



Annual Report of Examinations: Postprimary Eligibility Pathway 2020-2021

Introduction

The ARRT offers two eligibility pathways for certification and registration: primary and postprimary. This report summarizes the results of exams taken through the postprimary eligibility pathway from July 2020 through June 2021 including Mammography, Computed Tomography, Magnetic Resonance Imaging, Cardiac-Interventional Radiography, Vascular-Interventional Radiography, Sonography, Vascular Sonography, Bone Densitometry, and Breast Sonography. This report uses an annual cycle from July to June that aligns with updates to the content specifications and clinical experience requirements for the majority of these exams. During the reported cycle, both the Sonography and Magnetic Resonance Imaging exams could be taken through either the primary or postprimary eligibility pathway. Only results for those taking the exams through the postprimary eligibility pathway are presented here.

This report summarizes the results for each examination separately. Each section presents a brief content outline for the exam and the number of items in each category. Specific results for July 2020 through June 2021 are presented including mean scaled section scores, mean total scaled scores, and pass rates. Charts with historical pass rates and candidate volumes for each exam are also presented.

Interpretation of Scores

Total Scaled Score: The ARRT uses scaled scores to report exam results. Total scaled scores can range from 1 to 99.

Scaled scores are desirable because they account for any differences in difficulty between two or more versions of an exam. The use of scaled scores adjusts for differences in exam difficulty such that a given scaled score corresponds to the same level of performance regardless of exam form and permits comparison of exam results over time. Using scaled scores also ensures that those taking different forms are not penalized for taking a slightly more difficult exam.

Scaled scores are sometimes mistaken for percent correct scores. This confusion likely arises because ARRT scaled scores and percentages share a similar range of values. However, a scaled score of 75 does not mean that a candidate correctly answered 75% of the test items.

Section Scores: Scaled scores are used to report performance on each section of the exam. The primary purpose of the section scores is to provide general information to candidates regarding their strengths and weaknesses in particular content categories. Section scores can range from 0.1 to 9.9 and are reported in one-tenth point intervals (e.g., 8.1, 8.6). Section scores are intentionally placed on a narrower scale because they are often based on a small number of test items. Therefore, section scores are not as reliable as the total scaled score and should be interpreted with some caution.

Passing Score: A total scaled score of 75 is required to pass all ARRT exams. This pass-fail point, called the “cut score,” is established by ARRT’s Board of Trustees through a process called standard setting. During the standard setting process, the Board receives input from a panel representing a broad constituency of radiologic technologists. The cut score represents the performance standard required to obtain certification and registration; those who meet or exceed



the standard pass the exam. Beginning in 2013, the Sonography exam also requires a section scaled score of 7.5 or greater in both the Abdomen and OB/GYN sections.

Readers interested in more detailed reporting, such as an explanation of ARRT's scaling procedures, or past years' reports are encouraged to visit the [exam statistics](#) page on the ARRT website.

Updates

As of January 1, 2020, ARRT no longer offers a postprimary eligibility pathway for Sonography. The scores reported here represent a small number of candidates who were still eligible to take the Sonography exam through the postprimary pathway. For more information, follow this [link](#) to the ARRT news article.

In 2021, ARRT introduced a primary eligibility pathway for students who want to earn ARRT certification and registration in Vascular Sonography. For more information, follow this [link](#) to the ARRT news article. New content specifications went into effect on May 26, 2021, in conjunction with the first opportunity to take the exam through the primary eligibility pathway. The scores for Vascular Sonography reported here include only those candidates who took the exam through the postprimary pathway and have been split into two tables representing each set of content specifications active during this report's cycle.

New content specifications for Mammography went into effect on July 1, 2020. For more information, follow this [link](#) to the ARRT news article.



