicates fetal distress. Amniotic fluid should be clear, or straw tinged with small vernix particles in the fluid. Brown or green staining of the fluid indicates the passage of meconium. Because the fetus swallows amniotic fluid in utero, meconium can be present in the infant's oropharynx at delivery. During delivery, if meconium-stained amniotic fluid is noted, a neonatal resuscitation team should be promptly involved

- **Option A:** In the third trimester, bleeding is concerning for placental abruption, placenta previa, or labor. Each of these pathologies has its entry discussing its presentation and pathophysiology. Although bleeding in pregnancy is not considered "normal," it is common, affecting about one in three pregnancies.
- **Option B:** An increased urge to urinate can be a result of the baby's head dropping into the pelvis. The low position of the baby's head puts even more pressure on the urinary bladder, so many women approaching labor might feel a frequent need to urinate.
- **Option D:** Although precisely determining when labor starts may be inexact, labor is generally defined as beginning when contractions become strong and regularly spaced at approximately 3 to 5 minutes apart. Throughout pregnancy, women may experience painful contractions that do not lead to cervical dilation or effacement, referred to as false labor.

**3. A client has returned to his room following an esophagoscopy. Before offering fluids, the nurse should give priority to assessing the client's:**

- A. Level of consciousness
- B. Movement of extremities
- C. Urinary output
- D. Gag reflex

**Correct Answer: D. Gag reflex**

- Option D: The client's gag reflex is depressed before having an EGD. The nurse should give priority to checking for the return of the gag reflex before offering the client oral fluids.
- Option A: Conscious sedation is used.
- Options B and C: Movements of extremities and urinary output are not affected by the procedure.

**4. A child is diagnosed with Wilms' tumor. During assessment, the nurse in charge expects to detect:**

- A. Gross hematuria
- B. Dysuria
- C. Nausea and vomiting
- D. An abdominal mass

**Correct Answer: D. An abdominal mass**

The most common sign of Wilms' tumor is a painless, palpable abdominal mass, sometimes accompanied by an increase in abdominal girth. Wilms tumor usually presents as an asymptomatic abdominal mass in the majority of children. The mother may have discovered the mass during bathing the infant.

- **Option A:** Gross hematuria is uncommon, although microscopic hematuria may be present. Abdominal pain is the most common initial presenting symptom (30% to 40%), followed by hypertension (25%) and hematuria (12% to 25%).
- **Option B:** Dysuria is not associated with Wilms' tumor. Wilms tumor, or nephroblastoma, is the most common renal cancer in the pediatric age group. It is also the most common pediatric abdominal cancer and the fourth most common pediatric cancer overall.
- **Option C:** Nausea and vomiting are rare in children with Wilms' tumor. The cause of Wilms tumor is not precisely known, but it is believed to be due to genetic alterations that deal with the normal embryological development of the genitourinary tract.

**5. Julia is a mother who is receiving oxytocin therapy. The nurse must continuously evaluate:**

- A. Membrane integrity
- B. Uterine contractions
- C. Cervical dilation
- D. Cervical effacement

**Correct Answer: B. Uterine contractions**

A client receiving oxytocin therapy requires continuous monitoring of maternal vital signs, fluid intake and output, electronic fetal monitoring, and uterine contractions. It is essential to monitor patient fluids (both intake and outtake) while administering oxytocin, as well as the frequency of uterine contractions, patient blood pressure, and heart rate of the unborn fetus. When oxytocin is released, it stimulates uterine contractions, and these uterine contractions, in turn, cause more oxytocin to be released; this is what causes the increase in both the intensity and frequency of contractions and enables a mother to carry out vaginal delivery completely.

- **Option A:** When oxytocin is given to women who are in the first or second stages of labor, or to women to cause induction of labor, uterine rupture, as well as maternal subarachnoid hemorrhages, maternal death, and even fetal death, can result. If oxytocin is given in doses too large or even slowly during 24 hours, the medication can exhibit an antidiuretic effect resulting in extreme water intoxication; this can result in coma, seizures, and even death in the mother.
- **Option C:** Oxytocin is the commonest induction agent used worldwide. It has been used alone, in combination with amniotomy or following cervical ripening with other pharmacological or non-pharmacological methods. Prior to the introduction of prostaglandin agents oxytocin was used as a cervical ripening agent as well.
- **Option D:** Comparison between the use of intravenous oxytocin alone with a combination of oxytocin and either vaginal or intracervical PGE2 demonstrate that prostaglandins result in a significantly lower cesarean delivery rate and an increased proportion of vaginal deliveries within 24 hours.

**6. After having an I.V. line in place for 72 hours, a patient complains of tenderness, burning, and swelling. Assessment of the I.V. site reveals that it is warm and erythematous. This usually indicates:**

- A. Infection
- B. Infiltration
- C. Phlebitis
- D. Bleeding

**Correct Answer: C. Phlebitis**

Tenderness, warmth, swelling, and, in some instances, a burning sensation are signs and symptoms of phlebitis. Superficial phlebitis affects veins on the skin surface. The condition is rarely serious and, with proper care, usually resolves rapidly. Sometimes people with superficial phlebitis also get deep vein thrombophlebitis, so a medical evaluation is necessary.

- **Option A:** Infection is less likely because no drainage or fever is present. Call a health care provider if there are signs and symptoms of swelling, pain, and inflamed superficial veins on the arms or legs. If the client is not better in a week or two or if it gets any worse, he or she should get reevaluated to make sure they don't have a more serious condition.
- **Option B:** Infiltration would result in swelling and pallor, not erythema, near the insertion site. In phlebitis, there is usually a slow onset of a tender red area along the superficial veins on the skin. A long, thin red area may be seen as the inflammation follows a superficial vein. This area may feel hard, warm, and tender. The skin around the vein may be itchy and swollen. The area may begin to throb or burn.

- **Option D:** The patient has no evidence of bleeding. Injury to a vein increases the risk of forming a blood clot. Sometimes clots occur without an injury.

**7. The nurse is caring for a client who has had a gastroscopy. Which of the following symptoms may indicate that the client is developing a complication related to the procedure? Select all that apply.**

- A. The client complains of a sore throat.
- B. The client has a temperature of 100°F.
- C. The client appears drowsy following the procedure.
- D. The client complains of epigastric pain.
- E. The client experiences hematemesis.

