

# Intensive Care Medicine (ICM) Practice Exam Sample Study Guide



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## **Questions**

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- 1. In sepsis management, what is crucial for timely resuscitation according to EGDT principles?**
  - A. Delaying interventions until lab results are available**
  - B. Using broad-spectrum antibiotics only**
  - C. Early identification and resuscitation measures**
  - D. Liberal fluid administration without monitoring**
- 2. Why is the patient's arm selection crucial for blood pressure measurement?**
  - A. I.V. cannula on forearm**
  - B. Recent smoking**
  - C. Previous axillary lymph node removal**
  - D. Arteriovenous fistula**
- 3. Which examination finding is uncommon in patients with gonorrhea?**
  - A. Tender lymphadenopathy**
  - B. Curable discharge**
  - C. Joint pain**
  - D. Hematuria**
- 4. In the context of cardiogenic shock, which medication might be used with caution?**
  - A. Oxygen therapy**
  - B. Diuretics**
  - C. Vasopressors**
  - D. Antipyretics**
- 5. In the context of pneumonia diagnoses, which of the following is most commonly associated with young military recruits?**
  - A. Legionnaire's disease**
  - B. Mycoplasma pneumonia**
  - C. Aspiration pneumonia**
  - D. Streptococcus pneumonia**

- 6. Which of the following is not a common finding of cardiogenic pulmonary edema?**
- A. Frothy sputum**
  - B. Tachypnea**
  - C. Lobar consolidation**
  - D. Cough**
- 7. Which of the following methods can be used to enlarge a vein before drawing blood?**
- A. Applying ice to the area**
  - B. Lowering the limb**
  - C. Holding the breath**
  - D. Elevating the limb**
- 8. Which imaging study is often utilized for evaluating patients with suspected pericardial effusion?**
- A. Chest X-ray**
  - B. CT scan**
  - C. Ultrasound**
  - D. MRI**
- 9. What is a potential systemic complication of infusion therapy?**
- A. Infiltration**
  - B. Phlebitis**
  - C. Speedshock**
  - D. Extravasation**
- 10. This chest X-ray represents the late phase of which condition?**
- A. Acute respiratory distress syndrome**
  - B. Pneumonia**
  - C. Tuberculosis**
  - D. Drowning**

## **Answers**

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1. C
2. A
3. B
4. B
5. B
6. A
7. B
8. C
9. C
10. A

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## **Explanations**

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**1. In sepsis management, what is crucial for timely resuscitation according to EGDT principles?**

- A. Delaying interventions until lab results are available**
- B. Using broad-spectrum antibiotics only**
- C. Early identification and resuscitation measures**
- D. Liberal fluid administration without monitoring**

Timely resuscitation is crucial in the management of sepsis, and the principles of Early Goal-Directed Therapy (EGDT) underscore the importance of early identification and immediate resuscitation measures. Sepsis can lead to rapid deterioration, and prompt intervention can significantly improve patient outcomes. The EGDT framework advocates for the early recognition of sepsis and the initiation of various resuscitation efforts, including fluid administration, use of vasopressors, and early initiation of antibiotic therapy. Early identification refers to recognizing the signs and symptoms of sepsis soon after they manifest, which allows for the immediate initiation of treatment protocols. This proactive approach helps to restore hemodynamic stability, improve tissue perfusion, and ultimately reduce mortality rates associated with septic shock. The emphasis on timely interventions aligns with the understanding that sepsis is a medical emergency requiring swift action. In contrast, delaying interventions until lab results are available could postpone crucial treatments, potentially worsening the patient's condition. Relying solely on broad-spectrum antibiotics without addressing other aspects of resuscitation may not adequately address the patient's hemodynamic needs. Additionally, liberal fluid administration without monitoring can lead to fluid overload, which can adversely affect patients, especially those with underlying heart or kidney issues. Thus,

**2. Why is the patient's arm selection crucial for blood pressure measurement?**

- A. I.V. cannula on forearm**
- B. Recent smoking**
- C. Previous axillary lymph node removal**
- D. Arteriovenous fistula**

The selection of a patient's arm for blood pressure measurement is of utmost importance because it can significantly influence the accuracy of the readings obtained. In this scenario, the presence of an intravenous (IV) cannula in the forearm is a critical factor. When an IV cannula is in place, it can affect the blood flow in the arm, leading to potentially elevated or artificially low blood pressure readings due to the introduction of fluid or medication directly into the circulation. It may also cause discomfort or complications if the blood pressure cuff is inflated over the site of the IV. Therefore, choosing an arm without an IV cannula ensures that the measurement is taken in a location unaffected by these external influences, making the reading more reliable. Other factors, such as recent smoking or previous axillary lymph node removal, while they may affect blood pressure indirectly, do not have the same immediate and clear implications for the accuracy of the measurement. Additionally, an arteriovenous fistula is primarily relevant in patients undergoing hemodialysis and can also impact blood flow and reading accuracy, but the interference from an IV cannula is more direct and immediate in clinical settings.

