Breast Sonography

Certification and registration requirements for Breast Sonography are based on the results of a comprehensive practice analysis conducted by The American Registry of Radiologic Technologist® (ARRT®) staff and the Breast Sonography Practice Analysis Advisory Committee. In 2015, the ARRT did an interim update and reviewed a select number of tasks that were of interest. The results of the practice analysis and interim update are reflected in this document. The attached task inventory is the foundation for both the clinical experience requirements and the content specifications.

Basis of Task Inventory

The practice analysis survey was used to identify the responsibilities typically required of breast sonographers who perform breast sonography. When evaluating survey results, the advisory committee applied a 40% guideline. That is, to be included on the task inventory an activity must have been the responsibility of at least 40% of breast sonographers. The advisory committee could include an activity that did not meet the 40% criterion if there was a compelling rationale to do so (e.g., a task that falls below the 40% guideline but is expected to rise above the 40% guideline in the near future).

Application to Clinical Experience Requirements

The purpose of the clinical experience requirements is to verify that candidates have completed a subset of the clinical procedures within breast sonography. Successful performance of these fundamental procedures, in combination with mastery of the cognitive knowledge and skills covered by the breast sonography examination, provides the basis for acquisition of the full range of clinical skills required in a variety of settings. An activity must appear on the task inventory to be considered for inclusion in the clinical experience requirements. For an activity to be designated as a mandatory requirement, survey results had to indicate the vast majority of sonographers who perform breast sonography performed that activity. The advisory committee designated clinical activities performed by fewer breast sonographers, or which are carried out in only selected settings, as elective. The clinical experience requirements are available from ARRT's website (www.arrt.org) and appear in the *Breast Sonography Certification and Registration Handbook* also located on the ARRT website.

Application to Content Specifications

The purpose of the ARRT Breast Sonography Examination is to assess the knowledge and cognitive skills underlying the intelligent performance of the tasks typically required of breast sonographers at entry into the profession. The content specifications identify the knowledge areas underlying performance of the tasks on the task inventory. Every content category can be linked to one or more activities on the task inventory. Note that each activity on the task inventory is followed by a content category that identifies the section of the content specifications corresponding to that activity. The content specifications are available from ARRT's website (www.arrt.org) and appear in the *Breast Sonography Certification and Registration Handbook*.

	Activity	Content Categories Legend: PC = Patient Care, IP = Image Production, P = Procedures
1.	Review provider order and/or referral to assure completeness and appropriateness of examination requested.	PC.1.C.
2.	Review patient's relevant previous imaging exams prior to the breast sonography exam.	PC.1.C.3.
3.	Interview patient to acquire clinical history (*e.g., previous breast exams, personal and family history, prior surgeries) and document findings.	PC.1.C.
4.	Explain breast sonography exam to the patient.	PC.1.D.
5.	Respond to patient's questions regarding breast health by referencing ACR and ACS guidelines.	PC.1.G.
6.	Refer patient's questions to provider (e.g., diagnosis, prognosis, treatment) to appropriate provider inclusive of supervising radiologist.	PC.1.D. – G.
7.	Respond to questions regarding accreditation of ultrasound facilities and personnel.	PC.1.B.
	Explain the benefits and limitations of the following procedures to patients that have received a prior notification of dense parenchyma:	
8.	Breast sonography	PC.1.E.
9.	2D/3D mammography	PC.1.E.
10.	MRI	PC.1.E.
	Explain the benefits and limitations of the following procedures to patients with a new diagnosis of breast cancer:	
11.	Breast sonography	PC.1.E.
12.	2D/3D mammography	PC.1.E.
13.	MRI	PC.1.E.
14.	Respond to patient's questions regarding other breast imaging procedures (e.g., mammography, tomosynthesis, CT, MRI, nuclear medicine exams).	PC.1.E.
15.	Correlate physical findings with adjunct imaging modalities.	IP.3.D.
16.	Document results of physical findings including location of scars and lumps.	PC.1.C.4.
17.	Determine equipment (e.g., transducer) for the patient and the exam to be performed.	IP.1., IP.2.
18.	Determine equipment and technique in accordance with sonography protocol as determined by the supervising physician (e.g., radiologist, surgeon).	IP.2.
19.	Determine machine settings (e.g., TGC, frequency, amplitude, depth of field, focal zone, harmonic imaging, spatial compounding) for image optimization.	IP.1., IP.2.

*e.g., This is used here and in the remainder of this document to indicate examples of the topics covered, but not a complete list.

