



Registered Radiologist Assistant

Introduction

Discussions among the American College of Radiology (ACR), the American Society of Radiologic Technologists (ASRT), and The American Registry of Radiologic Technologists (ARRT) culminated in 2003 with a consensus statement that defines the Registered Radiologist Assistant (R.R.A.) as an advanced-level radiographer who works under the supervision of a radiologist to promote high standards of patient care by assisting radiologists in the diagnostic imaging environment. Under radiologist supervision* and as part of a radiologist-led team, the R.R.A. performs** patient assessment, patient management, and selected clinical imaging procedures. Certification and registration as an R.R.A. does not qualify the R.R.A. to perform** interpretations (preliminary, final, or otherwise) of any radiological examination. The R.R.A. may make and communicate initial observations only to the radiologist.

The ARRT expanded this consensus definition to delineate more fully the entry-level role of a radiologist assistant and introduced the R.R.A. certification and registration program based upon a practice analysis in 2005. The R.R.A. program requirements include certification and registration in radiography (i.e., R.T.(R)(ARRT)), experience as a radiographer, as well as radiologist assistant specific educational, ethics, and examination standards. Details are available on ARRT's website (www.arrt.org).

Purpose of this Document

In order to develop certification and registration standards, ARRT first identifies a core set of activities that individuals should be qualified to perform** at entry into that role. The list of entry-level clinical activities is then used to create ARRT examination development and education requirements for certification and registration. ***The Entry-Level Clinical Activities (ELCA) is not intended as a scope of practice.*** Inclusion of activities in ELCA does not indicate that the activities may be legally performed** in all states by those certified and registered nor that the activities, if performed**, are eligible for reimbursement under current CMS regulations. Federal, state, institutional, and employer requirements should be consulted to determine the specific role allowed in an individual situation. Similarly, exclusion of activities from ELCA is not to be interpreted as prohibiting the performance** of the activities provided that federal, state, institutional, and employer requirements support the performance** of the activities and that appropriate education, training, and competency assessment have been completed for the procedures. For all ARRT disciplines, it is assumed that the requirements for certification and registration serve as the foundation for developing qualifications to perform** additional procedures.

Initial Role Delineation Development

ARRT published the initial role delineation in 2005. It was developed based upon a survey of radiologists and radiology practitioner assistants (RPAs) conducted in early 2004. Radiologists were asked to rate clinical activities as to whether the activity could be performed** by an appropriately prepared radiologist assistant and, if so, the suggested level of radiologist supervision. RPAs were asked to indicate if they performed** the activities and, if so, the level of supervision they received.

An ARRT Advisory Committee composed of four radiologists, two R.R.A. educational program directors, two RPAs, one physicist, and organizational liaisons reviewed the survey responses. A draft description of the role of a radiologist assistant was produced. Additional refinements were made by the Advisory Committee based upon organizational and community feedback. The ARRT Board of Trustees adopted the *R.R.A. Role Delineation* in January 2005 and eligibility requirements, and examination content specifications were developed based upon the Role Delineation and approved in June 2005. The Role Delineation document was later renamed ELCA.

*for the purposes of this document, "supervising radiologist" refers to a "radiologist who oversees duties of the radiologist assistant and has appropriate clinical privileges for the procedure performed by the radiologist assistant." (ASRT Practice Standards for Medical Imaging and Radiation Therapy – Radiologist Assistant 2019). This may be any radiologist on service.

**indicates "perform under the supervision of the responsible radiologist."



Updates to the R.R.A. Certification and Registration Program

ARRT's certification and registration requirements are periodically updated to incorporate changing practice patterns and expectations. Revisions to ELCA are first suggested by the ARRT committee members, which consists of a combination of radiologists identified by the ACR, physicists identified by the AAPM, and R.R.A.s and educators identified by the ARRT. Typically, a draft survey is created by the committee members and reviewed by the Inter-Societal Commission on Radiologist Assistants (ICRA). ICRA is composed of representatives of ACR, ASRT, SRPE and ARRT. Once approved, the survey is administered to Radiologist Extenders identified from ARRT's database, a sample of ACR radiologists, and radiologists who work with Radiologist Extenders. The survey results are reviewed by the ARRT committee members and ICRA to identify possible updates to ELCA. The ARRT Board of Trustees makes the final decision on changes to ELCA. This update process is repeated at least every five years and more frequently if needed.

