

PSEA MEDICAL DIAGNOSTIC SONOGRAPHY PRACTICE TEST (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. Which small organ is commonly imaged with ultrasound to evaluate nodules for malignancy risk?**
 - A. Thyroid gland
 - B. Spleen
 - C. Pancreas
 - D. Adrenal gland

- 2. If the imaging depth doubles while the speed of sound remains constant, what happens to the round-trip echo time?**
 - A. It remains the same
 - B. It halves
 - C. It doubles
 - D. It quadruples

- 3. Why is gel used during an ultrasound exam?**
 - A. To disinfect the skin
 - B. To heat the transducer
 - C. To reduce air gaps and improve sound transmission
 - D. To lubricate the skin for comfort

- 4. In practice, what does the ALARA principle emphasize during an ultrasound examination?**
 - A. Use the lowest practical power and shortest exam time
 - B. ALARA is not relevant to ultrasound
 - C. Always use contrast agents
 - D. Use the highest power to obtain image quickly

- 5. What plane is most often used to obtain an apical view of the fetal heart?**
 - A. Apical four-chamber view
 - B. Subcostal long-axis view
 - C. Midsagittal plane
 - D. Transventricular short-axis view

- 6. Which ultrasound finding most specifically indicates hydronephrosis?**
- A. Dilatation of the renal pelvis and calyces
 - B. Thickened renal cortex
 - C. Renal stone in the ureter
 - D. Perinephric fat stranding
- 7. What is the normal upper limit of gallbladder wall thickness in adults?**
- A. Less than 3 millimeters
 - B. Less than 5 millimeters
 - C. Less than 2 millimeters
 - D. Less than 4 millimeters
- 8. Which ultrasound type is used to evaluate arteries and veins, including carotid and leg veins for DVT checks?**
- A. Vascular ultrasound
 - B. Thyroid and neck ultrasound
 - C. Interventional and procedural guidance
 - D. Transcranial & Neurosonography
- 9. Which type of probe is best for imaging superficial structures such as the thyroid?**
- A. High-frequency probe (7-12 MHz)
 - B. Low-frequency probe (2-5 MHz)
 - C. Microfrequency probe (0.5-1 MHz)
 - D. Ultra-high frequency probe (12-20 MHz)
- 10. The suffix '-itis' refers to what condition?**
- A. Inflammation
 - B. Infection
 - C. Pain
 - D. Growth

Answers

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

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Explanations

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1. Which small organ is commonly imaged with ultrasound to evaluate nodules for malignancy risk?

- A. Thyroid gland**
- B. Spleen
- C. Pancreas
- D. Adrenal gland

When assessing nodules for cancer risk, high-resolution ultrasound of a small organ provides the most useful information for risk stratification and guiding biopsy decisions. In the thyroid gland, ultrasound can reveal features that correlate with malignancy probability, such as microcalcifications, irregular or spiculated margins, marked hypoechogenicity, a taller-than-wide shape, solid composition, and the absence of a hypoechoic halo. These characteristics are integrated into standardized risk systems to decide which nodules should undergo fine-needle aspiration. Other organs like the spleen, pancreas, and adrenal gland can harbor nodules, but ultrasound is not used as the primary, standardized method to assess malignancy risk for nodules in those organs; evaluation often relies on additional imaging modalities or functional tests. So the thyroid gland is the organ most commonly imaged with ultrasound for evaluating malignancy risk in nodules.

2. If the imaging depth doubles while the speed of sound remains constant, what happens to the round-trip echo time?

- A. It remains the same
- B. It halves
- C. It doubles**
- D. It quadruples

When the speed of sound is constant, the echo time equals the round-trip distance divided by that speed. The round-trip distance is twice the imaging depth. If the depth doubles from d to $2d$, the round-trip distance goes from $2d$ to $4d$. Since speed stays the same, $\text{time} = \text{distance}/\text{speed}$ also doubles (from $2d/v$ to $4d/v$). So the round-trip echo time becomes twice as long.

3. Why is gel used during an ultrasound exam?

- A. To disinfect the skin
- B. To heat the transducer
- C. To reduce air gaps and improve sound transmission**
- D. To lubricate the skin for comfort

Ultrasound needs a sound-coupling medium to bridge the space between the transducer and the skin. Air is a poor transmitter and creates reflections that block the sound waves, leading to a washed-out image. The gel is a water-based medium that fills microscopic gaps and matches the acoustic properties between the skin and the transducer, so the sound waves can enter the body and return with fewer losses. This coupling dramatically improves image quality and depth resolution. While the gel also helps the operator move the probe smoothly and feels comfortable, its primary purpose is to enhance sound transmission, not disinfection or heating.

4. In practice, what does the ALARA principle emphasize during an ultrasound examination?

- A. Use the lowest practical power and shortest exam time
- B. ALARA is not relevant to ultrasound
- C. Always use contrast agents
- D. Use the highest power to obtain image quickly**

ALARA in ultrasound means delivering as little energy as possible while still obtaining a diagnostic answer. In practice, this means using the lowest output power that provides acceptable image quality and keeping the examination time to what is truly necessary. By minimizing energy delivery, you reduce tissue heating and other potential effects, prioritizing patient safety without sacrificing diagnostic value. Choosing the highest power to grab images quickly would increase energy exposure, which goes against the aim of ALARA. The idea isn't that safety isn't relevant, and it isn't about using contrast by default; it's about adjusting settings to minimize energy while still achieving a clear study.

