



Practice Analysis Report: Sonography – Effective January 2024

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, 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, 2021). Legislation and legal precedent also stress the importance of practice analysis in the development and validation of certification exams. The ARRT conducts a practice analysis for each discipline approximately every five years. Regular updates are important for professions that continually evolve due to advances in technology because they help ensure that the content specifications and other certification requirements reflect current practice.

This report describes the practice analysis for Sonography conducted from January 2021 to June 2022. The project sought to identify tasks currently required of the typical sonographer and to determine what knowledge and cognitive skills are required to effectively perform those tasks.

To accomplish this task, ARRT hosted several meetings with a committee of subject matter experts (SMEs) to develop a survey of job tasks; evaluate survey results; and revise the content specifications, content outline, and clinical competency requirements. ARRT selected ten SMEs for this committee from across the United States and from a range of practice settings (e.g., hospitals, clinics, educational programs). These SMEs represented a range of expertise including five certified and registered technologists and one radiologist.

All statistical analyses were performed by trained statisticians employed by ARRT and meetings were primarily conducted by ARRT's Exam Development Coordinators with psychometric support provided by ARRT psychometric staff.

The ARRT Board of Trustees reviewed all changes to exam content and eligibility requirements before giving approval in January 2023. The first exam under the new content and eligibility requirements will be administered in January 2024.



Task Inventory

Survey Development

ARRT begins the practice analysis process by revising the task inventory, which is a listing of clinical and supporting procedures related to practice. The committee reviewed the previous task inventory and content outline before creating an updated list of job tasks by adding, deleting, or rewording tasks as necessary to reflect changes in the profession.

The committee used the updated job task list to create a survey for distribution to individuals working in the profession. The first section of this survey consisted of 113 questions asking current Sonographers how frequently they perform each task utilizing a six-point scale with the following options: *Never Perform, Yearly, Quarterly, Monthly, Weekly, and Daily*. Based on past research, ARRT uses a frequency scale with absolute anchors because data from scales like importance and criticality, which use subjective anchors, have inferior statistical properties (Babcock, Risk, & Wyse, 2020). The data gathered by absolute anchor frequency scales also correspond well to medical imaging practice as defined by external data sources (Babcock & Yoes, 2013) and add value beyond advisory committee members' judgement without data (Wyse & Babcock, 2018).

To reduce the length and burden of the practice analysis survey, the committee identified tasks from the previous task inventory that they believed were so ubiquitous in practice that over 90% of respondents would report that they do perform the task. The following tasks were omitted from the survey and included in the new task inventory without further discussion:

- Clean, disinfect, or sterilize transducer and equipment.
- Select equipment and accessories for the examination requested.
- Access and review pertinent patient data (e.g., electronic medical records, previous examinations/reports) for correlation with sonographic examination findings.
- Verify completeness of exam according to facility's protocol.

The second section of the survey included 17 questions regarding the respondent's role and workplace such as number of hours worked, primary job title, and department composition.

Survey Sample

The sample will send surveys to 1,300 individuals, utilizing the 655 available people with an ARRT Sonography credential (full or part time) as well as another 645 who are ARRT certified in something other than sonography but report working full time in Sonography.

ARRT's survey vendor mailed the survey in March 2021. A total of 263 recipients returned their survey by July 30, 2021, for an absolute response rate of 20.5%. ARRT staff screened responses to ensure that the surveys were correctly filled out by the intended population, retaining 249 for an effective response rate of 19.2%.

Analysis

ARRT psychometric staff first calculated the percentage of respondents who report performing the task and the percent who report performing the task daily or weekly (Table 1). ARRT allows tasks performed by 40% or more of respondents to be included on the task inventory without further discussion so that committees may focus on discussions most likely to impact task inclusion. However, committees still review all survey results and may choose to include tasks



below the threshold or reject tasks above the threshold as they see fit based on their joint expertise.

ARRT psychometric staff next compared the percent of entry-level (0-5 years of experience) and experienced (6+ years) respondents performing each task to ensure that the tasks included on the inventory are relevant to entry-level practice. Table 2 provides a list of tasks that differed in a potentially meaningful way and staff presented these results to the committee for discussion.

