

**Practice Analysis and Content Specifications
for Registered Radiologist Assistant**

Final Report

For New Documents Implemented July 2018

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CHAPTER 1

PROJECT BACKGROUND AND INTRODUCTION

The ARRT establishes the job relatedness of an examination via a practice analysis (also called a job analysis). Practice analyses document the role to be credentialed and the topics to be covered by the examination used in the credentialing decision as well as the degree of emphasis that each topic receives. The rationale for practice analyses is outlined in *The Standards for Educational and Psychological Testing* (American Educational Research Association, American Psychological Association, National Council on Measurement in Education, 2014) and in the National Commission for Certifying Agencies (NCCA) *Standards for the Accreditation of Certification Programs* (NCCA, 2014). Legislative activity and legal precedence also stress the importance of practice analysis in the development and validation of certification exams. The ARRT conducts a practice analysis for each discipline every five years. Such updates are important for professions that continually evolve, due to advances in technology, because they help assure that the content specifications and other certification requirements reflect current practice.

This report describes the practice analysis for Registered Radiologist Assistant (R.R.A.) conducted between the dates of March 2016 and July 2018. The purpose of the overall project was to identify tasks currently required of the typical radiologist extender and determine the knowledge and cognitive skills required to effectively perform those tasks.

Projects such as this require a coordination of numerous activities. During the project a number of committee meetings were held, a survey was developed and administered, the survey data was analyzed, and decisions were made regarding revisions to the exam content and eligibility requirements. The project was completed when the ARRT Board of Trustees approved the changes to the exam content and eligibility requirements in July 2017. The first exam under the new content and eligibility requirements was administered in July 2018.

CHAPTER 2

TASK INVENTORY SURVEY

Development of Task Inventory Survey

The task inventory survey was developed between March 2016 and June 2016 by the Practice Analysis Committee with facilitation from ARRT staff. The Practice Analysis Committee held its first meeting March 2016. Part of the meeting was devoted to the development of a task inventory survey. The survey consisted of tasks thought to define the job role of the radiologist extender. ARRT staff also sent a draft copy to the ICRA council to have their input on the survey content. A brief description of the survey is provided below.

Format of Survey. The survey had three main sections: Demographics and workplace, types of drugs, and clinical activities.

Section 1. The demographics section asked participants to answer seven questions concerning amount of employment, job title, and workplace characteristics as they related to the person's role as a radiologist extender.

Section 2. The types of drugs section asked participants about the capacity with which they were involved with the use of twelve types of drugs in workplace settings. Respondents replied with the categories of "Administer as prescribed by radiologist," "Monitor patient for side effects," "Assess for indications, contraindications, and interactions," and "never."

Section 3. The third section had participants respond to how frequently they conducted 97 different clinical tasks in the workplace, as well as a space for an additional write-in procedure. The response scale for these items was "Never Perform," "Yearly", "Quarterly," "Monthly," "Weekly," and "Daily."

ARRT also sent a survey to radiologists. The main difference in this survey was the rating scale used in section 3. The radiologist rating scale was:

Yes, R.R.A. may perform under radiologist's general supervision (radiologist not in facility)

Yes, R.R.A. may perform when radiologist is in the facility and available

Yes, R.R.A. may perform only when radiologist is in the room

No, this should only be performed personally by radiologist

I wish to opt out of this judgement

Survey Sample

Evaluation of Original Sample. The original sample was drawn from radiologist extenders in the ARRT database. The criteria used to construct a sample of individuals to survey included: currently certified and registered as an R.R.A., reported radiologist assistant as their or secondary discipline of employment, or reported being certified with the CBRPA. Ultimately, 517 radiologist extenders were identified by ARRT staff that satisfied the above criteria.

In addition to sending the survey to these 517 radiologist extenders, ARRT staff also sent a survey to radiologists. This survey was very similar to the one given to extenders, modified very slightly to be appropriate for radiologists to describe the supervision level with which they would be comfortable allowing radiologist extenders to conduct the tasks on the task list. The ACR gave ARRT a sample of 1,000 radiologists pulled at random. ASRT

also gave ARRT a list of 664 radiologists that were current or former ACR councilors. After reconciling any duplicates from the list, the total radiologist sample was 1,627 radiologists. ARRT staff also included two radiologist surveys in with the radiologist extender surveys in case the radiologist supervising the radiologist extender wanted to submit a survey.