**Correct Answer: B, D, and E.**

Following a gastroscopy, the nurse should monitor the client for complications, which include perforation and the potential for aspiration. An elevated temperature, complaints of epigastric pain, or the vomiting of blood (hematemesis) are all indications of a possible perforation and should be reported promptly.

- **Option A:** A sore throat is a common occurrence following a gastroscopy. Before the procedure, the throat will be numbed with a local anesthetic spray. The local anesthetic spray is then given and a small plastic mouth guard placed in the mouth, to hold it open and protect the teeth.
- **Option B:** During a gastroscopy, there's a very small risk of the endoscope tearing the lining of the esophagus, stomach, or the first section of the small intestine (duodenum). This is known as perforation.
- **Option C:** Clients are usually sedated to decrease anxiety and the nurse would anticipate that the client will be drowsy following the procedure. Possible complications that can occur include a reaction to the sedative, which can cause problems with breathing, heart rate, and blood pressure.
- **Option D:** Signs of perforation can include neck, chest, or stomach pain, a high temperature of 38°C or above, breathing difficulties, and neck, chest, or stomach pain. If the perforation isn't severe, it can usually be left to heal by itself.
- **Option E:** Sometimes, during a gastroscopy, the endoscope can accidentally damage a blood vessel, causing it to bleed. However, significant bleeding is very rare. Signs of bleeding can include vomiting and passing black or "tar-like" poo.

**8. The care for the client places priority on which of the following:**

- A. Monitoring his vital signs every hour.
- B. Providing a quiet, dim room.
- C. Encouraging adequate fluids and nutritious foods.
- D. Administering Librium as ordered.

**Correct Answer: A. Monitoring his vital signs every hour**

Pulse and blood pressure are usually elevated during withdrawal; Elevation may indicate impending delirium tremens. Patients with severe withdrawal symptoms may require escalating doses and intensive care level monitoring. Alcohol withdrawal can range from very mild symptoms to the severe

form, which is named delirium tremens. The hallmark is autonomic dysfunction resulting from the excitation of the central nervous system.

- **Option B:** The client needs a quiet, well-lighted, consistent, and secure environment. Excessive stimulation can aggravate anxiety and cause illusions and hallucinations. Patients should be kept calm in a controlled environment to try to reduce the risks of progression from mild symptoms to hallucinations. With mild to moderate symptoms, patients should receive supportive therapy in the form of intravenous rehydration, correction of electrolyte abnormalities, and have comorbid conditions as listed above ruled out.
- **Option C:** Adequate nutrition with supplements of Vit. B should be ensured. Alcoholics tend to have nutritional deficiencies and thus should be provided with folic and thiamine supplements. Some patients may benefit from magnesium supplements.
- **Option D:** Sedatives are used to relieve anxiety. The hallmark of management for severe symptoms is the administration of long-acting benzodiazepines. The most commonly used benzodiazepines are intravenous diazepam (Valium) or intravenous lorazepam (Ativan) for management.

**9. In addition to analgesia, narcotic effects include:**

- A. Euphoria, diarrhea, increased respirations
- B. Euphoria, miosis, nausea and vomiting
- C. Respiratory depression, increased blood pressure
- D. Dependence, seizures, muscle spasms

**Correct Answer: B. Euphoria, miosis, nausea, and vomiting**

These are the effects that often occur with the administration of narcotics. Common side effects of opioid administration include sedation, dizziness, nausea, vomiting, constipation, physical dependence, tolerance, and respiratory depression.

- **Option A:** Constipation (not diarrhea) noted during the administration of narcotics. The most common side effects of opioid usage are constipation (which has a very high incidence) and nausea. These 2 side effects can be difficult to manage and frequently tolerance to them does not develop; this is especially true for constipation. They may be severe enough to require opioid discontinuation and contribute to under-dosing and inadequate analgesia.
- **Option C:** Decreased respirations (not increased) are noted in narcotics administration. Decreased blood pressure results from narcotic administration. Less common side effects may include delayed gastric emptying, hyperalgesia, immunologic and hormonal dysfunction, muscle rigidity, and myoclonus.
- **Option D:** Narcotics do not cause the effects in choice D at all. Physical dependence and addiction are clinical concerns that may prevent proper prescribing and in turn inadequate pain management.

**10. The primary reason for rapid continuous rewarming of the area affected by frostbite is to:**

- A. Lessen the amount of cellular damage
- B. Prevent the formation of blisters

- C. Promote movement
- D. Prevent pain and discomfort

**Correct Answer: A. Lessen the amount of cellular damage**

Rapid continuous rewarming of frostbite primarily lessens cellular damage. Rapid rewarming is the single most effective therapy for frostbite. Heat conduction and radiation from deeper tissue circulation prevent freezing and ice crystallization until the skin temperature drops below 0°C.

- **Option B:** Blisters contain high amounts of thromboxane and prostaglandins. They contract and dry within 2-3 weeks, forming a dark eschar that sloughs off in 4 weeks.
- **Option C:** Before movement can be improved, the cell injury should be resolved first.
- **Option D:** It does not prevent the formation of blisters. It does promote movement, but this is not the primary reason for rapid rewarming. It might increase pain for a short period of time as the feeling comes back into the extremity.

**11. When performing a physical examination on a female anxious client, nurse Nelli would expect to find which of the following effects produced by the parasympathetic system?**

- A. Muscle tension
- B. Hyperactive bowel sounds
- C. Decreased urine output
- D. Constipation

**Correct Answer: B. Hyperactive bowel sounds**

The parasympathetic nervous system would produce incomplete G.I. motility resulting in hyperactive bowel sounds, possibly leading to diarrhea. The parasympathetic nervous system, in contrast, exerts both excitatory and inhibitory control over gastric and intestinal tone and motility. Although GI functions are controlled by the autonomic nervous system and occur, by and large, independently of conscious perception, it is clear that the higher CNS centers influence homeostatic control as well as cognitive and behavioral functions.

