Radiography

Certification and registration requirements for radiography are based on the results of a comprehensive practice analysis conducted by The American Registry of Radiologic Technologists (ARRT) staff and the Radiography Practice Analysis Committee. The practice analysis identifies job responsibilities typically required of radiographers at entry into the profession. This document reflects the results of the practice analysis. The attached task inventory is the foundation for the clinical requirements and the content outline, that, in turn, is the foundation for the content specifications and the Continuing Qualifications Requirements (CQR) Structured Self-Assessment (SSA) Content Specifications.

Basis of Task Inventory

In 2024, ARRT surveyed a large, national sample of radiographers to identify their responsibilities. When evaluating survey results, the committee considered tasks that 40% or more of respondents perform to be typically required for practice. They included these tasks on the task inventory and excluded tasks that fewer than 40% of respondents perform. The committee also made exceptions to the 40% threshold, as necessary, to ensure the task inventory would be comprehensive. They included critical, but infrequent tasks, or those that would likely soon rise above the threshold and excluded those that would likely soon fall below it.

Application to Clinical Competency Requirements

The purpose of the clinical competency requirements is to document that individuals have demonstrated competence performing the clinical activities fundamental to a particular discipline. Competent performance of these fundamental activities, in conjunction with mastery of the cognitive knowledge and skills as documented by the examination requirement, provides the basis for the acquisition of the full range of procedures typically required in a variety of settings. Demonstration of clinical competence means that the candidate has performed the procedure independently, consistently, and effectively during the course of their formal education.

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 radiographers performed that activity. The committee designated clinical activities that fewer radiographers perform, or that they perform only in selected settings, as elective. The *Radiography Clinical Requirements* are on ARRT's website.

Application to Content Specifications

The purpose of the examination requirement is to assess whether individuals have obtained the knowledge and cognitive skills underlying the intelligent performance of the tasks typically required in the discipline for practice at entry level. 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 *Radiography Content Specifications* are on ARRT's website.

Activity		**Content Categories** **PC** = Patient Care **S** = Safety **IP** = Image Production **P** = Procedures
1.	Schedule patients, taking into consideration the length of the procedure, the patient's condition and age, and preparation for the procedure.	PC.1.3
2.	Sequence imaging procedures to avoid affecting subsequent procedures (e.g., residual contrast media).	PC.1.3.D, PC.1.G.1.D, PC.1.G.4
3.	Verify the patient's identity.	PC.1.A.2.A
4.	Manage interpersonal interactions in an effective manner (e.g., variations in characteristics such as age, gender, and medical condition).	PC.1.B.2
5.	Evaluate the patient's ability to understand and comply with requirements for the requested procedure (e.g., physical, sensory, or cognitive impairments; need for medical interpreter).	PC.1.B, S.2.A.3.B
6.	Obtain pertinent medical history.	PC.1.A.2.A, PC.1.C.3.B, PC.1.G.1
7.	Recognize abnormal or missing lab values relative to the procedure ordered (e.g., appropriateness of contrast, beta hCG).	PC.1.G.4.C
8.	Screen patients of childbearing age for the possibility of pregnancy and take appropriate action (e.g., document response, contact physician).	PC.1.B, S.2.A.3
9.	Explain and confirm the patient's preparation (e.g., diet restrictions, preparatory medications) prior to the procedure.	PC.1.3.B
10.	Review the procedure request to verify information is accurate, appropriate, and complete (e.g., patient history, clinical diagnosis, physician's orders).	PC.1.A.2.A, PC.1.A.2.F
11.	Verify exam coding (e.g., orders, CPT code).	PC.1.A.2.A, PC.1.A.2.F.
12.	Explain the procedure to patient, patient's family, or authorized representative (e.g., preprocedure, postprocedure).	PC.1.B.3.A
13.	Respond as appropriate to procedure inquiries from the patient, patient's family, or authorized representative (e.g., scheduling delays, exam duration).	PC.1.B.3.A.
14.	Provide for the patient's safety, comfort, and modesty.	PC.1.A, PC.1.C
15.	Monitor the patient's auxiliary medical equipment (e.g., IVs, supplemental oxygen).	PC.1.C.2
16.	Verify informed consent is obtained as necessary.	PC.1.A.1.A
17.	Demonstrate and promote professional and ethical behavior (e.g., confidentiality, regulation compliance).	PC.1.A, PC.1.B
18.	Handle, label, and submit laboratory specimens (e.g., cerebrospinal fluid, synovial fluid).	P.1.B.6, P.3.C.2
19.	Follow environmental protection standards for handling and disposing of biohazardous materials (e.g., sharps, blood, body fluids, IV supplies).	PC.1.C.2, PC.1.E.3.D, PC.1.F, P.1.B.6, P.2.C, P.3.C.2

