



Vascular Sonography

Certification and registration requirements for Vascular 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. 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 vascular 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 vascular 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 in vascular sonography. Successful performance of these fundamental procedures, in combination with mastery of the cognitive knowledge and skills covered by the vascular 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 that the vast majority of sonographers who perform vascular sonography performed that activity. The advisory committee designated clinical activities performed by fewer vascular sonographers, or which are carried out only in selected settings, as elective. The clinical experience requirements are available from ARRT's website (www.arrt.org) and appear in the *Vascular Sonography Certification and Registration Handbook* also located on the ARRT website.

Application to Content Specifications

The purpose of the ARRT Examination in Vascular Sonography is to assess the knowledge and cognitive skills underlying the intelligent performance of the tasks typically required of vascular 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 *Vascular Sonography Certification and Registration Handbook*.



Activity	Content Categories
1. Properly sequence procedures to avoid situations that adversely affect vascular exams.	P.
2. Access patient data from an electronic medical record. *	
3. Maintain confidentiality of patient information. *	
4. Verify exam ordered is appropriate for clinical symptoms.	P.
5. Confirm patient's identity. *	
6. Explain patient preparation (*e.g., diet restrictions, preparatory medications) prior to a vascular procedure.	P.
7. Explain procedure to patient and/or patient's family.	P.
8. Interview patient to acquire clinical history.	P.
9. Conduct physical and mental assessment of patient to enhance the vascular examination.	P.
10. Provide for patient comfort and modesty. *	
11. Guarantee Patient's Bill of Rights. *	
12. Use proper body mechanics and/or mechanical transfer devices when assisting patients. *	
13. Use proper ergonomics when performing vascular exams.	P.
14. Explain breathing instructions as needed for obtaining optimal images.	P.
15. Enter patient identification and clinical information into vascular equipment and/or PACS prior to procedure.	P.
16. Select equipment and accessories for the examination requested.	IP.
17. Set TGC, power and amplification to achieve optimal image quality, and minimize patient exposure to acoustic energy.	IP.
18. Select Doppler setting to achieve optimal image quality.	IP.
19. Evaluate patient's ability to comply with positioning requirements for the requested exam.	P.
20. Select immobilization devices, when indicated, to prevent patient movement and/or ensure patient safety. *	
21. Position patient to demonstrate the desired anatomy.	P.
22. Modify techniques for circumstances such as body habitus and artifacts inherent to the patient, pathological conditions, and/or patient's inability to cooperate.	P.
23. Use annotation to indicate anatomical planes, patient position, or other relevant information.	P.
24. Recognize signs and symptoms of abnormal respiratory rate, pulse, and blood pressure, and notify appropriate personnel. *	
25. Measure respiratory rate, pulse, and blood pressure.	P.

*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.



Content Categories

Legend: IP = Image Production,
P = Procedures

Activity

26.	Utilize standard precautions. *	
27.	Follow appropriate procedures when in contact with a patient in isolation. *	
28.	Use sterile or aseptic technique on or near wounds, surgical dressings, drains, or hardware. *	
29.	Use sterile or aseptic technique to prevent contamination of sterile trays, instruments, or fields. *	
30.	Clean, disinfect, or sterilize transducer and equipment.	IP.1.B.2
31.	Properly dispose of contaminated items. *	
32.	Review pertinent patient data (e.g., patient charts, previous examinations/reports) for correlation with vascular examination findings.	P.
33.	Maintain accurate patient log. *	
34.	Evaluate vascular studies for diagnostic quality.	IP.3.B.
35.	Evaluate vascular studies for artifacts and determine if any artifact(s) has an effect on the diagnostic quality of the examination.	IP.3.B.3
36.	Take corrective measures if vascular studies are not of diagnostic quality.	IP.3.B.4.
37.	Recognize and report any limitations of the vascular exam performed.	P.
38.	Recognize and report malfunctions in the vascular equipment, accessories, and PACS.	IP.1.D., IP.3.B.
39.	During the sonographic procedure, select representative images demonstrating normal anatomy, and/or variants, and/or pathological conditions.	IP.3.
40.	Determine if additional areas should be evaluated sonographically.	P.
41.	Verify completeness of exam according to facility's protocol.	IP.3.
42.	Determine if additional imaging studies should be recommended.	P.
43.	Use teleradiology or PACS. *	
44.	Verify exam coding.	P.
45.	Present pertinent patient information and vascular findings to the interpreting physician(s).	P.
46.	Produce diagnostic vascular studies and recognize pathology of: – 122.	