Finally, ARRT staff summarized results for the 16 items that covered the respondent's role and workplace (Tables 3 – 18).



Table 1.
Percent performing select tasks for sonographers

Item	Task	% Performing	%Daily weekly
1	Schedule patients taking into consideration the length of the procedure, the patient's condition, age, and preparation for the examination.	66.7	56.2
2	Sequence imaging procedures to avoid affecting subsequent examinations.	79.1	70.9
3	Verify the patient's identity.	100.0	99.6
4	Manage interpersonal interactions in an effective manner.	99.2	98.4
5	Evaluate patient's ability to understand and comply with the requirements for the requested examination (e.g., need for medical interpreter, physical, sensory, or cognitive impairments).	99.2	94.8
6	Obtain pertinent medical history.	99.6	98.4
7	Recognize abnormal or missing lab values relative to the examination ordered.	90.3	82.2
8	Explain and confirm the patient's preparation (e.g., diet restrictions, preparatory medications, allergies) prior to the examination.	92.4	86.3
9	Review the examination request to verify the order is accurate, appropriate, and complete.	99.6	99.2
10	Explain procedure to patient, patient's family, or authorized representative (e.g., pre-examination instructions).	98.4	97.2
11	Respond as appropriate to examination inquiries from the patient, patient's family, or authorized representative (e.g., scheduling delays, examination duration, other imaging modalities, clinical decision support).	98.8	97.2
12	Provide for the patient's safety, comfort, and modesty.	100.0	99.6
13	Monitor the patient's auxiliary medical equipment (e.g., IVs, supplemental oxygen).	74.1	62.8
14	Demonstrate and promote professional and ethical behavior (e.g., confidentiality, regulation compliance).	99.6	98.8
15	Notify appropriate personnel of adverse events or incidents (e.g., patient fall, wrong patient imaged).	95.5	59.2
16	Communicate relevant information to appropriate members of the care team.	98.8	95.2
17	Communicate critical findings to the interpreting physician.	66.7	92.7
18	Use positioning aids as needed, to enhance the examination and promote patient comfort and/or safety.	97.6	90.8
19	Use proper ergonomics when performing sonographic exams to prevent work-related musculoskeletal disorders.	99.2	96.8
20	Practice Standard Precautions.	100.0	98.4
21	Follow appropriate transmission-based precautions.	99.2	97.2



22	Obtain vital signs.	50.6	28.9
23	Recognize and communicate the need for prompt medical attention.	96.4	72.3
24	Recognize the need for and administer emergency care.	84.7	47.8
25	Follow environmental protection standards for handling and disposing of bio-hazardous materials (e.g., sharps, body fluids).	96.0	88.8
26	Follow environmental protection standards for handling and disposing hazardous materials (e.g., disinfectants).	97.6	88.8
27	Use sterile or aseptic technique when indicated.	90.4	72.3
28	Verify that informed consent is obtained as necessary.	89.1	79.4
29	Verify that time-out procedure is performed when necessary.	73.1	58.6
30	Provide follow-up instructions to the patient, patient's family, or authorized representative.	79.0	69.0
31	Handle, label, and submit laboratory specimens (e.g., biopsy tissue).	58.9	49.6
32	Communicate effectively with patient care team during interventional procedures.	69.5	55.0
33	Monitor and adjust TGC, power, and amplification to achieve optimum image quality.	99.6	98.8
34	Minimize ultrasound bioeffects.	98.4	97.6
35	Use 3D/4D imaging as appropriate.	48.6	36.1
36	Review and verify patient identifiers and clinical information in clinical software and/or (e.g., PACS, EMR) prior to procedure.	99.6	98.8
37	Modify imaging techniques for circumstances such as body habitus, artifacts inherent to the patient, pathological conditions, and/or patient's inability to cooperate.	100.0	99.6
38	Use annotation to indicate anatomical planes, patient position, or other relevant information.	100.0	98.8
39	Evaluate sonographic images for diagnostic quality.	99.6	98.4
40	Evaluate sonographic images for artifacts and determine if any artifact(s) has had an effect on the diagnostic quality of the examination.	99.2	93.6
41	Take corrective measures if sonographic images are not of diagnostic quality.	98.8	91.6
42	During the sonographic procedure, obtain representative images demonstrating normal anatomy, and/or variants, and/or pathological conditions.	99.6	98.8
43	Determine if additional areas should be evaluated sonographically.	97.1	93.5
44	Verify exam coding.	67.1	58.2
45	Recognize and report any limitations of the sonographic exam performed.	99.6	97.6
46	Communicate with the interpreting physician(s) about pertinent patient information and sonographic findings.	99.2	93.2