Most Recent Practice Analysis

In 2021, the ARRT surveyed a national sample of Radiologist Assistants (identified as either R.R.A.s and/or RPAs), ACR radiologists, and radiologists who work with Radiologist Assistants to identify the responsibilities of an R.R.A. When evaluating survey results, the advisory committee applied a 40% criterion. That is, to be included on the task inventory, at least 40% of Radiologist Assistants must report that they perform** the activity, and at least 40% of radiologists must indicate that the procedure could be delegated to a Radiologist Assistant. 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). The *Content Specifications for the Registered Radiologist Assistant* and the *Didactic and Clinical Portfolio Requirements for Certification and Registration as a Registered Radiologist Assistant* are updated to reflect the changes to ELCA.

Conclusion

The clinical procedures included in ELCA reflect procedures performed** by a significant percentage of Radiologist Assistants and which a significant percentage of radiologists were comfortable delegating to an R.R.A. under their supervision. The survey identified many procedures that were being performed** by some Radiologist Assistants, but not by a sufficient percentage to warrant inclusion in ELCA. Exclusion from this document is not intended to limit the procedures performed** by an R.R.A. provided that appropriate education, training, and competency assessment have been documented for those procedures and provided that federal, state, institutional, and employer requirements support the performance**.

Radiologist supervision of R.R.A. performed procedures is required as part of a radiologist-led team.** The ARRT test development and education requirements for certification and registration assume that the level of supervision for entry-level R.R.A.s will be at the direct level for clinical procedures. Direct supervision¹ is defined as the radiologist present in the radiology facility and immediately available to furnish assistance and direction throughout the performance** of the procedure, but not required to be present in the room when the procedure is performed**. The assumption of a specific level of supervision is intended to assist in the development of entry-level certification and registration requirements. The actual level of radiologist supervision for an R.R.A. in practice will depend upon the R.R.A.'s experience as well as federal, state, institutional, and employer requirements. Best practice for all exams requiring consent includes the radiologist meeting the patient.

It is expected that R.R.A.s who perform** procedures other than those listed in ELCA will have received appropriate training and competency assessment on these procedures to assure patient safety and quality imaging. The additional clinical education and competence assessment should be documented within the individual R.R.A.'s portfolio. All activities should be performed** in compliance with federal, state, institutional, and employer requirements.

¹This definition of direct supervision is based upon that of the Centers for Medicare & Medicaid Services (CMS).

**indicates "perform under the supervision of the responsible radiologist."



Content Categories

Legend: PC = Patient Care,
S = Safety, IP = Image
Production,
P = Procedures

Clinical activities

1.	Review the patient's medical record to verify the appropriateness of a specific exam or procedure and report significant findings to the supervising radiologist.	PC.1.D., PC.1.G., PC.1.M., PC.2.B.
2.	Assist the supervising radiologist in determining whether indications meet the ACR Appropriateness Criteria® when advising those who order examinations.	PC.1.D., S.1.B.1.A.
3.	Interview the patient to obtain, verify, or update medical history.	PC.1.C.2., PC.1.D., PC.1.E., PC.1.M.
4.	Explain procedure to the patient or authorized representative, including a description of risks, benefits, alternatives, and follow-up. ***	PC.1.A., PC.1.C., PC.1.M.3.
5.	Participate in obtaining informed consent.***	PC.1.A.2., PC.1.B., PC.1.C.
6.	Determine if the patient has followed instructions in preparation for the exam (e.g., diet, premedications).	PC.1.A.2., PC.1.C., PC.1.F.
7.	Assess risk factors that may contraindicate the procedure (e.g., health history, medications, pregnancy, psychological indicators, alternative medicines). (Note: Must be reviewed with the supervising radiologist.)	PC.1.C., PC.1.D., PC.1.E., PC.1.G., PC.2.C.2.
8.	Recognize abnormal or missing lab values relative to the procedure or imaging (e.g., eGFR, creatinine, beta-hCG)	PC.1.D.3., PC.1.G.
9.	Perform** and document a procedure-focused physical examination, and review relevant data (e.g., signs and symptoms, laboratory values, significant abnormalities, vital signs); report findings to the supervising radiologist for the following systems or anatomical areas:	PC.1.C., PC.1.D., PC.1.E., PC.1.F., PC.1.G., PC.2.B., PC.2.C., PC.2.D. And P as listed below a–h
	a. abdominal	P.1.A.2, P.1.B.2., P.1.C.2., P.1.D.2., P.1.E.2.
	b. thoracic	P.2.A.2., P.2.C.2.
	c. cardiovascular	P.2.A.2., P.2.C.2.
	d. musculoskeletal	P.3.A.2
	e. peripheral vascular	P.4.B.2
	f. neurological	P.4.A.2.
	g. endocrine	P.3.B.2.
	h. breast and axillae	P.2.D.2.
10.	Observe ECG for changes and recognize abnormal rhythms.	PC.1.D.7., PC.1.F.3., P.2.B.2.
11.	Perform** urinary catheterization.	PC.1.K., P.1.D.4.
12.	Perform** venipuncture.	PC.1.I
13.	Monitor IV lines for flow rate and complications.	PC.1.I
14.	Participate in the administration of moderate/conscious sedation as prescribed by the supervising radiologist.	PC.1.F., PC.1.M., PC.2.C.

