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,~~ Tthe R.R.A. performs** patient assessment, patient management, and selected ~~clinical imaging~~ procedures only under the supervision of a board-eligible or board-certified radiologist. ~~–~~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 t~~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 as part of the 2011 practice analysis.

**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 Practice Analysis Committee members, that includes 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, Society of Radiology Physician Extenders (SRPE), Radiologist Assistant Education Council (RAEC), and ARRT. Once approved, the survey is administered to Radiologist Assistants Extenders identified from ARRT's database, a sample of ACR member radiologists, and radiologists who work with Radiologist AssistantsExtenders. 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 on a five-year cycle at least every five years and more frequently if needed.

Most Recent Practice Analysis

In 20244, the ARRT surveyed a national sample of Radiologist Assistants (identified as either R.R.A.s and/or RPAs), and ACR member radiologists, and radiologists who work with Radiologist Assistants to identify the responsibilities of an R.R.A. When evaluating survey results, the advisory Practice Analysis Committee applied a 40% criterion. That is, to be included on the task inventory, the activity should have been performed by at least 40% of Radiologist Assistants must report that they perform** the activity, and at least 40% of radiologists shouldmust 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% criterionguideline but is expected to rise above the 40% criterion 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 supervision[1] is defined as the radiologist present in the radiology facility and immediately available to furnish assistance and direction throughout the performance** of the procedure, butprocedure 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.

[1]This 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."*

Clinical activities **Tasks listed below are performed as part of a radiologist-led team. Relevant observations and medications shall be reported to and reviewed with 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.**		
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.~~	
~~2.~~	~~Assist the supervising radiologist in determining whether indications meet the ACR Appropriateness Criteria® when advising those who order examinations.~~ This was incorporated into task above	
2.	Interview the patient to obtain, verify, or update medical history.	
3.	Explain procedure to the patient or authorized representative, including a description of risks, benefits, alternatives, and follow-up.**~~*~~	
4.	Assist with,~~Participate~~ or~~in~~ obtain~~ing~~ informed consent.**~~*~~	
5.	Determine if the patient has followed exam preparation instructions. ~~in preparation for the exam (e.g., diet, premedications)~~	
6.	Assess for procedure ~~risk factors that may~~ contraindications ~~to the procedure (e.g., health history, medications, pregnancy, psychological indicators, alternative medicines). (Note: Must be reviewed with the supervising radiologist.)~~	
7.	Recognize abnormal or missing lab values relative to the procedure or imaging (e.g., eGFR, creatinine, beta-hCG).	
8.	**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:**	
	a. abdominal	
	b. thoracic	
	c. cardiovascular	
	d. musculoskeletal	
	e. peripheral vascular	
	f. neurological	
	g. endocrine	
	h. breast and axillae	
9.	Observe ECG for changes and recognize abnormal rhythms.	
10.	Perform~~**~~ urinary catheterization.	
11.	Perform~~**~~ venipuncture.	
12.	Monitor IV lines for flow rate and complications.	
13.	Perform pre-sedation evaluation.	
14.	~~Participate in the administration of~~ Assist with the administration of ~~moderate/conscious~~ sedation (e.g., minimal or moderate) as prescribed by the supervising radiologist.	

~~**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.

