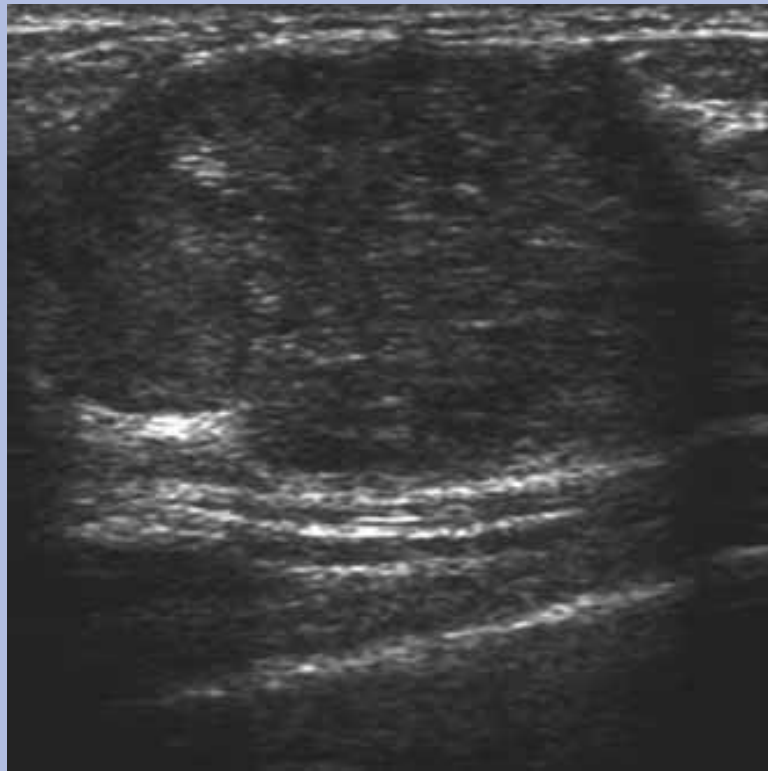


AIUM Practice Guideline for the Performance of a Breast Ultrasound Examination



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The American Institute of Ultrasound in Medicine (AIUM) is a multidisciplinary association dedicated to advancing the safe and effective use of ultrasound in medicine through professional and public education, research, development of guidelines, and accreditation. To promote this mission, the AIUM is pleased to publish, in collaboration with the American Society of Breast Surgeons (ASBS), this updated *AIUM Practice Guideline for the Performance of a Breast Ultrasound Examination*. We are indebted to the many volunteers who contributed their time, knowledge, and energy to bringing this document to completion.

The AIUM represents the entire range of clinical and basic science interests in medical diagnostic ultrasound, and, with hundreds of volunteers, the AIUM has promoted the safe and effective use of ultrasound in clinical medicine for more than 50 years. This document and others like it will continue to advance this mission.

Practice guidelines of the AIUM are intended to provide the medical ultrasound community with guidelines for the performance and recording of high-quality ultrasound examinations. The guidelines reflect what the AIUM considers the minimum criteria for a complete examination in each area but are not intended to establish a legal standard of care. AIUM-accredited practices are expected to generally follow the guidelines with recognition that deviations from these guidelines will be needed in some cases, depending on patient needs and available equipment. Practices are encouraged to go beyond the guidelines to provide additional service and information as needed by their referring physicians and patients.



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I. Introduction

This guideline has been developed to provide assistance to practitioners performing sonographic examinations of the breast. When sonography is used as guidance for interventional procedures or biopsy, guidelines that address those specific situations should be consulted.

II. Indications

Appropriate indications for breast sonography include:

1. Identification and characterization of palpable abnormalities and further evaluation of clinical and imaging findings.
2. Guidance for interventional procedures.
3. Evaluation of problems associated with breast implants.
4. Treatment planning for therapy.

Breast sonography is the initial imaging technique for evaluating palpable masses in women younger than 30 years and in lactating and pregnant women.

Although the efficacy of sonography as a screening study for occult masses is an area for research, at this time sonography is not considered a primary screening modality in other populations.

III. Qualifications and Responsibilities of Personnel

See the AIUM Official Statement *Training Guidelines for Physicians Who Evaluate and Interpret Diagnostic Ultrasound Examinations* and the *AIUM Standards and Guidelines for the Accreditation of Ultrasound Practices*.