47	Document required information in the patient's medical record (e.g., imaging procedure documentation).	95.2	91.5
48	Recognize and report malfunctions in the sonographic equipment, accessories and PACS.	98.8	71.3
49	Use teleradiology.	46.2	31.6
51	Operate electronic imaging and record keeping systems (e.g., PACS, HIS, RIS, EMR).	96.4	96.0
	Use the following enhanced sonographic techniques:	-----	-----
52	elastography	19.7	8.8
53	contrast enhanced ultrasound (intravenous)	17.3	12.1
54	contrast enhanced voiding urosonography	2.4	1.2
55	spatial compound imaging (e.g., SonoCT, CrossBeam, Advanced SieClear™)	25.5	20.6
	Following clinical protocols, position patient and transducer using appropriate technical factors to produce diagnostic images and recognize pathology (when applicable) of:	----	----
56	abdominal vasculature (e.g., celiac trunk, SMA)	70.4	44.1
57	aorta	86.7	77.5
58	IVC	86.3	81.1
59	portal vein	81.1	77.1
60	biliary tract/gallbladder	70.4	77.5
61	kidneys	83.9	78.6
62	kidney transplant	70.3	18.9
63	ureters	68.0	49.0
64	urinary bladder	85.1	79.8
65	spleen	80.3	74.3
66	pancreas	80.3	76.7
67	liver	81.1	76.7
68	liver transplant	50.0	15.3
69	lymph nodes	79.4	66.9
70	adrenals	46.9	17.1
71	appendix	72.7	22.9
72	pylorus	53.0	12.9
73	other GI (e.g., obstruction, intussusception, inflammatory bowel disease)	50.4	9.7
74	hernia	78.2	42.3
75	prostate	56.5	33.1
76	uterus, ovaries, and adnexa (non-gravid)	88.0	85.1
77	uterus, ovaries, and adnexa (gravid)	87.1	78.7



78	pelvic floor	52.8	41.1
79	high-risk obstetrics	37.5	25.0
80	first-trimester obstetrics	86.3	69.9
81	early embryonic anatomy (e.g., nasal bones, anencephaly, hydrops)	54.0	32.7
82	developmental pitfalls (e.g., physiologic herniation of bowel, rhombencephalon)	51.6	27.8
83	second-trimester obstetrics	79.5	52.2
84	third-trimester obstetrics	77.5	52.6
85	placenta	80.2	58.9
86	fetal biophysical profile	68.7	47.0
87	cord Doppler	53.8	24.7
89	fetal Doppler	47.5	27.9
90	thyroid	78.9	69.6
91	parathyroid	57.4	28.1
92	salivary glands	54.2	17.3
93	scrotum	77.8	65.3
94	breasts	63.7	46.8
95	venous Doppler upper extremity	73.5	46.6
96	venous Doppler lower extremity	75.5	68.7
97	carotid Doppler	68.7	58.6
98	post catheterization complications	50.2	16.1
99	neonatal head	41.3	13.4
100	neonatal spine	41.4	10.4
101	neonatal hips	33.1	10.5
102	musculoskeletal	45.0	15.7
103	superficial masses	80.3	61.8
104	non-cardiac chest (pleural space)	61.0	30.9
105	lung	25.3	10.0
106	abdominal wall	69.5	34.1
107	fetal echocardiology	8.8	6.4
108	pediatric echocardiology	5.6	2.0
109	adult echocardiology	16.5	15.7
	Assist with the following sonographic interventional procedures:	-----	-----
110	fluid aspiration/drainage procedures	59.4	39.0
111	intraoperative procedures	45.0	19.3
112	fine needle aspiration/biopsy	61.4	44.6
113	sonohysterography	22.5	4.8



Table 2.