Clinical activities		
15.	Observe and assess patients who have received ~~moderate/conscious~~ sedation. ~~as part of the radiologist-led team.~~	
16.	Assess patient's vital signs and level of anxiety/pain and inform the supervising radiologist when appropriate.	
17.	Recognize and respond to medical emergencies, ~~(e.g., drug reactions, cardiac arrest, hypoglycemia) and~~ activate emergency response systems, ~~including~~ and ~~notifi~~notify~~cation of~~ the supervising radiologist.	
18.	Administer oxygen as prescribed.	
19.	~~Explain effects and potential side effects to the patient or authorized representative of the pharmaceutical(s) required for the examination.~~Explain to the patient or authorized representative effects and potential side effects of the pharmaceutical(s) required for the procedure or examination.	
20.	Prior to the administration of contrast media, determine if the patient is at risk for an adverse reaction.	
21.	Administer contrast media~~agents~~ and radiopharmaceuticals as prescribed by the supervising radiologist.	
22.	Administer general medications (other than~~EXCLUDING~~ contrast media,~~agents and~~ radiopharmaceuticals, and sedation) as ~~prescribed by a licensed practitioner and~~ approved by the supervising radiologist.	
23.	Monitor patient for side effects or complications of any ~~the~~ pharmaceutical(s) including contrast media.	
24.	Operate medical imaging equipment (e.g., ultrasound, fixed/mobile fluoroscopic unit, CT, MR).	
25.	Document fluoroscopy time and radiation dose.	
26.	Use sterile or aseptic technique. ~~as required to help prevent infection~~	
27.	**Advocate for patient's ~~radiation~~ safety and protection:**	
	a. ~~-~~assess the patient's past imaging history.	
	b. ~~-~~adhere to principles ~~Be aware~~ of radiation safety resources such as, but not limited to, ~~available with~~ Image Wisely®, Image Gently®, and radiologyinfo.org.	
	c. ~~-~~work with ~~medical physicists, radiologists, and technologists~~ the radiology care team in developing, reviewing, and updating imaging protocols.	
	d. ~~-~~conduct procedures in compliance with ~~Be familiar with~~ ACR MR Safety document and MR zones.	
28.	~~Perform** procedures~~Perform procedures in compliance with radiology society consensus guidelines, s~~S~~tandards of c~~C~~are, facility requirements, ~~and~~ regulatory requirements, and ARRT Standards of Ethics.	

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~~*~~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.

Clinical activities		
29.	**Perform~~**~~ the following GI and chest examinations and procedures: ~~including contrast media administration when appropriate and operation of imaging equipment:~~**	
	a. ~~-~~esophageal study	
	b. ~~-~~swallowing function study	
	c. ~~-~~upper GI study	
	d. ~~-~~postoperative study ~~(e.g., bariatric surgery, anastomosis check)~~	
	e. ~~-~~small bowel study	
	f. ~~-~~enema with barium, air, or ~~water soluble~~water-soluble contrast	
	g. ~~-~~nasogastric/enteric and orogastric/enteric tube placement	
	h. ~~-~~percutaneous, ~~nasogastric/ enteric, and orogastric/~~enteric tube evaluation (verification with contrast injection)	
	i. ~~t-tube~~ cholangiogram through existing catheter	
	j. ~~-~~chest fluoroscopy	
30.	**Perform~~**~~ the following GU examinations and procedures: ~~including contrast media administration and operation of imaging equipment:~~**	
	a. ~~-~~antegrade urography through an existing catheter (e.g., nephrostography)	
	b. ~~-~~cystography, not voiding	
	c. ~~-~~retrograde urethrography or urethrocystography	
	d. ~~-~~voiding cystography/cystourethrography	
	e. ~~-~~loopography (urinary diversion study)	
	f. ~~-~~hysterosalpingography—imaging only	
	g. ~~-~~hysterosalpingography—procedure and imaging	

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Clinical activities		
31.	**Perform** ~~**~~ **the following invasive nonvascular procedures**: ~~with image guidance including contrast media administration and needle or catheter placement:~~	
	a. ~~-~~therapeutic bursa aspiration and/or injection	
	b. ~~-~~tendon sheath injection	
	~~b.~~c. ~~-~~diagnostic joint aspiration	
	~~c.~~d. ~~-~~therapeutic joint injection	
	~~d.~~e. ~~-~~Arthrography (radiography, CT, ultrasound, or~~and~~ MR) ~~1. shoulder~~ ~~2. elbow~~ ~~3. wrist~~ ~~4. hip~~ ~~5. knee~~ ~~6. ankle~~	
	1. shoulder	
	2. elbow	
	3. wrist	
	4. hip	
	5. knee	
	6. ankle	
	~~e.~~f. ~~-~~lumbar puncture without injection	
	g. ~~-~~lumbar puncture with injection:	
	1. lumbar puncture for chemotherapy injection	
	2. lumbar puncture for myelography ~~or cisternography~~	
	3. lumbar puncture for nuclear medicine cisternogram	
	~~g.~~h. cervical, thoracic, or lumbar myelography – imaging only	
	~~h.~~i. thoracentesis with drainage catheter (tunneled) ~~or without catheter~~	
	j. ~~-~~thoracentesis with drainage catheter (non-tunneled)	
	k. ~~-~~thoracentesis without drainage catheter	
	~~i.~~l. ~~-~~place~~ment of~~ catheter for pneumothorax	
	~~j.~~ m. ~~-~~paracentesis with ~~-~~drainage catheter (tunneled)~~or without catheter~~	
	n. ~~-~~paracentesis with drainage catheter (non-tunneled)	
	o. ~~-~~paracentesis without drainage catheter	
	~~k.~~p. ~~-~~abscess, fistula, or sinus tract study	
	~~l.~~q. ~~-~~percutaneous drainage with ~~or without~~ placement of drainage catheter (excluding thoracentesis and paracentesis)	