**3. Which examination finding is uncommon in patients with gonorrhea?**

- A. Tender lymphadenopathy**
- B. Curable discharge**
- C. Joint pain**
- D. Hematuria**

In patients with gonorrhea, the examination finding that is uncommon is purulent discharge. Gonorrhea typically presents with a purulent or mucopurulent discharge from the urethra in men and can also cause cervicitis in women, leading to vaginal discharge. However, this finding can vary, and some patients may not exhibit noticeable discharge. In contrast, tender lymphadenopathy, joint pain, and hematuria can occur in the context of disseminated gonococcal infection. Tender lymphadenopathy might result from the body's immune response to the primary infection, whereas joint pain can signify septic arthritis, a complication of gonorrheal infection. Hematuria, although less common, can occur if the infection spreads to the urinary tract. Understanding the clinical manifestations of gonorrhea helps in recognizing the varying presentations and potential complications associated with the infection, emphasizing that purulent discharge is a commonly noted feature rather than uncommon.

**4. In the context of cardiogenic shock, which medication might be used with caution?**

- A. Oxygen therapy**
- B. Diuretics**
- C. Vasopressors**
- D. Antipyretics**

In the management of cardiogenic shock, diuretics may indeed be used with caution, primarily due to their effects on intravascular volume and hemodynamics. In this condition, the heart's ability to pump effectively is compromised, leading to a decrease in cardiac output and potential organ hypoperfusion. Administering diuretics can lead to volume depletion, which may worsen the patient's hemodynamic status by further reducing preload and cardiac output. While diuretics are often necessary in managing fluid overload states, their use must be carefully balanced to avoid hypotension, especially in patients who are already hemodynamically unstable. Close monitoring is essential to ensure that the patient's fluid status is managed appropriately without sacrificing vital organ perfusion. In contrast, oxygen therapy is generally beneficial as it ensures adequate oxygen delivery to tissues, while vasopressors can help maintain blood pressure and improve perfusion in shock states. Antipyretics serve a different purpose, typically aimed at controlling fever rather than directly impacting hemodynamics. Understanding the nuances of these medications helps in providing optimal care for patients in cardiogenic shock.

**5. In the context of pneumonia diagnoses, which of the following is most commonly associated with young military recruits?**

- A. Legionnaire's disease**
- B. Mycoplasma pneumonia**
- C. Aspiration pneumonia**
- D. Streptococcus pneumonia**

Mycoplasma pneumonia is indeed the most commonly associated form of pneumonia among young military recruits. This association can be largely attributed to the crowded living conditions and increased physical stressors that are typical in military training environments, which facilitate the transmission of respiratory infections. Mycoplasma pneumonia, caused by the Mycoplasma pneumoniae bacterium, is frequently seen in younger populations, including those in communal settings such as barracks or dormitories. It tends to present with atypical symptoms, including a gradual onset of a persistent cough and mild fever, making it somewhat different from typical bacterial pneumonias. The other types of pneumonia mentioned, while important, do not have the same level of prevalence in this specific demographic. For instance, Legionnaire's disease is more commonly linked to contaminated water sources and poorly maintained cooling systems rather than human-to-human transmission in a close quarters setting. Aspiration pneumonia typically occurs in individuals who have swallowing difficulties, often seen in older adults or those with underlying health issues. Streptococcus pneumonia is a common cause of pneumonia in the general population but is less specifically associated with the young military recruit demographic, where Mycoplasma pneumonia is more prevalent.

**6. Which of the following is not a common finding of cardiogenic pulmonary edema?**

- A. Frothy sputum**
- B. Tachypnea**
- C. Lobar consolidation**
- D. Cough**

Frothy sputum is typically associated with cardiogenic pulmonary edema and indicates the presence of fluid in the alveoli due to congestive heart failure. It is characterized by a pink, frothy appearance because it contains a mixture of air and fluid, often resembling foam. The presence of frothy sputum illustrates the severity of pulmonary congestion and reflects impaired gas exchange. Tachypnea, or rapid breathing, is a common response to the impaired oxygenation resulting from fluid in the lungs. Patients with cardiogenic pulmonary edema often exhibit increased respiratory rates due to hypoxemia and the discomfort caused by pulmonary congestion. Cough is also a typical symptom in patients with cardiogenic pulmonary edema, as the accumulation of fluid can irritate the airways, prompting a cough reflex. This symptom may accompany the frothy sputum as the body attempts to clear the excess fluid. Lobar consolidation, typically seen in pneumonia, is not a finding directly associated with cardiogenic pulmonary edema. In cardiogenic pulmonary edema, the fluid typically causes diffuse bilateral infiltrates rather than localized lobar consolidation. Thus, this option does not align with the common findings seen in cardiogenic pulmonary edema.

