Does practice make perfect? The bestselling book by Malcolm Gladwell, *Outliers: The Story of Success*\(^1\) states that innate talent, IQ, and physical ability all play a role in rising to the top in the arts, academia, and sports. But what really separates the stars from the rest is practice, practice, and more practice. In *Outliers*, Gladwell cites examples of the Beatles, Bill Gates, Steve Jobs, and various successful athletes. Obviously, these individuals had the required prerequisites to succeed in their fields, but it was their deliberate and focused practice that allowed them to rise above all the others with the same talents. Most registered nurses would probably say that practice questions helped them succeed at their licensing exams. The same is true for certification exam preparation. The nurses who meet the eligibility requirements to sit for a certification exam most likely have the prerequisites to succeed. It is the application and integration of that knowledge, the critical thinking skills, and yes the focused deliberate practice that helps to prepare a nurse for exam success. One way to get deliberate practice is by using practice questions to challenge your knowledge and hone your test-taking skills.

This new regular column features practice questions for the bedside clinical certification exams for acute and critical care nurses. Those certifications are CCRN; the CCRN for eICU nurses (CCRN/E); pediatric ICU (CCRN/P); neonatal ICU (CCRN/N); progressive care (PCCN); and the 2 subspecialty certifications, cardiac surgery (CSC) and cardiac medicine (CMC). The practice questions are each followed by the correct answer and a detailed discussion of rationale with references for the acute and critical care nurses to learn from and expand their knowledge and practice. This column will benefit those nurses preparing to sit for one of the certification exams and will also serve as an excellent review and challenge for certified nurses.

Reference
**Adult CCRN and CCRN/E Practice Questions**

1. A patient has experienced an acute ischemic stroke. Intravenous (IV) tissue plasminogen activator (tPA) and labetalol have been ordered. The patient’s last blood pressure (BP) was 190/100 mm Hg. Which action should be first?
   A. Administer the tPA IV dose because there is only 10 minutes in the treatment window
   B. Administer the tPA IV dose and labetalol IV at the same time
   C. Start IV nitroprusside to reduce the BP
   D. Administer the IV labetalol to reduce the BP before administering the tPA

   **Correct Response Is D**

   **Rationale:** If the BP is greater than 185/110 mm Hg, then tPA should not be administered. The BP must be lowered first, then the tPA can be administered if there has been a reduction in the BP to below threshold. Administering the tPA IV and/or the labetalol is not correct because the BP must be controlled before the tPA is administered. Starting nitroprusside might reduce the BP too precipitously and can lead to increased intracranial pressure. Labetalol and nicardipine are the 2 preferred agents used to reduce BP in acute stroke.

   **Sources**

   Test plan topic: Neuro, 12% of the CCRN questions

2. A patient is admitted to the intensive care unit (ICU) with photophobia, a stiff neck, a temperature of 103°F (39.5°C), malaise, and purple blotches primarily located on the trunk. BP is 85/50 mm Hg, heart rate (HR) 140/min, and respiratory rate (RR) 28/min. Cultures have been done but no results are available. What is the most likely causative agent in this patient?
   A. Lyme disease
   B. Herpes simplex encephalitis
   C. Neisseria meningitidis
   D. Guillain-Barré syndrome

   **Correct Response Is C**

   **Rationale:** Infection with *Neisseria meningitidis* causes signs of meningeal irritation (stiff neck/photophobia) and classic purple blotches on the trunk. Lyme disease may cause a viral encephalitis that manifests as a bull’s-eye rash at the skin site of the tick bite and malaise. It is not accompanied by purple blotches. Patients with herpes simplex encephalitis experience headache, fever, and malaise but also exhibit personality changes and seizures. Guillain-Barré syndrome manifests as ascending weakness accompanied by sensory loss and cranial nerve dysfunction.

   **Sources**

   Test plan topic: Neuro, 12% of the CCRN questions

3. An intubated patient is beginning to wake up in the ICU immediately after surgery. The ventilator settings are assist control at a rate of 14 breaths per minute, tidal volume (TV) 450 mL, fraction of inspired oxygen (FiO2) 0.60, positive end-expiratory pressure (PEEP) 5 cm H2O. Current RR is 36/min; arterial blood gas (ABG) values are PaO2 170 mm Hg, PaCO2 28 mm Hg, pH 7.50, and HCO3⁻ 24 mmol/L. What changes in the ventilator settings should the nurse anticipate?
   A. No changes to the settings, administer an antianxiety agent
   B. Decrease the FiO2, consider pain and/or antianxiety medication
   C. Decrease the TV and increase the PEEP
   D. Change to pressure control and decrease the FiO2

   **Correct Response Is B**

   **Rationale:** The interpretation of the ABG values is hyperoxegenation and hyperventilation. Awakening postoperative patients might be experiencing fear, anxiety, and/or pain—all of which could lead to hyperventilation. Decreasing the FiO2 will help to treat the hyperoxegenation, and assessing the patient to determine the need for...
an anti-anxiety or pain medication will help to treat the hyperventilation. At the least, the FIO₂ needs to be decreased (A). With the PaO₂ high, there is no need to increase the PEEP (C). Changing to pressure control from assist control is typically done because of a restrictive lung problem, not hyperventilation (D).

**Sources**

Test plan topic: Pulmonary, 18% of the CCRN questions

4. Which nursing care actions have the greatest potential for decreasing occurrence of ventilator-associated pneumonia (VAP)?
   A. Head of bed (HOB) at 15° and stress ulcer prophylaxis
   B. HOB at least 30° and frequent oral care
   C. Turning every 2 hours with endotracheal suctioning
   D. Daily change in endotracheal tube position and prophylaxis of deep vein thrombosis

**Correct Response Is B**
Rationale: The actions that have the greatest potential for decreasing VAP are keeping the HOB elevated at least 30°, frequent mouth care, administration of a proton pump inhibitor, removal of the artificial airway as soon as possible, washing hands, and stress ulcer prophylaxis.