Summary Statistics

Exam Volume

Exam	First-time Candidates	Repeat	State	Reinstatement	Total
Mammography	1503	175	172	6	1856
Computed Tomography	4619	1725	0	15	6359
Magnetic Resonance Imaging	1850	576	0	5	2431
Sonography	10	8	0	0	18
Vascular Sonography	14	1	0	1	16
Bone Densitometry	276	65	0	0	341
Cardiac-Interventional	148	65	0	0	213
Vascular-Interventional	468	251	0	1	720
Breast Sonography	130	17	0	0	147

Note: The "State" category includes non-ARRT candidates who take an exam only for state licensure. The "Reinstatement" category includes all reinstatement by re-examination candidates.

First-time Candidate Exam Performance

Exam	Approximate % Correct to Pass	Mean Scaled Score	Pass %
Mammography	66	84.6	91.0
Computed Tomography	67	79.8	75.9
Magnetic Resonance Imaging	66	80.6	78.1
Sonography*	67	75.5	40.0
Vascular Sonography	70	80.6	78.6
Bone Densitometry	70	79.8	69.6
Cardiac-Interventional	67	76.4	58.1
Vascular-Interventional	69	75.3	56.6
Breast Sonography	66	83.4	87.7

*The Sonography exam requires a passing candidate to achieve a scaled score of 75 or greater on the whole exam, and in addition, achieve section scaled scores of 7.5 or greater in both the Abdominal and OB/GYN sections.

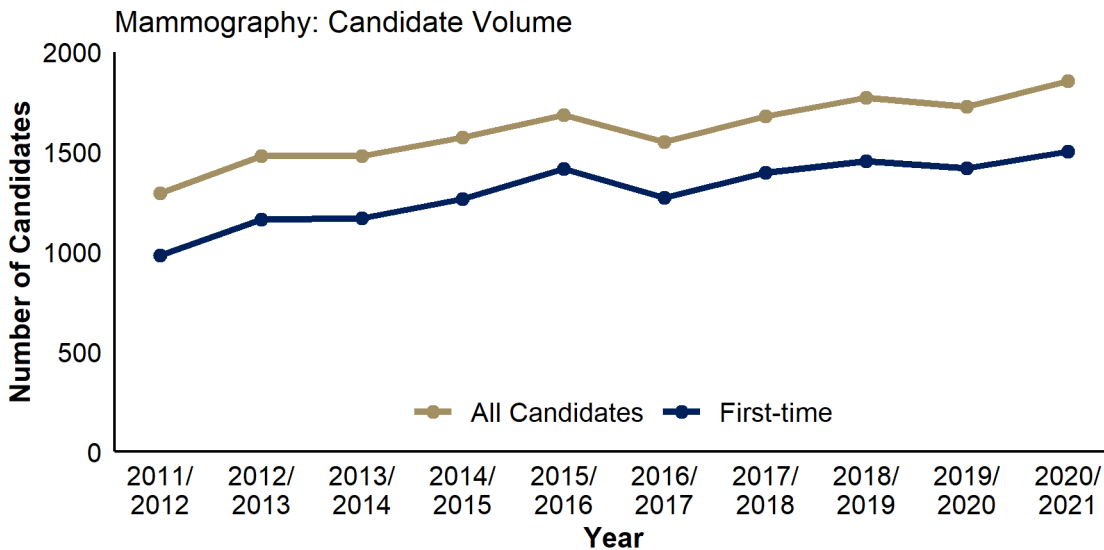
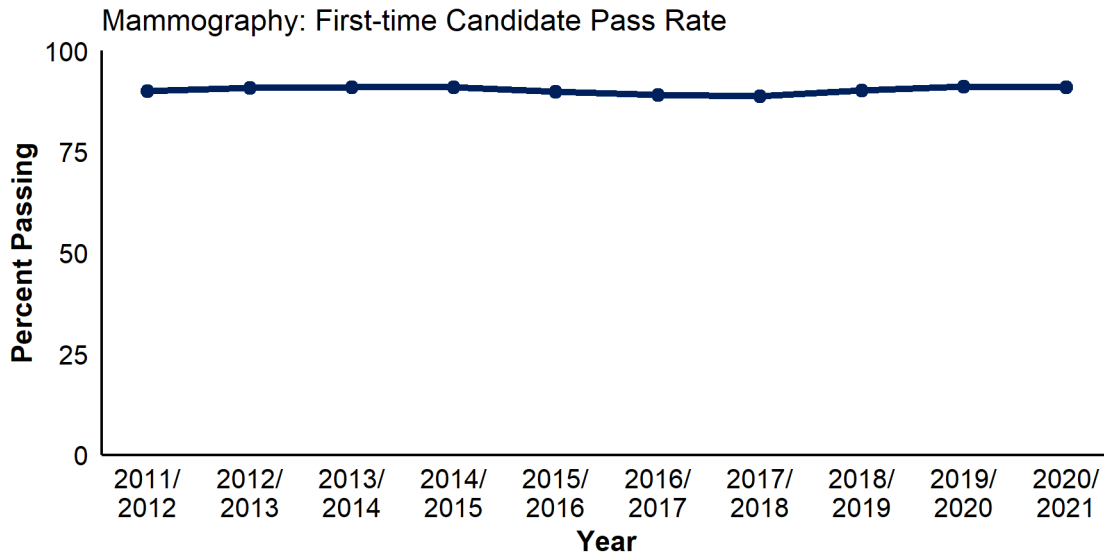