- **Option A:** When the body is stressed, muscles tense up. Muscle tension is almost a reflex reaction to stress—the body’s way of guarding against injury and pain. With sudden onset stress, the muscles tense up all at once and then release their tension when the stress passes. Chronic stress causes the muscles in the body to be in a more or less constant state of guardedness. When muscles are taut and tense for long periods of time, this may trigger other reactions of the body and even promote stress-related disorders.
- **Option C:** During micturition, parasympathetic stimulation causes the detrusor muscle to contract and the internal urethral sphincter to relax. The external urethral sphincter (sphincter urethrae) is under somatic control and is consciously relaxed during micturition. In infants, voiding occurs involuntarily (as a reflex).
- **Option D:** The parasympathetic nervous system controls processes in the body such as digestion, repair, and relaxation. When the parasympathetic nervous system is dominant in the body it conserves energy, slows heart rate, increases digestion, and relaxes sphincter muscles in the digestive tract. These changes in the function of the digestive system due to stress may result in spasms through the digestive tract and an increase in the amount of acid present in the stomach – causing indigestion and burning sensations, and irritation of the large intestine which may lead to

symptoms such as diarrhea, constipation, cramping and bloating.

**12. The nurse teaching a client who will receive thiopental (Pentothal) as an anesthetic explains what common adverse effects might occur?**

- A. Headache
- B. Emergence delirium
- C. Nausea and vomiting
- D. Paralysis

**Correct Answer: B. Emergence delirium**

Emergence delirium could occur postoperatively, and is characterized by hallucinations, confusion, and excitability. Barbiturates are a group of sedative-hypnotic medications used for the treatment of seizure disorder, neonatal withdrawal, insomnia, preoperative anxiety, induction of coma for increased intracranial pressure. They are also useful for inducing anesthesia.

- **Option A:** Drug interactions with oral barbiturates have been a frequent topic of research. Phenobarbital is known to be an inducer of the cytochrome enzyme system, specifically the CYP1A2, 2B6, 2C9, and 3A4/5 isozymes that will reduce the efficacy of warfarin, steroids, oral contraceptives, psychoactive, immunosuppressants. Phenobarbital will also lower the plasma concentrations of other antiepileptic drugs such as lamotrigine, oxcarbazepine, phenytoin, tiagabine, and valproate.
- **Option C:** Overdose of phenobarbital symptoms includes CNS depression, respiratory failure, and hemodynamic instability. No antidote exists. Treatment of an overdose includes supportive care, activated charcoal (if taken orally), and urinary alkalization.
- **Option D:** Phenobarbital has a narrow therapeutic range of 10 to 30 mg/L, with 80mg/L reported as being fatal.[38] A Cochrane review found no clear evidence of a benefit to routine serum monitoring of drug concentrations for antiepileptic drugs. Dose titration to control seizures was found to be effective.

**13. A client with chronic pain reports to you, the charge nurse, that the nurse has not been responding to requests for pain medication. What is your initial action?**

- A. Check the MARs and nurses' notes for the past several days.
- B. Ask the nurse educator to give an in-service about pain management.
- C. Perform a complete pain assessment and history on the client.
- D. Have a conference with the nurses responsible for the care of this client.

**Correct Answer: D. Have a conference with the nurses responsible for the care of this client.**

As a charge nurse, you must assess the performance and attitude of the staff in relation to this client. Handling conflicts in an efficient and effective manner results in improved quality, patient safety, and staff morale, and limits work stress for the caregiver. The nurse manager must approach this challenge thoughtfully because it involves working relationships that are critical for the unit to function effectively.

- **Option A:** After gathering data from the nurses, additional information from the records and the client can be obtained as necessary. Effective resolution and management of a conflict require clear communication and a level of understanding of the perceived areas of disagreement. Conflict resolution is an essential element of a healthy work environment because a breakdown in communication and collaboration can lead to increased patient errors.
- **Option B:** The educator may be of assistance if knowledge deficit or need for performance improvement is the problem. The American Association of Critical-Care Nurses standards for healthy work environments recognizes the importance of proficiency in communication skills and The Joint Commission's revised leadership standards place a mandate on healthcare leadership to manage disruptive behavior that can impact patient safety.
- **Option C:** Nursing leaders need to assess how nurses deal with conflict in the healthcare environment in an effort to develop and implement conflict management training and processes that can assist them in dealing with difficult situations.

**14. After a long leg cast is removed, the male client should:**

- A. Cleanse the leg by scrubbing with a brisk motion
- B. Put leg through full range of motion twice daily
- C. Report any discomfort or stiffness to the physician
- D. Elevate the leg when sitting for long periods of time.

**Correct Answer: D. Elevate the leg when sitting for long periods of time.**

Elevation will help control the edema that usually occurs.

- **Option A:** Cleansing the leg should be done by patting a wet cloth to avoid injuring the dry skin. It is not unusual for the skin to have some changes (dry skin and more hair). A few baths in warm water will soak off the dry, flaky skin. This may take a few days, but be patient and avoid scrubbing the skin. Scrubbing may damage the new skin.
- **Option B:** The leg should be exercised daily but not put through a full range of motion because the bones are still on the mend and the muscles are weak. It is normal for there to be some discomfort in the muscles and joints that were immobilized. It is not unusual for an arm or leg to be smaller than the other side. Begin gentle range of motion and strengthening of your injured area after the cast is removed. You may be placed into a removable splint after the cast is removed.
- **Option C:** Discomfort and stiffness are normal after a cast is removed. Regular exercises recommended by the physician would help the extremity return to its normal function. As the client progresses out of the cast, physical therapy may be beneficial to help the client to return to normal everyday activities, work, or even sports activities.

**15. Which information is most important for the nurse Trinity to include in a teaching plan for a male schizophrenic client taking clozapine (Clozaril)?**

- A. Monthly blood tests will be necessary.
- B. Report a sore throat or fever to the physician immediately.
- C. Blood pressure must be monitored for hypertension.
- D. Stop the medication when symptoms subside.



**Correct Answer: B. Report a sore throat or fever to the physician immediately.**

A sore throat and fever are indications of an infection caused by agranulocytosis, a potentially life-threatening complication of clozapine. The risk of developing agranulocytosis is around 1% in patients who take clozapine, which may be independent of dosing. Most cases occur early in the treatment, within six weeks to six months, and require extensive monitoring of blood absolute neutrophil counts. The definition of neutropenia is an ANC level below 1500/mm, and agranulocytosis is an ANC level below 500/mm.