Percent performing select tasks for entry-level (0-5 years) and experienced (6+ years) sonographers

Item	Task	Entry-Level	Experienced
13	Monitor the patient's auxiliary medical equipment (e.g., IVs, supplemental oxygen).	67.6	85.4
27	Use sterile or aseptic technique when indicated.	85.9	97.9
31	Handle, label, and submit laboratory specimens (e.g., biopsy tissue).	53.4	67.0
	<i>Use the following enhanced sonographic techniques:</i>		
52	Use contrast enhanced ultrasound (intravenous)	12.8	29.9
	Following clinical protocols, position patient and transducer using appropriate technical factors to produce diagnostic images and recognize pathology (when applicable) of:		
56	aorta	63.3	82.5
57	IVC	80.5	95.9
58	portal vein	80.5	94.8
59	biliary tract/gallbladder	73.2	92.8
60	kidneys	75.2	90.7
61	kidney transplant	79.1	90.7
65	pancreas	73.2	90.7
66	liver	73.2	90.7
67	liver transplant	74.5	90.7
68	lymph nodes	41.2	63.9
69	adrenals	71.6	90.7
70	appendix	39.7	58.3
71	pylorus	64.4	85.6
74	prostate	70.9	88.7
90	parathyroid	70.9	90.6
91	salivary glands	49.0	70.1
92	scrotum	48.3	63.9
93	breasts	48.3	63.9
94	venous Doppler upper extremity	55.4	76.3
95	venous Doppler lower extremity	67.8	81.4
96	carotid Doppler	70.5	82.5
103	non-cardiac chest (pleural space)	73.8	89.7
105	abdominal wall	16.1	38.1





Table 3.

What sources of ergonomic training have you used within the last 3 years? (mark all that apply)

Response	Count	Percentage
I have not participated in ergonomic training in the past 3 years	104	41.8
Sonography training program	43	17.3
Employer-provided	51	20.5
Continuing education	93	37.3
Treatment program	4	1.6
Other	5	2.0

Table 4.

In the past 3 years has your department changed to equipment with improved ergonomic design?

Response	Count	Percentage
No	142	57.0
Yes	72	28.9
My department changed to ergonomic equipment more than 3 years ago	34	13.7

Table 5.

Do you practice preventative measures to avoid ergonomic work-related injury?

Response	Count	Percentage
No	18	7.2
Yes	230	92.4

Table 6.

Do you regularly experience ergonomic-related pain while working?

Response	Count	Percentage
No	118	47.4
Yes	130	52.2

Table 7.

Have you sought treatment for an ergonomic work-related injury?

Response	Count	Percentage
No	179	71.9
Yes	69	27.7

Table 8.

Have you had work loss due to an ergonomic work-related injury?

Response	Count	Percentage
No	219	88.0
Less than a week	18	7.2
At least a week but less than a month	4	1.6
At least a month but less than 3 months	1	0.4
At least 3 months, but returned to work	5	2.0
Injury prevented return to sonography	1	0.4

Table 9.



Within the past three years how much impact have ergonomic work-related injuries had on your department?

Response	Count	Percentage
No impact	103	41.4
Slight impact	92	36.9
Moderate impact	42	16.9
Significant impact	11	4.4

*Table 10.
Which of the following best describes your job title?*

Response	Count	Percentage
Less than 16 hours	20	8.0
16 - 32 hours	60	24.1
33 – 40 hours	137	55.0
More than 40 hours	30	12.0

*Table 11.
How many years have you been performing sonography?*

Response	Count	Percentage
0 – 1 year	8	3.2
1 – 3 years	66	26.5
4 – 5 years	61	24.5
6 – 10 years	88	35.3
11 – 20 years	25	10.0
More than 20 years	1	0.4

*Table 12.
Which of the following best describes your primary place of employment?*

Response	Count	Percentage
Academic/University hospital	17	6.8
Community hospital	119	47.8
Government (military/VA) hospital	4	1.6
Outpatient imaging center	48	19.3
Physician’s office or clinic	41	16.5
Free-standing emergency facility or urgent care	5	2.0
Other	6	2.4

Table 13.



