



## Live Webinar: Digital Breast Tomosynthesis

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7:00-8:00 pm EDT

### SAM Questions, Rationales and References

1. The scroll bar on some manufacturer's digital breast tomosynthesis images contains more slices than the compression thickness displayed because:

- A. The breast is always thicker than the measurement.
- B. The breast is the same thickness as the measurement.
- C. The measurement allows for 5 mm of error.
- D. The breast is always thinner than the measurement.

**Correct answer: C**

Rationale: Industry standards allow for measurement of the breast to be accurate down to 5 mm. Therefore, 5 1mm extra reconstructed slices are added to the compression paddle side in some DBT systems to ensure that the entire breast is imaged.

Reference:

Berns EA, B.J., Barke LD, et al, *Digital Mammography Quality Control Manual*. Reston Va: American College of Radiology; 2016: p. 45.

2. Which of the following is the DICOM standard format for digital breast tomosynthesis?

- A. Breast Tomosynthesis Object (BTO)
- B. Secondary Capture Object (SCO)
- C. Digital Breast Tomosynthesis (DBT)
- D. Digital Breast Projection (DBP)

**Correct answer: A**

Rationale: DICOM standard for digital breast tomosynthesis is the breast tomosynthesis object (BTO). Other proprietary objects such as SCO are not viewable on all PACS.

Reference:

Integrating the Healthcare Enterprise. Digital breast tomosynthesis extension (DBT extension). *Rev. 1.3 - Trial Implementation*; 2016.

3. Reason for the scroll bar to indicate a different location than anticipated includes:

- A. Lateral lesions move higher on ML views compared to MLO views.
- B. Medial lesions move lower on ML views compared to MLO views.

- C. The nipple is not always in the center of the breast.
- D. Compression is greater in the posterior breast.

**Correct answer: C**

Rationale: The nipple can be located close to the compression paddle side or the detector side which will indicate a different location than the expected location. Identifying the center of the breast/nipple location will aid the reader in identifying the true location of a lesion.

Reference:

Friedewald SM, Young VA, Gupta D. *Lesion localization using the scroll bar on tomosynthesis: Why doesn't it always work?* Clin Imaging. 2017 Jul 29;47:57-64

4. Skin Calcifications can be in:

- A. The first three slices of the tomosynthesis scroll bar.
- B. The last three slices of the tomosynthesis scroll bar.
- C. On any slice within the scroll bar.
- D. All of the above.

**Correct answer: D**

Rationale: If the calcifications are located within the first or last three slices of the tomosynthesis stack, then one can assume the calcifications are within the skin. However, not all skin calcifications are located in the first or last three slices.

Reference: Friedewald, SM *Breast Tomosynthesis: Practical Considerations* Radiol Clin North Am. 2017 May;55(3):493-502

5. Motion can be detected on digital breast tomosynthesis by?

- A. "S" shape of biopsy clips or large calcifications on tomosynthesis reconstructed images
- B. Projection images moving in the nipple to chest wall direction
- C. Digital mammogram demonstrating blur
- D. A and B
- E. All of the above

**Correct answer: D**

Rationale: Tomosynthesis motion can only be detected on the digital breast tomosynthesis images or on the projection images. Digital mammogram blur only suggests motion on the 2D component of the examination.

Reference:

Baorui Ren, Yiheng Zhang, Chris Ruth, Andrew Smith, Loren Niklason, Zhong Tao, Zhenxue Jing, "Automatic patient motion detection in digital breast tomosynthesis", Proc. SPIE 7961, Medical Imaging 2011: Physics of Medical Imaging, 79615F (17 March 2011).