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20.	Follow environmental protection standards for handling and disposing of hazardous materials (e.g., disinfectant, chemicals, chemotherapy).	PC.1.F
21.	Notify appropriate personnel of adverse events or incidents (e.g., patient fall, wrong patient imaged).	PC.1.A.2.F, PC.1.C, PC.1.D.5, PC.1.G.5, IP.1.E
22.	Communicate relevant information to appropriate members of the care team.	PC.1.A, PC.1.B, PC.1.G
23.	Practice Standard Precautions.	PC.1.E.3
24.	Follow appropriate transmission-based precautions.	PC.1.E.3, PC.1.E.4, PC.1.E.5
25.	Use positioning aids, as needed, to reduce patient movement, and/or promote patient comfort and/or safety.	PC.1.A.2.D, PC.1.B.3.A, P.
26.	Use proper body mechanics when performing procedures to prevent work-related musculoskeletal disorders.	PC.1.C.1, P.
27.	Use proper safe patient handling devices (e.g., transfer board, Hoyer lift, and gait belt).	PC.1.C.1
28.	Prior to administration of a medication other than a contrast media, review pertinent information to prepare appropriate type and dosage.	PC.1.G.1, PC.1.G.2
29.	Prior to administration of a contrast media, review pertinent information to prepare appropriate type and dosage.	PC.1.G.
30.	Prior to administration of a contrast media, determine if the patient is at risk for an adverse reaction.	PC.1.G
31.	Use sterile or aseptic technique when indicated.	PC.1.E.2, PC.1.G.2, P.
32.	Perform venipuncture for diagnostic radiography procedures.	PC.1.G.2, P.
33.	Administer contrast media as required by the procedure.	PC.1.G
34.	Assess the patient after administration of a contrast media to detect adverse reactions.	PC.1.C.3, PC.1.G.5, P.
35.	Obtain vital signs when appropriate.	PC.1.C.3.A, P.
36.	Recognize and communicate the need for prompt medical attention.	PC.1.C.3, PC.1.D, PC.1.G.5, P.
37.	Recognize the need for and administer emergency care (e.g., CPR, call for help).	PC.1.C.3, PC.1.D, PC.1.G.5, P.

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38.	Clean, disinfect, or sterilize facilities and equipment.	PC.1.E.2, PC.1.F.1
39.	Document required information (e.g., imaging procedure, images, adverse events) on the patient's medical record.	PC.1.A.2.F, PC.1.B.1.A, PC.1.C.3, PC.1.G.5.D, S.2.A.8.E, S.2.A.8.K, IP.1.E, IP.2.B.6.
40.	Evaluate the need for protective shielding.	S.2.B
41.	Use appropriate protective shielding.	S.2.B
42.	Take appropriate precautions (e.g., Image Wisely®, Image Gently®) to minimize radiation exposure to the patient.	S.2.A.
43.	Restrict the beam to the anatomical area of interest.	S.2.A.2, IP.1.A.1.H, IP.1.A.2.H, IP.2.A.2.F
44.	Set the technical factors to produce optimal images and minimize patient dose.	S.2.A, IP.1.A, IP.1.B, IP.1.C, P.
45.	Document the radiographic procedure dose.	S.2.A.5, S.2.A.8.K,
46.	Document the fluoroscopy dose.	S.2.A.5, S.2.A.8.E, S.2.A.8.K
47.	Take appropriate action to minimize fluoroscopy dose.	S.2.A.8, D.2.A.10
48.	Document the fluoroscopy time.	S.2.A.5, S.2.A.8.E, S.2.A.8.K
49.	Keep all unnecessary persons out of the immediate area during radiation exposure.	S.2.B.5.B
50.	Take appropriate precautions (ALARA) to minimize occupational radiation exposure.	S.2.B
51.	Advocate for radiation safety and protection.	S.2.A, S.2.B
52.	Describe the potential risk of radiation exposure when asked.	PC.1.B, S.1.B
53.	Wear a radiation monitoring device according to guidelines while on duty.	S.2.B.5
54.	Evaluate individual occupational exposure reports to determine if values for the reporting period are within established limits.	S.2.B