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

Clinical activities		
	r. ~~-~~percutaneous drainage without placement of drainage catheter (excluding thoracentesis and paracentesis)	
	~~m.~~s. ~~removal of~~ remove percutaneous drainage catheter~~ (e.g., tunneled, or~~ (non-tunneled)	
	~~n.~~t. ~~change of~~exchange ~~-~~percutaneous tube or drainage catheter (e.g., biliary, nephrostomy)	
	u. ~~-~~remove percutaneous drainage catheter (tunneled)	
	~~o. injection for sentinel node localization~~	
	~~p.~~v. ~~-~~biopsy ~~1. thyroid~~ ~~2. superficial lymph node~~ ~~3. liver (non-targeted)~~ ~~4. bone marrow~~ ~~45.. superficial soft tissue mass~~	
	1. thyroid	
	2. superficial lymph node	
	3. liver (non-targeted)	
	4. bone marrow	
	5. superficial soft tissue mass	
32.	**Perform~~**~~ the following invasive vascular procedures with image guidance~~:~~ ~~including contrast media administration and needle or catheter placement:~~**	
	a. peripheral insertion of central venous catheter (PICC) placement	
	b. insert~~ion of~~ non-tunneled central venous catheter	
	c. insert tunneled central venous catheter (not including ports)	
	d. insert vascular port	
	~~c.~~e. inject central venous catheter or port ~~injection~~	
	f. exchange central venous catheter (tunneled)	
	g. exchange central venous catheter (nontunneled)	
	h. remove vascular port	
	~~d.~~i. remove tunneled venous catheter ~~removal~~	
	~~e.~~j. extremity venography	
	k. ultrasound-guided IV placement	
~~32.~~	~~Perform** CT post-processing.~~	
~~33.~~	~~Perform** MR post-processing.~~	
33.	Protocol imaging examinations.	
34.	Work up radiology consults.	

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Clinical activities		
35.	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.)~~	
36.	Recommend additional imaging studies in collaboration with the supervising radiologist.	
37.	Review imaging procedures and communicate initial observations to the supervising radiologist.~~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.)~~	
~~38.~~	~~Record initial observations of imaging procedures~~ Record initial observations of procedures for the supervising radiologist's review and approval.~~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.)~~	
~~39.~~	Communicate the radiologists' reports to appropriate health care provider consistent with the ACR Practice Parameter for Communication of Diagnostic Imaging Findings.	
~~40.~~	Provide pre- and post-care instructions to the patient or authorized representative as prescribed by the supervising radiologist. ~~or other licensed provider.~~	
~~41.~~	Perform** follow-up patient evaluation, and postprocedure care, as part of the radiologist-led team, and communicate findings to the supervising radiologist.	
~~42.~~	Document procedure and postprocedure evaluation. ~~in appropriate record.~~	
~~43.~~	Document patient admission and/or discharge summary for the supervising radiologist to review and co-sign.	
~~44.~~	Participate in quality improvement activities within the radiology practice.	
~~43.~~	~~Assist with data collection and review for clinical trials or other research.~~	
~~44.~~	~~Assist or present at multi-disciplinary conferences as part of the radiologist-led team (e.g., tumor boards and case conferences).~~	

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