Once the sample was determined, the task inventory survey was mailed in July 2016. The mailed survey also contained the option for people to fill out the same survey online for their own convenience. The initial mailing was followed up by a reminder postcard two weeks later. A total of 169 extender surveys were returned by August 2016 (allowing 6 weeks for completion), for a response rate of 33%. Responses from those returning the survey were screened to assure that the surveys were correctly filled out, the responses were realistic, and the responses were from the intended population (i.e., currently working as a radiologist extender). After the complete screening process, a total of 101 surveys were retained for an effective response rate of 20%. A total of 88 surveys were returned from radiologists that received surveys from their supervisee radiologist extenders. A total of 132 other radiologist surveys were received.

Data Analysis

Based on the responses to the demographic questions, the 101 usable extender surveys tended to come from people that were relatively experienced in the field (over 60% with six or more years of experience). Although respondents reported working in numerous settings, the majority reported working in community hospitals. There was relatively good agreement among the extenders on conducting numerous tasks, as there were 45 tasks where 60% or more respondents reported conducting the task. Among the tasks with the lower percentages of responses were tasks corresponding to procedures that would be new tasks for the discipline.

Based on numerous analyses, the data from the radiologists had two clear groupings in terms of the percentage of radiologists comfortable with an extender conducting versus not conducting a procedure: those that had worked with a radiologist extender and those that had not worked with a radiologist extender. Radiologists that had worked with radiologist extenders reported many more procedures with which they were comfortable allowing a radiologist extender to conduct. Such a finding is certainly not surprising. Even among the radiologists not working with the extenders, there were a large number of clinical activities and procedures with which radiologists reported being comfortable allowing a radiologist extender to conduct. In cases of lower frequency or borderline tasks, the percentages of extenders reporting conducting the tasks were generally close to or lower than the percentages of radiologists not working with extenders reporting that they were comfortable with the extender conducting the procedure.

CHAPTER 3

CONTENT SPECIFICATIONS AND CLINICAL REQUIREMENTS

Revision of the Entry Level Clinical Activities Document

The Practice Analysis Committee met in September 2016 to review the practice analysis survey data and determine whether any tasks should be dropped from, added to, or changed in the final Entry Level Clinical Activities document. The clinical tasks that were deleted from or added to the task inventory are listed here. There were a variety of other activity statements that the Committee modified for clarification.

Task Deleted	Rationale
Perform the following GI and chest examinations and procedures including contrast media administration and operation of appropriate imaging equipment: small bowel study via enteroclysis tube	Low percentage of extenders conducting
Perform the following GI and chest examinations ... : defecography	Low percentage of extenders conducting

Task Added	Rationale
Perform the following GI and chest examinations and procedures including contrast media administration and operation of appropriate imaging equipment: post-operative study	High percentage of extenders conducting; high percentage of radiologists responding positively
Perform the following GI and chest examinations ... : CT colonography	Task may become more common for radiologist extenders if approved by CMS for reimbursement; high percentage of radiologists responding positively
Perform the following invasive nonvascular procedures with image guidance including contrast media administration and needle or catheter placement: therapeutic bursa aspiration and/or injection	High percentage of extenders conducting; high percentage of radiologists responding positively
Perform the following invasive nonvascular procedures ... : therapeutic joint injection	High percentage of extenders conducting; high percentage of radiologists responding positively
Perform the following invasive nonvascular procedures ... : arthrography of shoulder, elbow, wrist, hip, knee, and ankle	Clarification of which arthrography sites were covered on the exam
Perform the following invasive nonvascular procedures ... : percutaneous drainage with or without placement of catheter (excluding thoracentesis and paracentesis)	High percentage of extenders conducting; high percentage of radiologists responding positively
Perform the following invasive nonvascular procedures ... : biopsy: superficial lymph node	High percentage of extenders conducting; high percentage of radiologists responding positively

ARRT staff sent a draft of the revised Entry Level Clinical Activities document to ICRA for comment. The Board of Trustees approved the final task inventory at the January 2017 board meeting.