**Sources**

Test plan topic: Pulmonary, 18% of the CCRN questions

5. The nurse would expect a diagnosis of large-bowel obstruction when the patient’s assessment findings include which of the following?
   A. High-pitched bowel sounds, nausea and vomiting, acute pain
   B. Ascites, rebound tenderness, jaundice
   C. Low-grade fever, steatorrhea, no bowel sounds
   D. Lower abdominal pain, distention, no vomiting

**Correct response Is D**
Rationale: Large-bowel obstructions typically produce lower abdominal discomfort or pressure, and bowel distention without vomiting or diarrhea. Option A describes the typical signs and symptoms of a small-bowel obstruction. Option B suggests liver failure and C might be evidence of pancreatitis.

**Source**

Test plan topic: Gastrointestinal, 6% of the CCRN questions

Cardiac Surgery Certification Practice Questions

1. One hour after surgery, a coronary artery bypass graft (CABG) patient starts to wake up and the mixed venous oxygen saturation (Sv–O₂) decreases from 60% to 45%. The change is most likely the result of which of the following?
   A. Increase in oxygen consumption
   B. Increase in hemoglobin
   C. Increase in cardiac output
   D. Increase in arterial saturation

**Correct Response Is A**
Rationale: Sv–O₂ represents the oxygenation at the tissue level. The value reflects the tissue oxygen delivery and consumption. Four factors influence Sv–O₂: hemoglobin, cardiac output, arterial saturation, and oxygen consumption. An increase in oxygen consumption will extract more oxygen at the tissue level and decrease the Sv–O₂. Oxygen consumption could be increased by pain, shivering, or exercise. A decrease in oxygen consumption will provide more oxygen to the tissue level and increase the Sv–O₂. Oxygen consumption might be reduced by hypothermia or anesthesia.

**Source**

2. In addition to a decreasing BP, which of the following assessment findings is consistent with cardiac tamponade?
   A. Urine output of 42 to 50 mL/h
   B. Central venous pressure (CVP) of 11 to 20 mm Hg
   C. Cardiac output 4.0 to 5.1 L/min
   D. Sv–O₂ 58% to 65%

**Source**
Correct Response Is B

Rationale: The accumulation of fluid around the heart compresses the atria, causing elevated right atrial filling pressures. The decreased cardiac output leads to hypoperfusion of the kidney, resulting in a sudden decrease in urine output or oliguria. The compression of the atria constricts venous return to the heart, leading to a decreased cardiac output. The decreased cardiac output and low hemoglobin level due to the bleeding lead to decreased $Sv-O_2$.

Source
Harden S, Kaplow R. Cardiac Surgery Essentials for Critical Care Nursing. Sudbury, MA: Jones and Bartlett; 2010.

3. After CABG, a patient weighing 70 kg and receiving mechanical ventilation has orders to be weaned and extubated when stable. Which parameter indicates the patient is ready to extubate?
A. RR 28/min
B. Vital capacity (VC) 500 mL
C. Able to sustain a head lift for at least 5 seconds
D. Minute volume 12 L

Correct Response Is C

Rationale: Parameters for readiness to wean are negative inspiratory pressure (NIP) > -25 cm H$_2$O, RR <25/min, HR <140/min, minute volume <10 L, VC >10 to 15 mL/kg. This patient’s RR needs to be <25/min; VC, 700 to 1050 mL/kg; and minute volume, <10 L. Adequate respiratory muscle strength is indicated by the ability to sustain a head lift for at least 5 seconds.

Source
Harden S, Kaplow R. Cardiac Surgery Essentials for Critical Care Nursing. Sudbury, MA: Jones and Bartlett; 2010.

4. Which of the following assessment findings is a contraindication to extubation?
A. Chest tube bleeding less than 50 mL/h
B. Chronic atrial fibrillation
C. Labile/fluctuating blood pressure
D. Minimal vasoactive support

Correct Response Is C

Rationale: Criteria for extubation include hemodynamic stability and neurologic and respiratory readiness.

Source
Harden S, Kaplow R. Cardiac Surgery Essentials for Critical Care Nursing. Sudbury, MA: Jones and Bartlett; 2010.

5. The following hemodynamic profile is noted upon admission in a postoperative CABG patient: BP, 91/38 mm Hg; mean arterial pressure (MAP), 58 mm Hg; HR, 108/min; core temperature, 36.5°C; pulmonary arterial pressure (PAP), 20/12 mm Hg; CVP, 6 mm Hg; $Sv-O_2$, 59%; cardiac output, 3.6 L/min; cardiac index, 1.8; systemic vascular resistance, 1006 dyne · sec · cm$^{-5}$; stroke volume, 33 mL; pulse oximetry ($Sp-O_2$), 93% saturation; urine and chest tube output both 100 mL in the past hour; and hemoglobin level is 10 g/dL. The nurse should first do which of the following?
A. Continue with admission procedure (catheters, chest radiographs, laboratory values)—no treatment needed at this point
B. Administer fluid because the patient is hypovolemic
C. Administer calcium chloride to increase contractility
D. Start dopamine to increase BP and contractility

Correct Response Is B

Rationale: Hypovolemia is noted by the low stroke volume, low CVP, and low pulmonary artery diastolic pressure, cardiac output, and cardiac index. The CVP and pulmonary artery diastolic pressure would be high if the patient needed an intervention to increase contractility.

Source
Harden S, Kaplow R. Cardiac Surgery Essentials for Critical Care Nursing. Sudbury, MA: Jones and Bartlett; 2010.

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