- **Option A:** Because of the risk of agranulocytosis, white blood cell (WBC) counts are necessary weekly, not monthly. If the WBC count drops below 3,000/?l, the medication must be stopped. Many have tried to explain the link between clozapine and agranulocytosis by attributing this adverse effect to drug interactions with the immune system and genetic predisposition. A study in 2015 looked into the benefits of pharmacogenetic testing and how it may affect monitoring in patients at risk for clozapine-induced agranulocytosis. The study suggested that patients with a lower genetic risk may benefit from a more relaxed hematological monitoring schedule.
- **Option C:** Hypotension may occur in clients taking this medication. Warn the client to stand up slowly to avoid dizziness from orthostatic hypotension. Risk factors include old age, female, genetics, and concurrent treatment with other drugs known to cause agranulocytosis. Clinicians must place patients taking clozapine on a national registry. Granulocyte colony-stimulating factor may be an option to increase levels of white blood cells.
- **Option D:** The medication should be continued, even when symptoms have been controlled. If the medication must be stopped, it should be slowly tapered over 1 to 2 weeks and only under the supervision of a physician. Weekly complete blood count (CBC) to measure ANC levels. ANC levels less than 1500 indicate neutropenia. Levels less than 500 indicate agranulocytosis. A complete blood count should be taken weekly for the first six months, then every other week for the next six months. A national registry is in place to monitor for safe use.

**16. A patient who is hospitalized due to vomiting and a decreased level of consciousness displays slow and deep (Kussmaul breathing), and he is lethargic and irritable in response to stimulation. The doctor diagnosed him of having dehydration. Measurement of arterial blood gas shows pH 7.0, PaO<sub>2</sub> 90 mm Hg, PaCO<sub>2</sub> 22 mm Hg, and HCO<sub>3</sub> 14 mmol/L; other results are Na<sup>+</sup> 120 mmol/L, K<sup>+</sup> 2.5 mmol/L, and Cl<sup>-</sup> 95 mmol/L. As a knowledgeable nurse, you know that the normal value for PaCO<sub>2</sub> is:**

- A. 22 mm Hg
- B. 36 mm Hg
- C. 48 mm Hg
- D. 50 mm Hg

**Correct Answer: B. 36 mm Hg**

The normal range for PaCO<sub>2</sub> is from 35 to 45 mm Hg.

**17. A client has been treated with antibiotic therapy for right lower-lobe pneumonia for 10 days and will be discharged today. Which of the following physical findings would lead the nurse to believe it is appropriate to discharge**

***this client?***

- A. Continued dyspnea
- B. Fever of 102°F
- C. Respiratory rate of 32 breaths/minute.
- D. Vesicular breath sounds in the right base.

**Correct Answer: D. Vesicular breath sounds in right base**

If the client still has pneumonia, the breath sounds in the right base will be bronchial, not the normal vesicular breath sounds. If the client still has dyspnea, fever, and increased respiratory rate, he should be examined by the physician before discharge because he may have another source of infection or still have pneumonia.

- **Option A:** Assess the rate, rhythm, and depth of respiration, chest movement, and use of accessory muscles. Tachypnea, shallow respirations, and asymmetric chest movement are frequently present because of the discomfort of moving chest wall and/or fluid in the lung due to a compensatory response to airway obstruction. Altered breathing pattern may occur together with the use of accessory muscles to increase chest excursion to facilitate effective breathing.
- **Option B:** Investigate sudden change in condition, such as increasing chest pain, extra heart sounds, altered sensorium, recurring fever, changes in sputum characteristics. Delayed recovery or increase in severity of symptoms suggests resistance to antibiotics or secondary infection.
- **Option C:** Assess and record respiratory rate and depth at least every 4 hours. The average rate of respiration for adults is 10 to 20 breaths per minute. It is important to take action when there is an alteration in the pattern of breathing to detect early signs of respiratory compromise.

***18. Adrenergic blockers are contraindicated in:***

- A. Hypertension
- B. Pheochromocytoma
- C. Migraines
- D. Obstructive airway disease

**Correct Answer: D. Obstructive airway disease**

Adrenergic blockers tend to cause bronchoconstriction, so are therefore contraindicated in obstructive pulmonary disease. Traditionally, beta-blockers have been contraindicated in asthmatic patients. However, recommendations have aligned for allowing cardio-selective beta-blockers, also known as beta-1 selective, in asthmatics but not non-selective beta-blockers. Less commonly, bronchospasm presents in patients on beta-blockers. Asthmatic patients are at a higher risk.

- **Option A:** Patients who have either acute or chronic bradycardia and/or hypotension have relatively contraindication to beta-blocker usage. The patient's heart rate and blood pressure require monitoring while using beta-blockers. Bradycardia and hypotension are two adverse effects that may commonly occur.
- **Option B:** Beta receptors are found all over the body and induce a broad range of physiologic effects. The blockade of these receptors with beta-blocker medications can lead to many adverse effects. The catecholamines, epinephrine, and norepinephrine bind to B1 receptors and increase cardiac automaticity as well as conduction velocity. B1 receptors also induce renin release, and this

leads to an increase in blood pressure. In contrast, binding to B2 receptors causes relaxation of the smooth muscles along with increased metabolic effects such as glycogenolysis.

- **Option C:** Beta-blockers are indicated and have FDA approval for the treatment of tachycardia, hypertension, myocardial infarction, congestive heart failure, cardiac arrhythmias, coronary artery disease, hyperthyroidism, essential tremor, aortic dissection, portal hypertension, glaucoma, migraine prophylaxis, and other conditions.

**19. A 72-year-old patient, who is a retired miner, is getting discharged from a skilled nursing facility (SNF) after a 3-week stay for a lower limb fracture. The patient has a history of severe COPD, likely due to his occupational exposure, and PVD. He lives alone in a two-story house and is primarily concerned about his ability to breathe easily, especially when he needs to climb stairs to his bedroom. Given his living situation, medical history, and concerns, which of the following would be the best instruction for this patient to manage his respiratory challenges?**

- A. Practice deep breathing techniques regularly to increase oxygen levels and improve lung function.
- B. Cough regularly and deeply to clear airway passages, especially before attempting to climb stairs.
- C. Use a bronchodilator and wait for a few minutes, then cough to clear airway passages.
- D. Focus on decreasing CO2 levels by increasing oxygen intake, especially during meals when metabolism is higher.
- E. Consider rearranging his living space to avoid frequent stair climbing.