5. What plane is most often used to obtain an apical view of the fetal heart?

- A. Apical four-chamber view**
- B. Subcostal long-axis view
- C. Midsagittal plane
- D. Transventricular short-axis view

The apical four-chamber plane provides a direct, comprehensive view of all four heart chambers from the apex toward the base, which is why it's the best choice for obtaining an apical view of the fetal heart. This window shows the right and left atria and ventricles simultaneously, along with the interventricular and atrioventricular septa and the valves, allowing assessment of chamber size, wall motion, and valve function in one image. Other planes focus on different parts of the heart or slice through fewer chambers—long-axis views emphasize the heart's length and great vessels, midsagittal is not specific to the heart's four-chamber anatomy, and short-axis cuts through the ventricles don't display all four chambers together. Hence, the apical four-chamber view is most routinely used.

6. Which ultrasound finding most specifically indicates hydronephrosis?

- A. Dilatation of the renal pelvis and calyces**
- B. Thickened renal cortex
- C. Renal stone in the ureter
- D. Perinephric fat stranding

Hydronephrosis is the dilation of the kidney's collecting system caused by obstruction to urine flow. The most specific ultrasound sign is dilatation of the renal pelvis and calyces, because this directly reflects back-pressure and urine buildup in the pelvicalyceal system. On ultrasound this appears as an enlarged, fluid-filled pelvis and calyces, often with thinning of the surrounding cortex in more severe cases. Thickened renal cortex points to parenchymal disease rather than collecting-system dilation. A renal stone in the ureter may indicate a potential cause of obstruction, but it is not the sign that confirms hydronephrosis itself. Perinephric fat stranding signals inflammation or infection around the kidney, not hydronephrosis.

7. What is the normal upper limit of gallbladder wall thickness in adults?

- A. Less than 3 millimeters**
- B. Less than 5 millimeters
- C. Less than 2 millimeters
- D. Less than 4 millimeters

The measurement being tested is the normal gallbladder wall thickness on ultrasound. In a healthy adult, the wall should be very thin, with an upper limit of less than 3 millimeters. This thickness is measured from the inner mucosa-lumen interface to the outer serosa, usually on a fasting patient to avoid misreading from a full, distended gallbladder. When the wall thickens beyond about 3 mm, it points toward inflammation such as cholecystitis or other causes of edema. So the option describing less than 3 millimeters is the best choice. Values like 2 millimeters are still normal, while 4 or 5 millimeters would indicate thickening and potential pathology.

8. Which ultrasound type is used to evaluate arteries and veins, including carotid and leg veins for DVT checks?

- A. Vascular ultrasound**
- B. Thyroid and neck ultrasound
- C. Interventional and procedural guidance
- D. Transcranial & Neurosonography

Vascular ultrasound is the imaging modality designed to examine blood vessels, using both grayscale anatomy and Doppler flow to assess how blood moves and whether vessels are open or blocked. It's used for arteries and veins alike, including the carotid arteries in the neck and the leg veins when checking for deep vein thrombosis. The technique combines B-mode imaging to see the vessel walls and lumen with Doppler to evaluate flow velocity and direction, helping identify stenosis, occlusion, or clots. In DVT checks, a common approach is venous compression with Doppler to see if veins collapse under pressure—noncompressible veins suggest a clot. For carotid studies, the focus is on the vessel walls and lumen to detect plaque and narrowing. The other options target different regions or purposes: thyroid and neck ultrasound concentrates on thyroid and neck structures; interventional and procedural guidance supports needle or catheter placement; transcranial & neurosonography looks at brain-related vessels.

9. Which type of probe is best for imaging superficial structures such as the thyroid?

- A. High-frequency probe (7-12 MHz)**
- B. Low-frequency probe (2-5 MHz)
- C. Microfrequency probe (0.5-1 MHz)
- D. Ultra-high frequency probe (12-20 MHz)

Higher frequency ultrasound provides the best resolution. The thyroid lies just under the skin, so you don't need deep penetration; you want to see small details like nodules and tissue planes clearly. A probe in the 7–12 MHz range offers excellent focal detail for the superficial neck structures while still reaching typical neck depths in adults. Lower-frequency probes penetrate deeper but blur small features, making them less suitable for thyroid imaging. While an ultra-high frequency probe could give even more detail, its limited depth and field of view often restrict its usefulness for neck imaging. Hence, using a high-frequency probe around 7–12 MHz is the most effective choice for the thyroid.

10. The suffix '-itis' refers to what condition?

A. Inflammation

B. Infection

C. Pain

D. Growth

In medical terminology, the suffix -itis signals inflammation of the body part that comes before it. That's why dermatitis is inflammation of the skin, appendicitis is inflammation of the appendix, and tonsillitis is inflammation of the tonsils. This is the best answer because -itis specifically denotes an inflammatory condition. The other ideas refer to different concepts: infection isn't a standard suffix in this naming pattern, -algia means pain, and -oma means a growth or tumor. It's also worth noting that while infections can cause inflammation, the suffix itself simply denotes inflammation.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://pseameddiagnosticsonography.examzify.com>

We wish you the very best on your exam journey. You've got this!

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