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55.	Select appropriate radiographic exposure factors using the following:	
	a. fixed kVp technique chart	S.2.A.1, IP.1.A, IP.1.B
	b. variable kVp technique chart	S.2.A.1, IP.1.A, IP.1.B
	c. automatic exposure control (AEC)	S.2.A.1.C, IP.1.A, IP.1.B, IP1.C
	d. anatomically programmed technique	S.2.A.1, IP.1.A, IP.1.B, IP.1.C
56.	Operate radiographic unit and accessories:	
	a. fixed unit	IP.2.A, IP.2.B, IP.2.C
	b. mobile unit	IP.2.A, IP.2.B, IP.2.C
57.	Operate fluoroscopic unit and accessories:	
	a. fixed fluoroscopic unit	IP.2.A, IP.2.B, IP.2.C
	b. mobile fluoroscopic unit (e.g., C-arm, O-arm)	IP.2.A, IP.2.B, IP.2.C
58.	Operate digital imaging devices and information technology systems:	
	a. digital radiography (DR)	IP.2.A, IP.2.B, IP.2.C
	b. picture archiving and communication systems (PACS)	IP.2.A, IP.2.B, IP.2.C
	c. medical information systems (e.g., HIS, RIS, EMR, EHR)	IP.2.A, IP.2.B, IP.2.C
59.	Recognize and report malfunctions in the information technology systems (e.g., downtime procedures).	IP.2.B.6.C, IP.2.C.2
60.	Remove radiopaque materials (e.g., dentures, clothing, jewelry) from the exposure field that could interfere with the image.	PC.1.B.3, IP.1.F.8, P.
61.	Use radiopaque anatomical side markers at the time of image acquisition.	IP.1.E, IP.1F.7
62.	Select imaging accessories (e.g., physical grid, virtual grid, lead blocker for the procedure requested.	IP.1.A, IP.1.B.3.F, IP.2.A.4, P.
63.	Align central ray to body part and image receptor to demonstrate the desired anatomy.	IP.1.A, P.
64.	Explain breathing instructions prior to making the exposure.	PC.1.B, S.2.A.3.B, IP.1.A.4.I, P.

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65.	Position patient to demonstrate the desired anatomy using anatomical landmarks.	S.2.A.3.A, IP.1.C.3, P.
66.	Modify exposure factors for circumstances such as involuntary motion, casts, splints, pathological conditions, contrast media, or patient's inability to cooperate.	S.2.A.3, IP.1.A, IP.1.B.3, IP.1.C
67.	Adapt procedures for:	
	a. patient condition (e.g., age, size, trauma, pathology)	PC.1.C, PC.1.E, S.2.A.3, IP.1.A, IP.1.B, IP.1.C, P.
	b. location (e.g., mobile, surgical, isolation)	PC.1.C, PC.1.E, S.2.A.3, S.2.A.8, IP.1.A, IP.1.B, IP.1.C, P.
68.	Select appropriate geometric factors (e.g., SID, OID, focal spot size, tube angle).	IP.1.A, IP.1.B.3.G
69.	Evaluate images for diagnostic quality.	IP.1.F, IP.2.C, P.
70.	Respond appropriately to exposure indicator values.	IP.1.F.1, P.
71.	Verify accuracy of patient identification associated with images.	PC.1.A.2.A, IP.1.E, IP.1.F.7, P.
72.	Add electronic annotations on images to indicate position or other relevant information (e.g., time, upright, decubitus, post-void).	PC.1.A.2.E, IP.1.E, IP.1.F.7, P.
73.	Perform postprocessing on images in preparation for interpretation.	IP.2.B.4, P.
74.	Determine corrective measures if image is not of diagnostic quality and take appropriate action.	S.2.A, IP.1.F, P.
75.	Identify image artifacts and make appropriate corrections as needed.	S.2.A.3.B, IP.1.F.8, P.
76.	Store and handle image receptor in a manner that will reduce the possibility of artifact production.	IP.1.F.8, IP.2.C.3
77.	Recognize and report malfunctions in the imaging unit and accessories.	IP.1.F.8, IP.2.C.2
78.	Recognize the need for periodic maintenance and evaluation of radiographic equipment affecting image quality and radiation safety (e.g., shielding, image display monitor, light field, central ray detector calibration).	IP.2.C.