**Correct Answer: C. Cough following bronchodilator utilization**

For a patient with severe COPD, deep breathing techniques can help increase oxygen levels in the blood and improve overall lung function. This can be particularly beneficial for activities that may exacerbate shortness of breath, such as climbing stairs. While the other options have their merits, deep breathing techniques offer a proactive approach to managing the patient's primary concern about breathing easily.

**20. An experienced LPN, under the supervision of the team leader RN, is providing nursing care for a patient with a respiratory problem. Which actions are appropriate to the scope of practice of an experienced LPN? Select all that apply.**

- A. Auscultate breath sounds
- B. Administer medications via metered-dose inhaler (MDI)
- C. Complete in-depth admission assessment
- D. Initiate the nursing care plan
- E. Evaluate the patient's technique for using MDI's

**Correct Answers: A and B.**

Appropriate decisions relating to the successful assignment of care are accurately based on the needs of the patient, the skills of the staff, the staffs' position description or job descriptions, the employing

facility's policies and procedures, and legal aspects of care such as the states' legal scopes of practice for nurses, nursing assistants and other members of the nursing team.

- **Option A:** The experienced LPN is capable of gathering data and making observations, including noting breath sounds and performing pulse oximetry. The scope of practice for the licensed practical or vocational nurse will most likely include the legal ability of this nurse to perform data collection, plan, implement, and evaluate care under the direct supervision and guidance of the registered nurse.
- **Option B:** Administering medications, such as those delivered via MDIs, is within the scope of practice of the LPN. Based on the basic entry educational preparation differences among these members of the nursing team, care should be assigned according to the level of education of the particular team member.
- **Option C:** Scopes of practice should be considered prior to the assignment of care. All states have scopes of practice for advanced nurse practitioners, registered nurses, licensed practical nurses and unlicensed assistive personnel like nursing assistants and patient care technicians.
- **Option D:** The staff members' levels of education, knowledge, past experiences, skills, abilities, and competencies are also evaluated and matched with the needs of all of the patients in the group of patients that will be cared for. Some staff members may possess greater expertise than others.
- **Option E:** Independently completing the admission assessment, initiating the nursing care plan, and evaluating a patient's abilities require additional education and skills. These actions are within the scope of practice of the professional RN.

**21. A client suffered an amputation of the first and second digits in a chainsaw accident. Which task should be delegated to an LPN/LVN?**

- A. Cleansing the amputated digits and placing them directly into an ice slurry
- B. Wrapping the cleansed digits in saline-moistened gauze, sealing in a plastic container, and placing it in icy water
- C. Gently cleansing the amputated digits and the hand with povidone-iodine
- D. Cleansing the digits with sterile normal saline and placing it in a sterile cup with sterile normal saline

**Correct Answer: B. Wrapping the cleansed digits in saline-moistened gauze, sealing in a plastic container, and placing it in icy water.**

Once a finger amputation has occurred, ischemic tolerance times are 12 hours if warm and up to 24 hours if cold. For more proximal amputations, these times are halved. The amputated part should be covered in a normal saline-soaked gauze, sealed in a plastic bag, and submerged in icy water with no direct contact with ice. If there is direct contact with ice, it could result in tissue damage and render the amputated part non-viable.

- **Option A:** The client is the center of care. The needs of the client must be competently met with the knowledge, skills, and abilities of the staff to meet these needs. In other words, the nurse who delegates aspects of care to other members of the nursing team must balance the needs of the client with the abilities of those to which the nurse is delegating tasks and aspects of care, among other things such as the scopes of practice and the policies and procedures within the particular healthcare facility.
- **Option C:** Based on these characteristics and the total client needs for the group of clients that the registered nurse is responsible and accountable for, the registered nurse determines and analyzes all of the health care needs for a group of clients; the registered nurse delegates care that matches

the skills of the person that the nurse is delegating to.

- **Option D:** The job of the registered nurse is far from done after client care has been delegated to members of the nursing team. The delegated care must be followed up on and the staff members have to be supervised as they deliver care. The registered nurse remains responsible for and accountable for the quality, appropriateness, completeness, and timeliness of all of the care that is delivered.

**22. Which client outcome would best indicate successful treatment for a client with an antisocial personality disorder?**

- A. The client exhibits charming behavior when around authority figures.
- B. The client has decreased episodes of impulsive behaviors.
- C. The client makes statements of self-satisfaction.
- D. The client's statements indicate no remorse for behaviors.

**Correct Answer: B. The client has decreased episodes of impulsive behaviors**

A client with antisocial personality disorder typically has frequent episodes of acting impulsively with poor ability to delay self-gratification. Therefore, decreased frequency of impulsive behaviors would be evidence of improvement. Of those children with conduct disorder, 25% of girls and 40% of boys will meet the diagnostic criteria for antisocial personality disorder. Boys exhibit symptoms earlier than girls, who often only elicit these symptoms in puberty.

- **Option A:** Disregard for and the violation of others' rights are common manifestations of this personality disorder, which displays symptoms that include failure to conform to the law, inability to sustain consistent employment, deception, manipulation for personal gain, and incapacity to form stable relationships.
- **Option C:** Self-satisfaction would be viewed as a positive change if the client expresses low self-esteem; however, this is not a characteristic of a client with antisocial personality disorder. Many individuals diagnosed with antisocial personality disorder remain a burden to their families, coworkers, and closely associated peers, such as neighbors, despite becoming less troublesome with age. Mental health comorbidities and associated addictive disorders, as well as higher mortality rates due to suicides and homicides, only add to this burden.
- **Option D:** Charming behavior when around authority figures and statements indicating no remorse are examples of symptoms typical of someone with this disorder and would not indicate successful treatment. Antisocial personality disorder (ASPD) is a deeply ingrained and rigid dysfunctional thought process that focuses on social irresponsibility with exploitive, delinquent, and criminal behavior with no remorse.

**23. A fragile 87-year-old female has recently been admitted to the hospital with increased confusion and falls over the last two (2) weeks. She is also noted to have a mild left hemiparesis. Which of the following tests is most likely to be performed?**

- A. CBC (Complete blood count)
- B. ECG (electrocardiogram)
- C. Thyroid function tests

D. CT scan

**Correct Answer: D. CT scan**

A CT scan would be performed for further investigation of the hemiparesis. Noncontrast CT scanning is the most commonly used form of neuroimaging in the acute evaluation of patients with apparent acute stroke.

