



Sonography

Certification and registration requirements for Sonography are based on the results of a comprehensive practice analysis conducted by The American Registry of Radiologic Technologists (ARRT) staff and the Sonography/Vascular Sonography Practice Analysis Advisory Committee. The purpose of the practice analysis is to identify job responsibilities typically required of sonographers at entry into the profession. In 2016 the ARRT surveyed a large national sample of sonographers. The results of the practice analysis are reflected in this document. The attached task inventory is the foundation for both the clinical requirements and the content specifications.

Basis of Task Inventory

The practice analysis survey was used to identify the responsibilities typically required of sonographers. 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 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 Requirements

The purpose of the clinical requirements is to verify that candidates have completed fundamental clinical procedures in sonography. Successful performance of these fundamental procedures, in combination with mastery of the cognitive knowledge and skills covered by the 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 requirements. For an activity to be designated as a mandatory requirement, survey results had to indicate that the vast majority of sonographers performed that activity. The advisory committee designated clinical activities performed by fewer sonographers, or which are carried out only in selected settings, as elective. The clinical requirements are available from ARRT's website (www.arrt.org).

Application to Content Specifications

The purpose of the Sonography Examination is to assess the knowledge and cognitive skills underlying the intelligent performance of the tasks typically required of sonographers. 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).



Activity	Content Categories Legend: PC = Patient Care, IP = Image Production, P = Procedures
1. Schedule patients taking into consideration the length of the procedure, the patient's condition, age, and preparation for the examination.	PC.1.B.3.
2. Properly sequence procedures to avoid situations that adversely affect sonographic exams.	PC.1.B.3.
3. Verify order for accuracy and completeness of information including clinical symptoms.	PC.1.A.2.A.
4. Explain patient preparation (e.g., diet restrictions, preparatory medications, allergies) prior to an imaging procedure.	PC.1.B.3.B.
5. Confirm patient's identity.	PC.1.A.2.A.
6. Interview patient to acquire clinical history.	PC.1.B.
7. Maintain confidentiality of patient information (e.g., HIPAA).	PC.1.A.1.B.
8. Ensure compliance with American Hospital Association (AHA) Patient Care Partnership (<i>Patients' Bill of Rights</i>).	PC.1.A.1.C.
9. Follow <i>ARRT Standards of Ethics</i> .	PC.1.A.3.
10. Explain procedure to patient and/or patient's family.	PC.1.B.3.A.
11. Evaluate patient's ability to comply with positioning requirements for the requested exam.	PC.1.C.
12. Conduct physical and mental assessment of patient to enhance the sonographic examination.	PC.1.C.3.B.
13. Verify that informed consent is obtained when necessary.	PC.1.A.1.A., PC.1.G.3.
14. Verify that time-out procedure is performed when necessary.	PC.1.G.2..
15. Explain breathing instructions as needed for obtaining optimal images.	PC.1.B.3.
16. Provide for patient comfort and modesty.	PC.1.B.3.
17. Position patient to demonstrate the desired anatomy.	PC.1.C.
18. Select immobilization devices or positioning aids, when indicated, to prevent patient movement and/or ensure patient safety.	PC.1.A.2.D.
19. Use proper body mechanics and/or mechanical transfer devices when assisting patients.	PC.1.C.1.A.
20. Use proper ergonomics when performing sonographic exams.	PC.1.C.4.
21. Recognize signs and symptoms of abnormal respiratory rate, pulse, and blood pressure and notify appropriate personnel.	PC.1.C.3.
22. Recognize and administer emergency care when needed.	PC.1.D.
23. Monitor auxiliary equipment (e.g., IVs, supplemental oxygen) to support patient's needs while in the department.	PC.1.C.3.

* The abbreviation "e.g.," is used to indicate that examples are listed in parentheses, but that it is not a complete list of all possibilities.