	Activity	Content Categories Legend: PC = Patient Care, IP = Image Production, P = Procedures
20.	Determine scanning technique (e.g., patient position, scan plane) for image optimization.	IP.2.
21.	Position patient to demonstrate the desired anatomy (e.g., oblique, supine, decubitus, upright).	IP.2.D.
22.	Optimize the breast sonography exam using the following as appropriate: stand-off, power (amplitude) Doppler, color Doppler, panoramic imaging, fremitus/elastography, and 3D.	IP.2.E., IP.2.H.
23.	Utilize ALARA principle to minimize ultrasound bioeffects.	IP.2.C.
24.	Annotate images to indicate anatomic plane, area of interest, and other relevant information per ACR guidelines.	IP.2.G.
25.	Differentiate normal anatomy from abnormal findings during the breast sonography exam.	IP.3.A.
26.	Select images that completely demonstrate findings during the breast sonography exam.	IP.3.
27.	Evaluate images for artifacts and take corrective action as necessary.	IP.3.B.
28.	Evaluate images for diagnostic quality and take corrective action as necessary.	IP.3.B.
29.	Use the following post-processing techniques: change dynamic range, cine loop, and 3D.	IP.2.B., IP.2.H. – I.
30.	Record, display, archive, and retrieve images using PACS.	IP.2.I.
31.	Verify correlation of breast sonographic and physical findings.	PC.1.C.4.
32.	Verify correlation of breast sonographic findings with mammogram.	IP.3.D.
33.	Verify correlation of breast sonographic findings with ACR BI-RADS® classification.	IP.3.D.3.
34.	Verify correlation of breast sonographic findings with MRI.	IP.3.E.
35.	Verify correlation of breast sonographic findings with CT.	IP.3.F.
36.	Verify correlation of breast sonographic findings with PET/CT and/or PEM.	IP.3.G.
37.	Review preliminary findings with interpreting physician (e.g., radiologist, surgeon).	IP.3.A.
38.	Explain diagnostic findings to patient under the direction of the physician (e.g., radiologist, surgeon).	PC.1.D.
39.	Perform preventive maintenance (e.g., filters) on breast sonography equipment as indicated.	IP.3.H.3.
40.	Identify, report, and document ultrasound equipment malfunctions (e.g., transducer, monitor).	IP.3.H.
41.	Identify, report, and document recording media malfunctions.	IP.3.H.
42.	Clean and/or disinfect equipment according to protocol.	IP.3.H.3.

	Activity	Content Categories Legend: PC = Patient Care, IP = Image Production, P = Procedures
43.	Perform regional lymph node and axillary sonography.	P.2.
44.	Perform breast sonography exam for benign and malignant conditions.	P.2.
	Perform breast sonography including the following anatomical areas as protocol for new cancer diagnoses:	
45.	Axilla	P.2.C.
46.	Supraclavicular	P.2.C.
47.	Internal mammary nodes	P.2.C.
48.	Perform screening whole breast ultrasound for patients with prior notification of dense parenchyma using a free hand technique with conventional equipment.	P.2.A.
49.	Perform second look ultrasound for patients with positive screening results from mammography.	P.2.
50.	Perform second look ultrasound for patients with positive screening results from MRI.	P.2.
51.	Perform survey breast ultrasound for multifocal and multicentric disease for patients with a new diagnosis of breast cancer.	P.2.
52.	Explain interventional procedures to the patient and/or patient's family.	P.3.I.
53.	Verify informed consent is obtained when necessary.	P.3.I.
54.	Verify that time-out procedure is performed when necessary.	P.3.I.
55.	Select and prepare equipment for interventional procedures.	P.3.I.
56.	Position the patient to provide access for interventional procedures.	P.3.I.
57.	Use sterile or aseptic technique on or near wounds, surgical dressings, drains, or hardware.	P.3.I.
58.	Use sterile or aseptic technique to prevent contamination of sterile trays, instruments, or fields.	P.3.I.
	Assist with the following breast ultrasound interventional procedures:	
59.	Cyst Aspiration	P.3.I.1.
60.	Fine Needle Aspiration for Solid Lesions	P.3.I.2.
61.	Core Biopsy	P.3.I.3.
62.	Vacuum-Assisted Biopsy	P.3.I.4.
63.	Clip Placement	P.3.I.5.
64.	Needle Localization	P.3.I.6.
65.	Provide post-care instructions for interventional procedures.	P.3.I.
66.	Handle and dispose of sharps and other materials possibly contaminated with blood borne pathogens according to OSHA requirements.	P.3.I.
67.	Disinfect or sterilize interventional instruments and equipment according to protocol.	P.3.I.