If you work in a hospital/medical center providing inpatient care, what is the approximate size (number of beds)?

Response	Count	Percentage
Not applicable	91	36.5
Less than 50	35	14.1
50 – 100	23	9.2
101 - 250	44	17.7
251 - 500	35	14.1
More than 500	18	7.2

Table 14.

In the last year, has the number of approved full-time positions for sonographers at your facility changed?

Response	Count	Percentage
No change	154	61.8
Increased	61	24.5
Decreased	34	13.7

Table 15.

In the last year, has the number of employed full-time sonographers at your facility changed?

Response	Count	Percentage
No	145	58.2
Increased	55	22.1
Decreased	49	19.7

Table 16.

When comparing 2019 (prior to the COVID pandemic declaration) to the present, has your sonography department experienced a change in sonography exam volume?

Response	Count	Percentage
Increased volume	75	30.1
Decreased volume	104	41.8
No change in volume	40	16.1

Table 17.

Which of the following sonography credentials do you hold? (select all that apply)

Response	Count	Percentage
ARRT		
SON	97	39.0
VS	3	1.2
BS	22	8.8
ARDMS RDMS		
AB	164	65.9
BR	50	20.1



FE	2	0.8
OB/GYN	157	63.0
PS	13	5.2
ARDMS RDCS		
AE	30	12.0
FE	4	1.6
PE	2	0.8
ARDMS RMSK		
RMSKS	0	0.0
ARDMS RVT		
VT	122	49.0
CCI		
ACS	0	0.0
RCCS	0	0.0
RSC	0	0.0
RPhS	0	0.0
RVS	1	0.0

Table 18.
When comparing 2019 (prior to the COVID pandemic declaration) to the present, have the types of sonography exams changed significantly?

Response	Count	Percentage
No significant change	181	72.7
These procedures have increased or decreased (specify)	64	25.7



Changes to Task Inventory

The practice analysis committee met in April 2021 to review the practice analysis survey data and determine whether any tasks should be dropped from or added to the task inventory. The committee also clarified the wording of several tasks.

The following tasks were added to provide consistency in patient care across other ARRT disciplines:

- Manage interpersonal interactions in an effective manner. (99%)
- Recognize abnormal or missing lab values relative to the examination ordered. (90%)
- Notify appropriate personnel of adverse events or incidents (e.g., patient fall, wrong patient imaged). (96%)
- Communicate relevant information to appropriate members of the care team. (99%)
- Communicate critical findings to the interpreting physician. (67%)
- Obtain vital signs. (51%)
- Follow environmental protection standards for handling and disposing of hazardous materials (e.g., disinfectants). (98%)
- Provide follow-up instructions to the patient, patient's family, or authorized representative. (79%)
- Handle, label, and submit laboratory specimens (e.g. biopsy tissue). (59%)
- Document required information in the patient's medical record (e.g., imaging procedure documentation). (95%)
- Operate electronic imaging and record keeping systems (e.g., PACS, HIS, RIS, EMR). (46%)

The following tasks were removed because another task covers that content. The committee believes that it is best if tasks do not overlap with one another.

- Conduct physical and mental assessment of patient to enhance the sonographic examination.
- Maintain confidentiality of patient information (e.g., HIPAA) and ensure compliance with American Hospital Association (AHA) Patient Care Partnership (Patients' Bill of Rights).
- Use proper body mechanics and/or mechanical transfer devices when assisting patients.
- Use sterile or aseptic technique on or near wounds, surgical dressings, drains, or hardware.
- Position patient to demonstrate the desired anatomy.

The following task was deleted because the GI tract is part of the appendix, pylorus and other GI that is in another task.

- Following clinical protocols, position patient and transducer using appropriate technical factors to produce diagnostic images and recognize pathology (when applicable) of:
 - GI tract.

The following task was added:

- Following clinical protocols, position patient and transducer using appropriate technical factors to produce diagnostic images and recognize pathology (when applicable) of:
 - uterus, ovaries, and adnexa (gravid) (87%)



The Board of Trustees approved the final task inventory in January 2022. The final task inventory may be found on the ARRT website: <https://www.rrt.org/pages/rrt-reference-documents/by-document-type/task-inventories>.