IV. Written Request for the Examination

The written or electronic request for a sonogram should provide sufficient information to allow for appropriate performance and interpretation of the examination.

The request for the examination must be originated by a physician or other appropriately licensed health care provider or under their direction. The accompanying clinical information should be provided by a physician or other appropriate health care provider familiar with the patient's clinical situation and should be consistent with the relevant legal and local health care facility requirements.

V. Specifications of the Examination

A. Lesion Characterization and Technical Factors

1. The breast sonogram should be correlated with mammographic and other appropriate breast imaging studies as well as with a physical examination directed to the area in question. If sonography has been performed previously, the current examination should be compared with prior sonograms, as appropriate. A lesion or any area of the breast being studied should be viewed in 2 perpendicular projections; 1 view is insufficient.
2. At least 1 set of images of a lesion should be obtained without calipers. The maximal dimensions of a mass should be recorded in at least 2 dimensions.
3. The images should be labeled as to the right or left breast, the lesion's location, and the orientation of the transducer with respect to the breast (eg, transverse or longitudinal and radial or antiradial). The location of the lesion should be recorded; the quadrant should be specified, or the location can be indicated by using clock notation and distance from the nipple or shown on a diagram of the breast.

Several sonographic features may be helpful in characterizing breast masses. These features should be noted: size, shape, echogenicity, margin features, orientation, and attenuation (eg, shadowing or enhancement). Features may also be described using the American College of Radiology Breast Imaging Reporting and Data System (BI-RADS) lexicon.

4. Mass characterization with sonography is highly dependent on technical factors.

Proper depth, gain, and focal zone settings should be optimized to obtain high-quality images. The patient should be positioned to minimize the thickness of the portion of the breast being evaluated. For evaluation of superficial lesions, a standoff device or use of a thick layer of gel may be helpful.

B. Guidance of Interventional Procedures

1. Interventional procedures that can be performed with sonographic guidance include but are not limited to cyst aspirations, presurgical needle hook wire localization, therapeutic procedures, and fine-needle, core, or vacuum-assisted biopsy.

2. A full sonographic examination of the area of interest should be completed before the procedure.
3. There is no single correct method for accomplishing interventional procedures with sonographic guidance. Both a freehand technique and the use of a transducer with a needle guide are suitable for breast interventions. The type of equipment on hand and the experience of the physician performing the procedure will determine the technique.
4. High-frequency transducers with a center frequency of 7.0 MHz or higher used for imaging the breast are suitable for guiding interventional procedures. With these transducers, continuous visualization of the device path is possible. Depending on the transducer configuration, the geometry of the acoustic beam, and the route of device entry, either a small portion of the device may be visible as an echogenic focus, or, if the device entry is aligned with the acoustic beam and nearly perpendicular to it, the entire device may be visible.
5. Sonographic guidance can be used to aid in infiltration of anesthetics around the mass.

VI. Documentation

Images of all important findings, including in the case of interventional procedures the relationship of the device to the lesion, should be recorded on a retrievable and reviewable image storage format.

- A. Official documentation for the ultrasound images should include but is not limited to the following:
 1. Patient's name and other identifying information.
 2. Facility's identifying information.
 3. Date of sonographic examination.
 4. Image orientation when appropriate.
- B. The physician's report of the sonographic findings should be placed in the patient's medical record.
- C. Retention of the breast sonograms should be consistent with the policies for retention of mammograms in compliance with federal and state regulations, local health care facility procedures, and clinical needs.
- D. Reporting should be in accordance with the *AIUM Practice Guideline for Documentation of an Ultrasound Examination*.

VII. Equipment Specifications

Breast sonography should be performed with a high-frequency linear array transducer operating at a center frequency of at least 7 MHz. Equipment permitting electronic adjustment of focal zone(s) is recommended. In general, the highest frequency capable of adequate penetration to the depth of interest should be used. For evaluation of superficial lesions, a standoff device or use of additional gel may be helpful.

VIII. Quality Control and Improvement, Safety, Infection Control, and Patient Education Concerns

Policies and procedures related to quality, patient education, infection control, and safety should be developed and implemented in accordance with the *AIUM Standards and Guidelines for the Accreditation of Ultrasound Practices*. Equipment performance monitoring should be in accordance with the *AIUM Standards and Guidelines for the Accreditation of Ultrasound Practices*.

Acknowledgments

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