- **Option A:** A complete blood count (CBC) and a basic chemistry panel can be useful baseline studies. A CBC serves as a baseline study and may reveal a cause for the stroke (eg, polycythemia, thrombocytosis, thrombocytopenia, leukemia), identify evidence of concurrent illness (eg, anemia), or issues that may affect reperfusion strategies (thrombocytopenia).
- **Option B:** Electrocardiogram may serve as baseline data upon entry into the ED. An electrocardiogram (ECG or EKG) records the electrical signal from the heart to check for different heart conditions. Electrodes are placed on the chest to record the heart's electrical signals, which cause the heart to beat. The signals are shown as waves on an attached computer monitor or printer.
- **Option C:** Testing can often be limited to blood glucose, plus coagulation studies if the patient is on warfarin, heparin, or one of the newer antithrombotic agents (eg, dabigatran, rivaroxaban), not including thyroid studies.

**24. The nurse notes the following on the ECG monitor. The nurse would evaluate the cardiac arrhythmia as:**

- A. Atrial flutter
- B. A sinus rhythm
- C. Ventricular tachycardia
- D. Atrial fibrillation

**Correct Answer: C. Ventricular tachycardia**

The graph indicates ventricular tachycardia.

- **Options A, B, D:** The answers in A, B, and D are not noted on the ECG strip.

**25. Amphetamines are included in the category of drugs of abuse because of their ability to:**

- A. Cause nervousness
- B. Decrease weight
- C. Raise blood pressure
- D. Enhance performance

**Correct Answer: D. Enhance performance**

Drugs that produce a desired effect, such as feelings of euphoria and improved performance, tend to be overused and abused. Nervousness, decreased weight, and increased blood pressure are all effects of amphetamine. However, they are considered drugs of abuse because of their ability to enhance performance and produce a euphoric effect.

- **Option A:** Amphetamine is FDA-approved for the treatment of attention-deficit/hyperactivity disorder (ADHD) and narcolepsy. It has indications as a first-line agent for ADHD in adults and children six years of age and older. Amphetamine is also a second-line agent for the treatment of narcolepsy.
- **Option B:** Amphetamine is a central nervous (CNS) system stimulant that functions by increasing the amounts of dopamine, norepinephrine, and serotonin (to a lesser extent) in the synaptic cleft through a variety of mechanisms. Amphetamine enters the presynaptic axon terminal through diffusion or uptake by the monoamine transporters DAT, NET, and SERT.
- **Option C:** Once inside the presynaptic terminal, amphetamine increases the amounts of monoamine neurotransmitters in the cytosol through the inhibition of vesicular monoamine transporter 2 (VMAT2) as well as through disruption of the electrochemical gradients necessary for vesicular transporter function. Amphetamine also inhibits the metabolism of monoamine neurotransmitters by inhibiting monoamine oxidase (MAO). At the same time, amphetamine stimulates the intracellular receptor TAAR1, which induces internalization or transporter reversal of DAT.

**26. A male client has just been diagnosed with hepatitis A. On assessment, the nurse expects to note:**

- A. Severe abdominal pain radiating to the shoulder.
- B. Anorexia, nausea, and vomiting.
- C. Eructation and constipation.
- D. Abdominal ascites.

**Correct Answer: B. Anorexia, nausea, and vomiting.**

Hallmark signs and symptoms of hepatitis A include anorexia, nausea, vomiting, fatigue, and weakness. Acute hepatitis usually presents as a self-limited illness; development of fulminant hepatitis is rare. Typical symptoms of acute infection include nausea, vomiting, abdominal pain, fatigue, malaise, poor appetite, and fever; management is with supportive care.

- **Option A:** Abdominal pain may occur but doesn't radiate to the shoulder. Extrahepatic manifestations rarely occur but may include pancreatitis, rash, acute kidney injury with interstitial nephritis or glomerulonephritis, pneumonitis, pericarditis, hemolysis, and acute cholecystitis.
- **Option C:** Eructation and constipation are common in gallbladder disease, not hepatitis A. Patients may develop dark urine and pale stools within a week, followed by jaundice, icteric (yellow-tinted) sclera, and pruritus. Patients usually have elevated levels of serum alanine aminotransferase, aspartate aminotransferase, bilirubin, alkaline phosphatase, and lambda-glutamyl transpeptidase.
- **Option D:** Abdominal ascites is a sign of advanced hepatic disease, not an early sign of hepatitis A. Ascites is the pathologic accumulation of fluid within the peritoneal cavity. It is the most common complication of cirrhosis and occurs in about 50% of patients with decompensated cirrhosis in 10 years. The development of ascites denotes the transition from compensated to decompensated cirrhosis.

**27. Nurse Maureen knows that the positive diagnosis of HIV infection is made based on which of the following:**

- A. A history of high-risk sexual behaviors.

- B. Positive ELISA and western blot tests
- C. Identification of an associated opportunistic infection
- D. Evidence of extreme weight loss and high fever

**Correct Answer: B. Positive ELISA and western blot tests**

These tests confirm the presence of HIV antibodies that occur in response to the presence of the human immunodeficiency virus (HIV). When there is a possibility of acute or early HIV infection, the most sensitive screening immunoassay available (ideally, a combination antigen/antibody immunoassay) in addition to an HIV virologic (viral load) test is performed. RT-PCR based viral load test is favored. A positive HIV virologic test generally indicates HIV infection.

- **Option A:** History of high-risk sexual behavior is one of the risk factors that predisposes a patient to HIV. In the United States, a critical risk factor for HIV propagation among young people is the use of drugs before having sex, including marijuana, alkyl nitrites (“poppers”), cocaine, and ecstasy. Other risk factors associated with acquiring HIV infection include men who have sex with men, unsafe sexual practices, the use of intravenous drugs, vertical transmission, and blood transfusions or blood products.
- **Option C:** An associated opportunistic infection is one of the complications of HIV. In individuals with chronic HIV infection not on treatment with antiretroviral agents, as the CD4+ count drops they are vulnerable to a multitude of infections which rarely occur in an immunocompetent host, hence the term opportunistic infections (OIs).
- **Option D:** These are symptoms of HIV, but these do not determine a positive diagnosis. A large number of patients may only have an asymptomatic infection after the exposure. The usual time from exposure to onset of symptoms is 2 to 4 weeks, although, in some cases, it can be as long as 10 months. A constellation of symptoms, known as an acute retroviral syndrome, may appear acutely. Although none of these symptoms are specific to HIV, their presence of increased severity and duration is an indication of poor prognosis.