*Indicates a task that will not be included on the examination because it is covered on the primary examinations.



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Activity

ABDOMINAL / PELVIC VASCULATURE

Arterial

46.	aorta	P.1.A.1.
47.	celiac	P.1.A.2.
48.	hepatic	P.1.A.3.
49.	splenic	P.1.A.4.
50.	superior mesenteric	P.1.A.5.
51.	inferior mesenteric	P.1.A.5.
52.	renal	P.1.A.6.
53.	common iliac	P.1.A.7.
54.	internal iliac	P.1.A.8.
55.	external iliac	P.1.A.9.

Venous

56.	inferior vena cava	P.1.B.1.
57.	hepatic	P.1.B.2.
58.	portal	P.1.B.3.
59.	splenic	P.1.B.4.
60.	superior mesenteric	P.1.B.5.
61.	renal	P.1.B.6.
62.	pelvic	P.1.B.7.
63.	common iliac	P.1.B.8.
64.	internal iliac	P.1.B.9.
65.	external iliac	P.1.B.10.

TRANSPLANT VASCULATURE

66.	liver	P.1.C.1.
67.	kidney	P.1.C.2.

ARTERIAL PERIPHERAL VASCULATURE

Upper Extremity

68.	subclavian	P.2.A.1.
69.	axillary	P.2.A.2.
70.	brachial	P.2.A.3.
71.	radial	P.2.A.4.



Activity		Content Categories
72.	ulnar	P.2.A.5.
73.	digital including Allen test	P.2.A.6.
Lower Extremity		
74.	external iliac	P.2.B.1.
75.	common femoral	P.2.B.2.
76.	superficial femoral	P.2.B.3.
77.	deep femoral	P.2.B.4.
78.	popliteal	P.2.B.5.
79.	tibioperoneal trunk	P.2.B.6.
80.	posterior tibial	P.2.B.7.
81.	anterior tibial	P.2.B.8.
82.	peroneal	P.2.B.9.
83.	dorsalis pedis	P.2.B.10.
Stress / Pressure Testing		
84.	PVR (pulse volume recording)	P.2.C.1.
85.	segmental pressures – upper extremities	P.2.C.2.
86.	segmental pressures – lower extremities	P.2.C.3.
87.	ABI (ankle-brachial index)	P.2.C.4.
88.	post-exercise testing	P.2.C.5.
VENOUS PERIPHERAL VASCULATURE		
Upper Extremity Venous		
89.	internal jugular	P.3.A.1.
90.	subclavian	P.3.A.2.
91.	axillary	P.3.A.3.
92.	brachial	P.3.A.4.
93.	cephalic	P.3.A.5.
94.	basilic	P.3.A.6.
95.	radial	P.3.A.7.
96.	ulnar	P.3.A.8.
97.	vein mapping	P.3.C.1
Lower Extremity Venous		
98.	external iliac	P.3.B.1.



Activity		Content Categories
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99.	common femoral	P.3.B.2.
100.	femoral	P.3.B.3.
101.	deep femoral	P.3.B.4.
102.	popliteal	P.3.B.5.
103.	great saphenous	P.3.B.6.
104.	small saphenous	P.3.B.7.
105.	tibioperoneal trunk	P.3.B.8.
106.	calf veins	P.3.B.9.
107.	vein mapping	P.3.C.1
108.	reflux assessment (e.g, perforators, varicose veins, valve competency, ablations)	P.3.C.2
EXTRACRANIAL CEREBRAL VASCULATURE		
109.	carotid artery (CCA, ICA, ECA)	P.4.A.
110.	vertebral artery	P.4.B.
111.	subclavian artery	P.4.C.
POST INTERVENTION		
112.	bypass grafts	P.4.D.1.
113.	endografts	P.4.D.2.
114.	dialysis access grafts/fistulae	P.4.D.3.
115.	stents	P.4.D.4.
116.	angioplasty	P.4.D.5.
117.	thrombolysis	P.4.D.6.
118.	post catheterization complications (e.g., pseudoaneurysm treatment compression or guided thrombin injection)	P.4.D.7.
119.	IVC filters	P.4.D.8.
120.	TIPS	P.4.D.9.
121.	lines	P.4.D.10.
122.	post endarterectomy	P.4.D.11.