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79.	Perform routine maintenance on digital equipment:	
	a. detector calibration	IP.2.C.3
	b. equipment cleanliness	PC.1.E.3.E
	c. test images	IP.2.C
Perform the following diagnostic examinations:		
80.	Chest	P.2.A.1
81.	Ribs	P.2.A.2
82.	Soft tissue neck	P.2.A.4.
83.	Sternum	P.2.A.3
84.	Sternoclavicular joints	P.2.A.7
85.	Abdomen	P.2.B.1
86.	Esophagram	P.2.B.2
87.	Swallowing dysfunction study (e.g., video swallow, phonation, modified barium swallow)	P.2.B.3.
88.	Foreign body, airway or ingested	P.2.A.1, P.2.A.5, P.2.B.1, P.2.B.9
89.	Upper GI series, single or double contrast	P.2.B.4
90.	Small bowel series	P.2.B.5
91.	Contrast enema (e.g., barium, iodinated), single or double contrast	P.2.B.6
92.	Surgical cholangiography (laparoscopic/open)	P.2.B.7
93.	ERCP	P.2.B.8
94.	Cystography	P.2.C.1
95.	Cystourethrography	P.2.C.2
96.	Retrograde urography	P.2.C.3
97.	Hysterosalpingography	P.2.C.4
98.	Cervical spine	P.1.B.1
99.	Cross table lateral horizontal beam recumbent spine	P.1.B.1, P.1.B.2, P.1.B.4, P.1.B.5
100.	Thoracic spine	P.1.B.2
101.	Thoracolumbar spine	P.1.B.2, P.1.B.4

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102.	Scoliosis series	P.1.B.3
103.	Lumbar spine	P.1.B.4
104.	Sacrum/coccyx	P.1.B.5
105.	Sacroiliac joints	P.1.B.7
106.	Pelvis/hip	P.1.B.8
107.	Skull	P.1.A.1
108.	Facial bones	P.1.A.2
109.	Mandible	P.1.A.3
110.	Temporomandibular joints	P.1.A.4
111.	Nasal bones	P.1.A.5
112.	Orbits	P.1.A.6
113.	Paranasal sinuses	P.1.A.7
114.	Toes	P.3.B.1
115.	Foot	P.3.B.2
116.	Calcaneus	P.3.B.3
117.	Ankle	P.3.B.4
118.	Tibia/fibula	P.3.B.5
119.	Knee/patella	P.3.B.6
120.	Femur	P.3.B.7
121.	Fingers	P.3.A.1
122.	Hand	P.3.A.2
123.	Wrist	P.3.A.3
124.	Forearm	P.3.A.4
125.	Elbow	P.3.A.5
126.	Humerus	P.3.A.6
127.	Shoulder	P.3.A.7
128.	Scapula	P.3.A.8
129.	Clavicle	P.2.A.6
130.	Acromioclavicular joints	P.3.A.9
131.	Bone survey	P.3.C.1
132.	Long bone measurement	P.3.B.8
133.	Bone age	P.3.A.10
134.	Pediatric procedures age 6 years and under:	

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	a. chest routine	P.2.A.1
	b. upper extremity/lower extremity	P.3.A, P.3.B, P.3.C.1
	c. abdominal routine	P.2.B.1
	d. mobile imaging	P.1, P.2.A, P.2.B.1, P.2.B.7-10, P.3.A-B, P.3.C.1
Assist providers with the following invasive procedures:		
135.	Joint injection via fluoroscopic guidance with possible contrast injection (e.g., joint aspirations, joints injections, arthrography).	P.3.C.2
136.	Spine injection via fluoroscopic guidance with possible contrast injection (e.g., myelography, epidural steroid injections, lumbar punctures).	P.1.B.6
137.	Line placement with C-arm (e.g., PICC, port).	P.2.A.8
138.	Nasogastric/enteric and orogastric/enteric tube placement (Dobbhoff).	P.2.B.10