**28. Arthur has a family history of colon cancer and is scheduled to have a sigmoidoscopy. He is crying as he tells you, “I know that I have colon cancer, too.” Which response is most therapeutic?**

- A. “I know just how you feel.”
- B. “You seem upset.”
- C. “Oh, don’t worry about it, everything will be just fine.”
- D. “Why do you think you have cancer?”

**Correct Answer: B. “You seem upset.”**

Making observations about what you see or hear is a useful therapeutic technique. This way, you acknowledge that you are interested in what the patient is saying and feeling. Observations about the appearance, demeanor, or behavior of patients can help draw attention to areas that might pose a problem for them.

- **Option A:** Giving one’s own opinion, evaluating, moralizing, or implying one’s values by using words such as “nice”, “bad”, “right”, “wrong”, “should” and “ought” is not appropriate. Advanced levels of emotional support include sitting with patients and “providing opportunities for them to feel accompanied in their struggles,” directly answering questions, making the patient feel special, and making supportive gestures such as, when appropriate, holding the patient’s hand.



- **Option C:** Giving the patient false reassurance is inappropriate. False reassurance is something a nurse might give to a patient in an effort to comfort or encourage them, but in reality, is not based on fact either.
- **Option D:** Probing is inappropriate in this situation. Nontherapeutic communication also includes probing, or the continuous questioning of the client about something, that may, in turn, discourage proper communication between the nurse and patient.

**29. The nurse is admitting a patient diagnosed with type 2 diabetes mellitus. The nurse should expect the following symptoms during an assessment, except:**

- A. Hypoglycemia
- B. Frequent bruising
- C. Ketonuria
- D. Dry mouth

**Correct answer: A. Hypoglycemia**

Hypoglycemia does not occur in type 2 diabetes unless the patient is on insulin therapy or taking other diabetes medication. In T2DM, the response to insulin is diminished, and this is defined as insulin resistance. During this state, insulin is ineffective and is initially countered by an increase in insulin production to maintain glucose homeostasis, but over time, insulin production decreases, resulting in T2DM.

- **Option B:** Type 2 diabetes can affect blood circulation which makes it easier for the skin to bruise. Decreased blood flow to the area surrounding an injury prevents a wound from healing properly, resulting in the development of bruise-like lesions or spots.
- **Option C:** The presence of ketones in the urine happens due to a lack of available insulin. T1DM patients can often present with ketoacidosis (DKA) coma as the first manifestation in about 30% of patients.
- **Option D:** Losing a lot of fluids caused by frequent urination can lead to dehydration hence patients can develop dry mouth. People with diabetes are prone to dehydration. In those with diabetes, a person's blood glucose levels can become too high. The term for this is hyperglycemia, and it can cause a person to experience dry mouth.

**30. After cardiac surgery, a client's blood pressure measures 126/80. The nurse determines that the mean arterial pressure (MAP) is which of the following?**

- A. 46 mm Hg
- B. 80 mm Hg
- C. 95 mm Hg
- D. 90 mm Hg

**Correct Answer: C. 95 mm Hg**

The definition of mean arterial pressure (MAP) is the average arterial pressure throughout one cardiac cycle, systole, and diastole. MAP is influenced by cardiac output and systemic vascular resistance, each of which is under the influence of several variables.

MAP = (2 times the diastolic + systolic)/3 or (2d + s)/3 where d is diastolic and s is systolic

$$= 2(80) + 126 / 3$$

$$= 160 + 126 / 3 = 286 / 3 = 95.33 \text{ or } 95 \text{ mm HG}$$

- **Option A:** Cardiac output is calculated as the product of heart rate and stroke volume. The determination of stroke volume is by ventricular inotropy and preload. Preload is affected by blood volume and the compliance of veins. Increasing the blood volume increases the preload, increasing the stroke volume, and therefore increasing cardiac output. Afterload also affects the stroke volume in that an increase in afterload will decrease stroke volume. Heart rate is affected by the chronotropy, dromotropy, and lusitropy of the myocardium.
- **Option B:** Systemic vascular resistance is determined primarily by the radius of the blood vessels. Decreasing the radius of the vessels increases vascular resistance. Increasing the radius of the vessels would have the opposite effect. Blood viscosity can also affect systemic vascular resistance. An increase in hematocrit will increase blood viscosity and increase systemic vascular resistance. Viscosity, however, is considered only to play a minor role in systemic vascular resistance.
- **Option D:** A common method used to estimate the MAP is the following formula:  
MAP = DP + 1/3(SP – DP) or MAP = DP + 1/3(PP)  
where DP is the diastolic blood pressure, SP is the systolic blood pressure, and PP is the pulse pressure. This method is often more conducive to measuring MAP in most clinical settings as it offers a quick means of calculation if the blood pressure is known.

**31. The following statements appear on a nursing care plan for a client after a mastectomy: Incision site approximated; absence of drainage or prolonged erythema at the incision site; and the client remains afebrile. These statements are examples of:**

- A. Nursing interventions
- B. Short-term goals
- C. Long-term goals
- D. Expected outcomes

**Correct Answer: D. Expected outcomes**

Goals or desired outcomes describe what the nurse hopes to achieve by implementing the nursing interventions and are derived from the client's nursing diagnoses. One overall goal is determined for each nursing diagnosis. The terms goal, outcome, and expected outcome are oftentimes used interchangeably.

- **Option A:** Nursing interventions are activities or actions that a nurse performs to achieve client goals. Interventions chosen should focus on eliminating or reducing the etiology of the nursing diagnosis.
- **Option B:** Short-term goals can act as stepping stones to achieving longer-term targets. For example, a client may have the long-term goal of being able to groom herself, including cleaning her teeth, washing her face, combing her hair, and applying her make-up on her own. A short-term goal for this client might be to be able to clean her teeth.
- **Option C:** Long-term goals are often used for clients who have chronic health problems or who live at home, in nursing homes, or extended-care facilities. Long-term goal indicates an objective to be completed over a longer period, usually over weeks or months.