**7. Which of the following methods can be used to enlarge a vein before drawing blood?**

**A. Applying ice to the area**

**B. Lowering the limb**

**C. Holding the breath**

**D. Elevating the limb**

Lowering the limb is an effective method to enlarge a vein before drawing blood because it increases venous filling. When the limb is lowered, gravity assists in pooling blood in the veins, thereby making them more engorged and prominent. This can facilitate easier access for venipuncture. In contrast, other methods are either not effective or not appropriate in this context. While applying ice may constrict blood vessels, holding the breath can create tension that may not contribute to vein visibility. Elevating the limb can lead to decreased blood return to the area, making veins less prominent. Therefore, lowering the limb is the most effective and commonly utilized method to enhance vein visibility for blood draws.

**8. Which imaging study is often utilized for evaluating patients with suspected pericardial effusion?**

**A. Chest X-ray**

**B. CT scan**

**C. Ultrasound**

**D. MRI**

The utilization of ultrasound for evaluating patients with suspected pericardial effusion is highly effective due to its non-invasive nature and ability to provide real-time imaging. Ultrasound is particularly valuable because it can accurately visualize the pericardial space and detect fluid accumulation around the heart. This modality allows for the assessment of the size, amount, and even the characteristics of the effusion, helping to determine its clinical significance. Additionally, ultrasound can be performed at the bedside, making it an ideal choice in critical care settings where rapid diagnosis is essential. It does not involve radiation exposure, which is advantageous, especially in younger patients or those requiring multiple follow-up examinations. While options such as chest X-ray, CT scan, and MRI have their roles in cardiac imaging, they are not the primary tools for evaluating pericardial effusion. Chest X-rays can indicate the presence of an effusion but lack sensitivity for small amounts of fluid. CT scans offer detailed images of the thoracic structures but are less practical for real-time assessment and often require transport of the patient. MRI may provide exquisite detail but is typically reserved for specific cases where other modalities do not provide enough information and is less accessible in emergency situations. In summary, ultrasound stands out as

**9. What is a potential systemic complication of infusion therapy?**

- A. Infiltration**
- B. Phlebitis**
- C. Speedshock**
- D. Extravasation**

Infusion therapy, while essential in various medical treatments, carries the risk of several systemic complications. Speed shock is a specific reaction that occurs when a substance is administered too rapidly into the bloodstream, which can lead to significant cardiovascular complications such as hypotension, increased heart rate, and potential collapse. This occurs because the body is unable to effectively manage the sudden influx of the medication or fluid, overwhelming the circulatory system. To provide context for the other options, infiltration refers to the inadvertent administration of a non-vesicant solution into the surrounding tissue rather than into the vein, leading to localized swelling and pain. Phlebitis involves inflammation of the vein due to chemical or mechanical irritation, which is more localized in nature. Extravasation is the infiltration of a vesicant (a substance that can cause tissue damage) into the surrounding tissue, which can also lead to more serious localized effects but does not have the systemic impact that speed shock does. In contrast, speed shock represents a more generalized systemic response to the infusion therapy and is thus identified as the potential systemic complication in this context.

**10. This chest X-ray represents the late phase of which condition?**

- A. Acute respiratory distress syndrome**
- B. Pneumonia**
- C. Tuberculosis**
- D. Drowning**

The late phase of acute respiratory distress syndrome (ARDS) is characterized by specific radiological findings that can be identified on chest X-ray. In this phase, there is often a bilateral, diffuse opacification seen as a result of pulmonary edema and atelectasis. The lungs appear "white-out" or have a ground-glass appearance due to the accumulation of fluid in the alveoli, which is a hallmark of ARDS. In the context of ARDS, these radiological changes typically evolve as the condition progresses. Early in ARDS, the lung opacities may be more localized and less severe, but as the syndrome advances, the extent of the lung involvement increases. The persistence of these findings, even with treatment, underscores the severity and complications associated with ARDS. The other conditions mentioned can also show specific changes on a chest X-ray, but they do not present in the same diffuse and severe manner as ARDS in its late phase. Pneumonia often shows localized consolidation rather than widespread opacification. Tuberculosis can present with cavitory lesions or nodular infiltrates, while drowning typically would show evidence of pulmonary edema but does not fit the classic "white-out" pattern associated with ARDS in its late stage. Thus