Activity	Content Categories
24. Communicate effectively with physician during interventional procedures.	PC.1.G.
25. Utilize Standard Precautions.	PC.1.E.3.
26. Follow appropriate procedures when in contact with a patient in isolation.	PC.1.E.
27. Use sterile or aseptic technique on or near wounds, surgical dressings, drains, or hardware.	PC.1.E.2.D.
28. Use sterile or aseptic technique to prevent contamination of sterile trays, instruments, or fields.	PC.1.E.2.
29. Properly dispose of contaminated items.	PC.1.E.3.D.
30. Clean, disinfect, or sterilize transducer and equipment.	PC.1.E.2.A., PC.1.E.2.B., PC.1.E.3.C.
31. Select equipment and accessories for the examination requested.	IP.1.
32. Set TGC, power and amplification to achieve optimum image quality, and minimize patient exposure to acoustic energy.	IP.1.A.4.B., IP.2.A.1.
33. Use 3D/4D imaging as appropriate.	IP.2.C.10.
34. Enter patient identification and clinical information into sonographic unit and/or PACS prior to procedure.	IP.1.B., IP.3.B.
35. Modify imaging techniques for circumstances such as body habitus, artifacts inherent to the patient, pathological conditions, and/or patient's inability to cooperate.	IP.2.
36. Use annotation to indicate anatomical planes, patient position, or other relevant information.	IP.3.A.
37. Evaluate sonographic images for diagnostic quality.	IP.3.A.
38. Evaluate sonographic studies for artifacts and determine if any artifact(s) has an effect on the diagnostic quality of the examination.	IP.3.A.3
39. Take corrective measures if sonographic images are not of diagnostic quality.	IP.3.A.4.
40. During the sonographic procedure, select representative images demonstrating normal anatomy, and/or variants, and/or pathological conditions.	IP.3.
41. Minimize ultrasound bioeffects.	PC.1.F., IP.2.D.
42. Access and review pertinent patient data (e.g., electronic medical records, patient charts, previous examinations/reports) for correlation with sonographic examination findings.	PC.1.A.
43. Verify completeness of exam according to facility's protocol.	IP.3.A.
44. Determine if additional areas should be evaluated sonographically.	IP.3.A.1.
45. Verify exam coding.	PC.1.A.2.A.



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Activity

46.	Recognize and report any limitations of the sonographic exam performed.	IP.3.
47.	Answer questions about additional imaging studies.	PC.1.B.3.C.
48.	Review pertinent patient information and sonographic findings with the interpreting physician(s).	IP.3.A.2.
49.	Recognize and report malfunctions in the sonographic equipment, accessories and PACS.	IP.1.B.3.,
50.	Use teleradiology or PACS.	IP.3.B.
	Following clinical protocols, position patient and transducer using appropriate technical factors to produce diagnostic images and recognize pathology of:	
51.	abdominal vasculature (e.g., Doppler)	P.1.A.
52.	aorta	P.1.A.1.
53.	IVC	P.1.A.2.
54.	portal vein	P.1.A.3.
55.	biliary tract/gallbladder	P.1.B.
56.	kidneys	P.1.B.2.A., P.5.E.3.
57.	kidney transplant	P.1.A.4.
58.	ureters	P.1.B.2.B.
59.	urinary bladder	P.1.B.2.C.
60.	spleen	P.1.B.3.
61.	pancreas	P.1.B.4.
62.	liver	P.1.B.5.
63.	liver transplant	P.1.A.5.
64.	lymph nodes	P.1.B.6.A., P.5.A.4.
65.	adrenals	P.1.B.6.B., P.5.E.3.
66.	GI tract	
	a. appendix	P.1.B.6.C.,
	b. pylorus	P.5.E.2.,
	c. other (e.g., obstruction, intussusception, inflammatory bowel disease)	P.1.B.6.F
67.	hernia	P.1.B.6.D.
68.	prostate	P.1.B.6.E.
69.	uterus, ovaries, and adnexa	P.2.B., P.3.B., P.4.
70.	pelvic floor	P.4.E.
71.	high risk obstetrics	P.3.



Activity		Content Categories
72.	first-trimester obstetrics	P.2.
73.	early embryonic anatomy (e.g., nasal bones, anencephaly, hydrops)	P.2.C.
74.	normal developmental pitfalls (e.g., physiologic herniation of bowel, rhombencephalon)	P.2.D.
75.	second-trimester obstetrics	P.3.
76.	third-trimester obstetrics	P.3.
77.	placenta	P.3.L.
78.	fetal biophysical profile	P.3.K.
79.	cord Doppler	P.3.P.
80.	fetal Doppler	P.3.
81.	thyroid	P.5.A.1.
82.	parathyroid	P.5.A.2.
83.	salivary glands	P.5.A.3.
84.	scrotum	P.5.B.
85.	breasts	P.5.C.
86.	venous Doppler upper extremity	P.5.D.1.
87.	venous Doppler lower extremity	P.5.D.1.
88.	carotid Doppler	P.5.D.2.
89.	post catheterization complications	P.5.D.3.
90.	neonatal head	P.5.E.1.
91.	neonatal spine	P.5.E.1.
92.	neonatal hips	P.5.E.1.
93.	musculoskeletal	P.5.G.1.
94.	superficial masses	P.5.G.2.
95.	non-cardiac chest (pleural space)	P.5.G.3.
96.	abdominal wall.	P.5.G.4.
Assist with the following sonographic interventional procedures:		
97.	fluid aspiration/drainage procedures	P.5.F.
98.	intraoperative procedures	P.5.F.
99.	fine needle aspiration/biopsy.	P.5.F.