**32. Which of the following symptoms during the icteric phase of viral hepatitis should the nurse expect the client to exhibit?**

- A. Watery stool
- B. Yellow sclera
- C. Tarry stool
- D. Shortness of breath

**Correct Answer: B. Yellow sclera**

Liver inflammation and obstruction block the normal flow of bile. Excess bilirubin turns the skin and sclera yellow and the urine dark and frothy. After 3 to 10 days, the urine darkens, followed by jaundice. Systemic symptoms often regress, and patients feel better despite worsening jaundice. The liver is usually enlarged and tender, but the edge of the liver remains soft and smooth. Mild splenomegaly occurs in 15 to 20% of patients. Jaundice usually peaks within 1 to 2 weeks.

- **Option A:** Watery stools or gastroenteritis occurs during the prodromal phase of the disease. Nonspecific symptoms occur; they include profound anorexia, malaise, nausea and vomiting, a newly developed distaste for cigarettes (in smokers), and often fever or right upper quadrant abdominal pain. Urticaria and arthralgias occasionally occur, especially in HBV infection.
- **Option C:** Patients develop pale-colored stools during the icteric phase, not tarry stools. Manifestations of cholestasis may develop during the icteric phase (called cholestatic hepatitis) but usually resolve. When they persist, they cause prolonged jaundice, elevated alkaline phosphatase, and pruritus, despite general regression of inflammation.
- **Option D:** Some may develop an aversion to cigarette smoke during the prodromal phase of the disease, but shortness of breath rarely occurs in this case. Patients experience anorexia, nausea, vomiting, alterations in taste, arthralgias, malaise, fatigue, urticaria, and pruritus, and some develop an aversion to cigarette smoke.

**33. All of the following symptoms are evidence of a superinfection except:**

- A. White oral plaques
- B. Creamy vaginal discharge
- C. Skin rash
- D. Darkened tongue

**Correct Answer: C. Skin rash**

Skin rashes are indicative of hypersensitivity reactions in clients on penicillin therapy. True penicillin allergy is rare with the estimated frequency of anaphylaxis at 1-5 per 10 000 cases of penicillin therapy. Hypersensitivity is, however, its most important adverse reaction resulting in nausea, vomiting, pruritus, urticaria, wheezing, laryngeal edema, and ultimately, cardiovascular collapse.

- **Option A:** The antibiotic most frequently related to superinfection was ciprofloxacin (38.1%), followed by cefotaxime (23.3%), imipenem (12%), meropenem (10.2%), and cefepime (6.1%). The lowest percentage of superinfection was observed with the use of piperacillin-tazobactam (5.4%).
- **Option B:** A superinfection develops when the antibacterial intended for the preexisting infection kills the protective microbiota, allowing another pathogen resistant to the antibacterial to proliferate and cause a secondary infection

- **Option D:** Peri-implant superinfections are a major risk associated with broad-spectrum antibiotics in immunocompetent individuals. Lack of follow-up and antibiotic susceptibility testing and indiscriminate empiric treatment regimens may lead to ongoing microbial challenge that exacerbates and maintains the disease progression.

**34. A 45-year-old marathon runner comes to a health clinic for a routine checkup before participating in an upcoming running event. The patient's medical history is unremarkable and he denies any complaints or recent illnesses. The healthcare provider decides to perform a complete blood count (CBC) to ensure there are no underlying conditions that might affect the patient's performance or health during the event. The results of the CBC show that the formed elements in the patient's blood sample predominantly consist of a specific cell type known for its vital role in oxygen transport throughout the body, ensuring the tissues receive the necessary oxygen for metabolic activities. Based on this information, which of the following cell types is most likely to be predominant in this patient's blood sample?**

- A. Albumins
- B. Globulins
- C. Leukocytes (white blood cells)
- D. Erythrocytes (red blood cells)
- E. Thrombocytes (platelets)

**Correct Answer: D. Erythrocytes (red blood cells)**

Erythrocytes, or red blood cells, are the most common cell type among the formed elements in the blood and are essential for transporting oxygen from the lungs to tissues throughout the body. They contain hemoglobin, a molecule that binds oxygen and is crucial for aerobic respiration in the tissues, making them the primary cell type involved in oxygen transport.

- **Option A:** Albumins are proteins found in the plasma, not cells. They play a role in maintaining oncotic pressure but do not transport oxygen.
- **Option B:** Like albumins, globulins are proteins found in the plasma that function in the immune response and transport of various substances, but they are not cells and do not have a primary role in oxygen transport.
- **Options C:** Leukocytes are involved in the immune response and defending the body against infections. They do not play a role in oxygen transport.
- **Option E:** Thrombocytes or platelets are involved in hemostasis and help prevent bleeding by forming clots at the site of vascular injury. They do not have a role in oxygen transport.

**35. When do coronary arteries primarily receive blood flow?**

- A. During inspiration
- B. During diastolic
- C. During expiration

D. During systole

**Correct Answer: B. During diastolic**

Although the coronary arteries may receive a minute portion of blood during systole, most of the blood flow to coronary arteries is supplied during diastole. Breathing patterns are irrelevant to blood flow. The RCA and LMCA extend from the aortic root to supply different regions of the heart. The RCA gives rise to the sinoatrial nodal branch of the right coronary artery, posterior descending artery branch of the RCA, and the marginal branch.

- **Option A:** The RCA supplies blood to the right side of the heart. The sinoatrial nodal branch of the RCA provides blood to the SA node, and the atrioventricular nodal artery delivers blood to the AV node. The marginal branch of the right coronary artery provides blood supply to the lateral portion of the right ventricle. The posterior descending artery branch supplies blood to the inferior aspect of the heart.
- **Option C:** The LMCA supplies blood to the left side of the heart. The LAD provides blood to the anterior ventricular septum and the greater portion of the anterior portion of the left ventricle. The LCx supplies blood to the lateral wall of the left ventricle and sometimes to the posterior inferior aspect of the heart when there is left heart dominance.
- **Option D:** There are numerous normal physiological coronary artery variances. Starting with coronary dominance, the PDA in 70% of patients arises from the right coronary artery (known as right dominance); in about 10% of cases, a branch from the LCx supplies the inferior segment of the heart (known as left dominance). In about 20% of cases, there is dual supply from both the right coronary artery and the LCx (known as codominance).