Content Specifications and Clinical Competency Requirements

Changes to Content Specifications

The practice analysis committee updated the content specifications based on changes to the task inventory and the field. The committee considered the knowledge and cognitive skills required to successfully perform the tasks in the final task inventory and verified that those topics were covered in the content specifications, adding additional content as necessary. The committee also removed any topics that could not be linked to the updated task inventory.

The updated content specifications were then made available for public comment in January 2022 and the committee met again in June 2022 to discuss the comments before making any final adjustments.

The most notable changes from the previous version of the content specifications were:

- All areas of the content outline were reorganized and edited for clarity
- Item weighting for the examination content specifications was slightly adjusted. The total number of examination questions remains the same, but some areas increased or decreased. The number of pilots remains the same at 40
- Patient Care
 - Revised to provide consistency in patient care across other ARRT disciplines
 - Added sonographer ergonomics
- Image Production
 - Imaging informatics section was expanded
- Procedures
 - Removed the abdomen/adrenal/renal content under pediatric exams. This content was added to the abdomen area under abdominal organs
 - Added incidental abnormal findings to the Focus of Questions area

In addition, the committee edited all sections of the content specifications for clarity and updated terminology to reflect current practice.

The Board of Trustees approved the final content specifications in January 2023. The final content specifications may be found on the ARRT website: <https://www.arrt.org/pages/arrt-reference-documents/by-document-type/examination-content-specifications>.

The Board of trustees also approved the final content specifications for the Sonography Structured Self Assessment in January 2023. The final content specifications may be found on the ARRT website: <https://www.arrt.org/pages/arrt-reference-documents/by-document-type/cqr-assessment-content-specifications>.

Content Weighting

The practice analysis committee determined the number of items that should be assigned to each section of the exam through a process known as content weighting. First, the committee performed a bottom-up exercise where members individually estimated the number of unique items that should be included in each section. Second, the committee performed a top-down exercise where members individually estimated the relative proportion of the exam that should be dedicated to each section. Finally, ARRT staff provided the committee with summary values from the two exercises and the committee held a discussion to finalize their recommendation for the number of items assigned to each section (Table 18).



Table 18
Number of Items per Section

Content Area	Number of Scored Items
Patient Care	28
Patient Interactions and Management (28)	
Image Production	118
Basic Principles of Ultrasound (45)	
Image Formation (47)	
Evaluation and Selection of Representative Images (26)	
Procedures	216
Abdomen (75)	
First Trimester Obstetrics (20)	
Second/Third trimester and High Risk Obstetrics (57)	
Gynecology (32)	
Superficial Structures and Other Sonographic Procedures (32)	
Grand Total	360

Changes 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.

The practice analysis committee reviewed and updated the previous clinical competency requirements considering the final task inventory and content specifications. The updated clinical competency requirements were then made available for public comment in January 2022 and the committee met again in June 2022 to discuss the comments before making any final adjustments.

The most notable changes from the previous version of the clinical competency requirements were:

- Under mandatory scanning techniques, ergonomic evaluation was added. A reference to the “Industry Standards for the Prevention of Work-Related Musculoskeletal Disorders in Sonography” was added in a footnote.
- For some of the procedures, the committee decided to combine several procedures into one procedure. These procedures are indicated by an asterisk on a chart. An appendix that lists the required and optional structures required for each of the procedures was added. This resulted in fewer procedures required. However, since one procedure may cover several previously listed procedures, the number of structures a candidate must demonstrate competence on has not greatly changed.
- The committee decided that up to four procedures may be performed on volunteers. They evaluated each procedure for the practicality of simulating a procedure. For example, a post catheterization complication would not be easily evaluated on a volunteer. The new chart indicates what procedures are eligible for simulation.



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 ensure that the content of the exam and the eligibility requirements remain relevant with current practice. This study noted significant changes to the field of Sonography, and thanks to the efforts of all involved it assures that the ARRT Sonography exam program will continue to be an excellent assessment of Sonographers wishing to demonstrate their qualifications by seeking certification and registration.