Content Specifications

Outline of Topics. Revising the content specifications is based on changes to the final task inventory, comments from the professional community, and judgment of the Practice Analysis Committee. A final draft of the content specifications was completed after the task inventory had been finalized and approved. For every activity in the task inventory, the Practice Analysis Committee was asked to consider the knowledge and skill required to successfully perform that task and verify that the topic was addressed in the content specifications. Similarly, topics that could not be linked to practice were not included on the final content specifications. The most notable changes from the previous version of the content specifications are:

- The Committee reorganized the number of sections from six to three (Patient Care, Safety, and Procedures). These three categories are in common with many other ARRT disciplines.
- The selected response score reporting is now based on the seven subsections.
- Several procedures were added and two deleted from the Procedures section to match the changes in the ELCA.
- Various clarifications and terminology updates occurred.

The Board of Trustees approved the final content specifications documents implemented July 2018.

[Examination Content Specifications | ARRT - The American Registry of Radiologic Technologists](#)

Didactic Competency and Clinical Portfolio Requirements

Candidates for certification and registration are required to complete didactic competency and clinical portfolio requirements to be eligible for the R.R.A. examination. The purpose of the didactic competency requirements is to verify that individual had the opportunity to develop fundamental knowledge, integrate theory into practice and hone affective and critical thinking skills required to demonstrate professional competency. The purpose of the clinical portfolio requirement is to verify that individual certified and registered by the ARRT have demonstrated competency 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 covered by the Registered Radiologist Assistant examination, provides the basis for the acquisition of the full range of procedures typically required in a variety of settings. Thus, when establishing the didactic competency and clinical portfolio requirements, the Practice Analysis Committee focused on those procedures in the task inventory typically performed by most entry-level radiologist extenders. The most notable changes from the previous version of the clinical requirements are:

- The procedures that were added and deleted on the ELCA as outlined above were also appropriately added or deleted on the clinical experience and competence assessments. The added procedures were all added as elective procedures.
- Arthrogram is now more prescriptive, requiring a minimum of five shoulder and five hip arthrograms.
- Cervical, thoracic, or lumbar myelography – imaging only is now a mandatory procedure.

- Lumbar puncture and lumbar puncture with contrast are now combined into one mandatory item: lumbar puncture with or without contrast.
- The minimum and maximum allowable repetitions for individual procedures were modified for several procedures to bring the repetitions more in line with what is required to learn a procedure.
- There were various minor wording updates for clarification.

The Board of Trustees approved the final clinical requirements document implemented July 2018.

[Clinical Competency Requirements | ARRT - The American Registry of Radiologic Technologists](#)

CHAPTER 4

EXAM PASSING STANDARD

Many factors go into deciding when to readdress the passing standard for an exam. When conducting a practice analysis study, the degree to which the content is changed is the primary factor that goes into making the decision. In the case of the R.R.A. exam, one must also consider that ARRT conducts a standard setting activity for the essay portion of the exam on each exam administration. ARRT staff maintains the standard for the selected response portion using nominal weights mean equating. This combination makes the R.R.A. exam somewhat unique. When considering the relatively small changes to the content, recent performance on the exam, and the essay committee's continual monitoring of the essay standard, the practice analysis committee decided that maintaining the current standard on the selected response portion of the exam through statistical equating was an appropriate course of action.

CHAPTER 5
CONCLUSION

Numerous individuals contributed to this project, as committee members, document reviewers, or as survey respondents. Periodic practice analysis is a necessary step in the life cycle of an exam program to insure that the content of the exam and the eligibility requirements remain relevant with current practice. This study noted a number of changes to the field of radiologist extenders, and thanks to the efforts of all involved it assures that the ARRT R.R.A. exam program will continue to be an excellent assessment of radiologist extenders wishing to demonstrate their qualifications by seeking certification and registration.