**indicates "perform under the supervision of the responsible radiologist."

***Patient or authorized representative must be able to communicate with the radiologist if they request or if any questions arise that cannot be appropriately answered by the radiologist assistant.



Content Categories

Legend: PC = Patient Care,
S = Safety, IP = Image
Production,
P = Procedures

Clinical activities

15.	Observe and assess patients who have received moderate/conscious sedation as part of the radiologist-led team.	PC.1.F., PC.1.M., PC.2.C.
16.	Assess patient's vital signs and level of anxiety/pain and inform the supervising radiologist when appropriate.	PC.1.C., PC.1.F., PC.2.C.
17.	Recognize and respond to medical emergencies (e.g., drug reactions, cardiac arrest, hypoglycemia) and activate emergency response systems, including notification of the supervising radiologist.	PC.1.F.5., PC.1.L., PC.1.M., PC.2.
18.	Administer oxygen as prescribed.	PC.1.F., PC.1.J.
19.	Explain effects and potential side effects to the patient or authorized representative of the pharmaceutical(s) required for the examination.	PC.1.A.2.C., PC.2., P.
20.	Administer contrast agents and radiopharmaceuticals as prescribed by the supervising radiologist.	PC.1.F., PC.1.H., PC.2.A., PC.2.D., P.
21.	Administer medications (EXCLUDING contrast agents and radiopharmaceuticals) as prescribed by a licensed practitioner and approved by the supervising radiologist.	PC.1.F., PC.1.H., PC.2.A., PC.2.B., PC.2.C.
22.	Monitor patient for side effects or complications of the pharmaceutical(s).	PC.1.F., PC.1.M., PC.2.A.7, PC.2.D.2.
23.	Operate medical imaging equipment (e.g., ultrasound, fixed/mobile fluoroscopic unit).	S.1.G., P.
24.	Document fluoroscopy time and radiation dose.	PC.1.M.1.C., S.1
25.	Use sterile or aseptic technique as required to help prevent infection.	PC.1.H., P.
26.	Advocate for patient's radiation safety and protection:	S.
	a. assess the patient's past imaging history	PC.1.D.4., S.1.B.3.
	b. Be aware of radiation safety resources available with Image Wisely®, Image Gently®, and radiologyinfo.org.	S.1.B.3.B.
	c. Work with medical physicists, radiologists, and technologists in developing, reviewing, and updating imaging protocols.	S.1.B.3., S.1.I.
	d. Be familiar with ACR MR Safety document and MR zones.	S.1.H.
27.	Perform** procedures in compliance with Standards of Care, facility, and regulatory requirements, and ARRT Standards of Ethics.	PC.1.A., PC.1.B., PC.1.M., PC.2.,S.1.B., S.1.F., P.
28.	Perform** the following GI and chest examinations and procedures including contrast media administration when appropriate and operation of imaging equipment:	PC.2.D., S.1.G., and P as listed below a-j.
	a. esophageal study	P.1.B.3.A.
	b. swallowing function study	P.1.B.3.B.
	c. upper GI study	P.1.B.3.C.
	d. post-operative study (e.g., bariatric surgery, anastomosis check)	P.1.B.3.F.
	e. small bowel study	P.1.B.3.D.

