

MULTIPLE CHOICE

AE WINDOWS AND MEASUREMENTS - PRACTICE SET - ANSWER KEY

PROPOSED FOR REVIEW - questions are the author's verbatim Q&A; distractors are auto-selected from other answers in the same bank and must be checked by a subject-matter reviewer (a distractor could coincidentally be correct). Not authoritative assessment content.

1. On a standard M-mode through the left ventricle, the LV internal diameter in diastole (LVIDd) is measured at which point of the cardiac cycle?

- A. At the peak of the T wave
- B. At the end of the P wave
- C. At the nadir of the septal motion
- D. At the onset of the QRS complex**

2. Which view is best suited for measuring the tricuspid annular plane systolic excursion (TAPSE) by M-mode?

- A. Parasternal long-axis with the cursor through the tricuspid valve
- B. Apical four-chamber view with the M-mode cursor through the lateral tricuspid annulus**
- C. Subcostal four-chamber with the cursor through the septal annulus
- D. Parasternal short-axis at the aortic-valve level

3. The apical two-chamber view best displays which left ventricular walls?

- A. Septal and lateral walls
- B. Anterior and inferior walls**
- C. Anteroseptal and posterolateral walls
- D. Anterolateral and inferoseptal walls

4. A maximum left atrial volume index of 38 mL/m² in an adult should be classified as which of the following?

- A. Mildly enlarged**
- B. Moderately enlarged
- C. Severely enlarged
- D. Normal

5. At what level is the parasternal short-axis view used to obtain the standard M-mode measurement of left ventricular internal dimensions?

- A. At the level of the papillary muscles tips
- B. Just below the tips of the mitral valve leaflets (mid-ventricular level)**
- C. At the level of the LV apex
- D. At the level of the aortic valve

6. Which of the following best describes the patient position recommended for standard transthoracic adult echocardiography?

- A. Left lateral decubitus with the left arm raised**
- B. Right lateral decubitus with the right arm raised
- C. Prone with the head turned right
- D. Supine with both arms at the sides

7. To measure the LVOT diameter for stroke volume calculations, which view and timing are recommended?

- A. Parasternal short-axis at end-diastole, leading edge to leading edge
- B. Subcostal long-axis at end-systole, inner edge to inner edge
- C. Apical five-chamber at end-diastole, outer edge to outer edge
- D. Parasternal long-axis at mid-systole, inner edge to inner edge**

8. True or false: M-mode has higher temporal resolution than 2D imaging because it samples a single scan line at a much higher rate.

- A. False
- B. True**

9. On a parasternal long-axis M-mode through the aortic valve and left atrium, the normal aortic root and LA dimensions are typically measured at which phases of the cardiac cycle, respectively?

- A. End-systole for the aortic root; end-diastole for the LA
- B. End-systole for both
- C. End-diastole for the aortic root; end-systole for the LA**
- D. End-diastole for both

10. To align the Doppler beam with flow through the LV outflow tract and aortic valve, which view is generally optimal?

- A. Parasternal long-axis view
- B. Apical five-chamber view**
- C. Parasternal short-axis at the aortic valve
- D. Subcostal short-axis view

11. The suprasternal notch long-axis view is primarily used to evaluate which structure?

- A. Aortic arch and descending thoracic aorta**
- B. Coronary sinus
- C. Pulmonary veins entering the left atrium
- D. Left ventricular apex

12. Adding anterior angulation to the apical four-chamber view to bring the left ventricular outflow tract and aortic valve into the image creates which view?

- A. Apical two-chamber view
- B. Apical five-chamber view**
- C. Apical three-chamber (apical long-axis) view
- D. Subcostal four-chamber view

13. Which method is the currently recommended approach for quantifying left atrial size in routine adult echocardiography?

- A. M-mode through the aortic root
- B. Parasternal long-axis AP linear diameter alone
- C. Biplane LA volume indexed to body surface area**
- D. LA appendage diameter from TEE

14. From the parasternal long-axis (PLAX) view, which two valves are routinely visualized in the same image plane?

- A. Tricuspid and pulmonic valves
- B. Mitral and aortic valves**
- C. Mitral and tricuspid valves
- D. Aortic and pulmonic valves

15. Relative wall thickness (RWT) is calculated using which of the following formulas?

- A. $(2 \times \text{PWd}) / \text{LVIDd}$**
- B. $(\text{IVSd} + \text{PWd}) / \text{LVIDd}$, with no multiplier
- C. $\text{LVIDd} / (\text{IVSd} + \text{PWd})$
- D. $\text{PWd} / \text{LVIDd}$

16. A patient has a normal LV mass index but a relative wall thickness of 0.48. This pattern of LV geometry is best described as which of the following?

- A. Eccentric hypertrophy
- B. Normal geometry
- C. Concentric hypertrophy
- D. Concentric remodeling**

17. An IVC of 1.5 cm that collapses more than 50 percent with sniff corresponds to which estimated right atrial pressure category?

- A. Normal (approximately 3 mmHg)**
- B. Markedly high (greater than 20 mmHg)
- C. High (approximately 15 mmHg)
- D. Intermediate (approximately 8 mmHg)

18. Which view is preferred for measuring tricuspid regurgitation peak velocity to estimate pulmonary artery systolic pressure?

- A. Subcostal short-axis with color M-mode
- B. Apical four-chamber (or RV-focused) view with continuous-wave Doppler**
- C. Parasternal long-axis with pulsed-wave Doppler
- D. Suprasternal notch with continuous-wave Doppler

19. Which of the following is the approximate upper limit of normal for left atrial anteroposterior diameter measured from the parasternal long-axis view at end-systole in an adult?

- A. 5.5 cm
- B. 2.5 cm
- C. 4.0 cm**
- D. 7.0 cm

20. Which finding is consistent with a normal aortic root diameter measurement at the sinuses of Valsalva in an average-sized adult?

- A. 1.8 cm
- B. 3.4 cm**
- C. 4.5 cm
- D. 5.5 cm

21. Which of the following is the approximate upper limit of normal for LV internal diameter at end-diastole (LVIDd) indexed appropriately, in an average-sized adult male measured from PLAX?

- A. 7.5 cm
- B. 5.8 cm**
- C. 6.8 cm
- D. 3.5 cm

22. From which view is the inferior vena cava diameter and respiratory variation routinely measured for right atrial pressure estimation?

- A. Suprasternal notch view
- B. Apical four-chamber view
- C. Parasternal short-axis view
- D. Subcostal long-axis view**

23. Which artifact is most likely to be misinterpreted as a left atrial thrombus or mass when imaging from a standard parasternal long-axis view?

- A. Side-lobe artifact from the posterior aortic root**
- B. Mirror-image artifact from the diaphragm
- C. Reverberation from a calcified pericardium
- D. Range-ambiguity artifact at low PRF

24. Which of the following is the approximate upper limit of normal end-diastolic interventricular septal thickness in an adult male by 2D echocardiography?

- A. 1.0 cm**
- B. 2.0 cm
- C. 0.6 cm
- D. 1.5 cm

25. In a standard M-mode of the mitral valve, the rapid early diastolic opening point of the anterior leaflet is labeled which letter?

- A. D point
- B. C point
- C. A point
- D. E point**