**indicates "perform under the supervision of the responsible radiologist."



Content Categories

Legend: PC = Patient Care,
S = Safety, IP = Image
Production,
P = Procedures

Clinical activities

	f. enema with barium, air, or water soluble contrast	P.1.B.3.E.
	g. nasogastric/enteric and orogastric/enteric tube placement	P.1.B.3.H.
	h. percutaneous, nasogastric/enteric, and orogastric/enteric tube evaluation (verification with contrast injection)	P.1.B.3.G.
	i. t-tube cholangiogram	P.1.C.3.B.
	j. chest fluoroscopy	P.2.A.3.
29.	Perform** the following GU examinations and procedures including contrast media administration and operation of imaging equipment:	PC.2.D., S.1.G., and P as listed below a-g.
	a. antegrade urography through an existing catheter (e.g., nephrostography)	P.1.D.3.A.
	b. cystography, not voiding	P.1.D.3.D.
	c. retrograde urethrography or urethrocystography	P.1.D.3.C.
	d. voiding cystography/cystourethrography	P.1.D.3.D.
	e. loopography (urinary diversion study)	P.1.D.3.B.
	f. hysterosalpingography - imaging only	P.1.E.3.
	g. hysterosalpingography - procedure and imaging	P.1.E.3.
30.	Perform** the following invasive nonvascular procedures with image guidance including contrast media administration and needle or catheter placement:	PC.2.D., S.1.G., and P as listed below a-p.
	a. therapeutic bursa aspiration and/or injection	P.3.A.3.A.
	b. diagnostic joint aspiration	P.3.A.3.B.
	c. therapeutic joint injection	P.3.A.3.C.
	d. Arthrography (radiography, CT, and MR)	P.3.A.3.E.
	1. shoulder	P.3.A.3.E.1
	2. elbow	P.3.A.3.E.2
	3. wrist	P.3.A.3.E.3
	4. hip	P.3.A.3.E.4
	5. knee	P.3.A.3.E.5
	6. ankle	P.3.A.3.E.6
	e. lumbar puncture without injection	P.4.A.3.A.
	f. lumbar puncture for myelography, or cisternography	P.4.A.3.B.
	g. cervical, thoracic, or lumbar myelography – imaging only	P.4.A.3.B.
	h. thoracentesis with or without catheter	P.2.C.3.A.
	i. placement of catheter for pneumothorax	P.2.C.3.B.
	j. paracentesis with or without catheter	P.1.A.3.A.
	k. abscess, fistula, or sinus tract study	P.1.A.3.B.
	l. percutaneous drainage with or without placement of catheter	P.1.A.3.C.

**indicates "perform under the supervision of the responsible radiologist."



Content Categories

Legend: PC = Patient Care,
S = Safety, IP = Image
Production,
P = Procedures

Clinical activities

	(excluding thoracentesis and paracentesis)	
	m. removal of percutaneous drainage catheter (e.g., tunneled, or non-tunneled)	P.1.A.3.E.
	n. change of percutaneous tube or drainage catheter	P.1.A.3.D.
	o. injection for sentinel node localization	P.2.D.3.
	p. Biopsy	
	1. thyroid	P.3.B.3
	2. superficial lymph node	P.4.B.4.B.
	3. liver (non-targeted)	P.1.C.3.A.
	4. superficial soft tissue mass	P.3.A.3.D.
31.	Perform** the following invasive vascular procedures with image guidance including contrast media administration and needle or catheter placement:	PC.2.D., S.1.G., and P as listed below a-e
	a. peripheral insertion of central venous catheter (PICC) placement	P.4.B.4.E.
	b. insertion of non-tunneled central venous catheter	P.4.B.4.C.
	c. central venous catheter or port injection	P.4.B.4.D.
	d. tunneled venous catheter removal	P.4.B.4.F.
	e. extremity venography	P.4.B.4.A.
32.	Perform** CT post-processing.	P.
33.	Perform** MR post-processing.	P.
34.	Evaluate images for completeness and diagnostic quality, and recommend additional images as required (e.g., general radiography, CT, and MR). (Note: Additional images only in the same modality such as additional CT slices.)	P.
35.	Review imaging procedures, make initial observations, and communicate observations only to the supervising radiologist. (R.R.A.s do not perform** interpretations (preliminary, final, or otherwise) of any radiological examination. The R.R.A. may make and communicate initial observations only to the supervising radiologist.)	PC.1.M., P.

**indicates "perform under the supervision of the responsible radiologist."



Content Categories

Legend: PC = Patient Care,
S = Safety, IP = Image
Production,
P = Procedures

Clinical activities

36.	Record initial observations of imaging procedures following the supervising radiologist approval. (R.R.A.s do not perform** interpretations (preliminary, final, or otherwise) of any radiological examination. The R.R.A. may make and communicate initial observations only to the supervising radiologist.)	PC.1.M., P.
37.	Communicate the radiologists' reports to appropriate health care provider consistent with the ACR Practice Parameter for Communication of Diagnostic Imaging Findings.	PC.1.M., S.1.B.1.A.
38.	Provide pre- and post- care instructions to the patient or authorized representative as prescribed by the supervising radiologist or other licensed provider.	PC.1.A.2.D., PC.1.C., PC.1.M., P.
39.	Perform** follow-up patient evaluation, and post-procedure care, as part of the radiologist-led team, and communicate findings to the supervising radiologist.	PC.1.F., .PC.1.M., P.
40.	Document procedure and post-procedure evaluation in appropriate record.	PC.1.M.
41.	Document patient admission and/or discharge summary for review and co-signature by the supervising radiologist.	PC.1.M., P.
42.	Participate in quality improvement activities within the radiology practice.	S.1.I.
43.	Assist with data collection and review for clinical trials or other research.	S.1.I.
44.	Assist or present at multi-disciplinary conferences as part of the radiologist-led team (e.g., tumor boards and case conferences).	S.1.I.

**indicates "perform under the supervision of the responsible radiologist."