Exam Performance for Mammography

Content Categories and First-time Candidate Scores

Content Categories	# Items	Mean Score
Patient Interactions and Management	14	8.5
Image Acquisition and Quality Assurance	33	8.2
Anatomy, Physiology, and Pathology	26	8.6
Mammographic Positioning, Special Needs, and Imaging Procedures	<u>42</u>	<u>8.5</u>
Total	115	84.6

Pass Rate: 91.0%

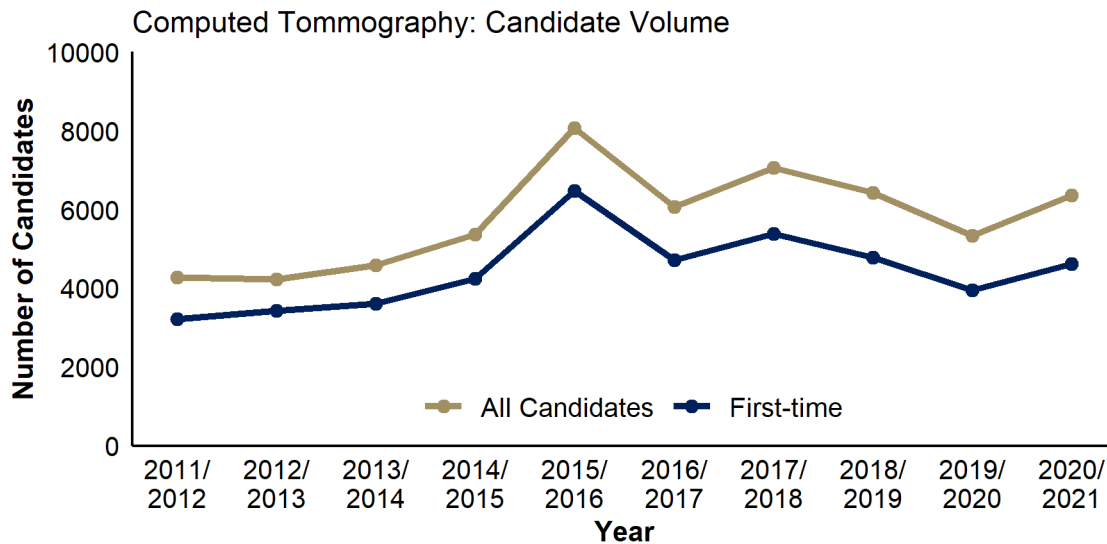
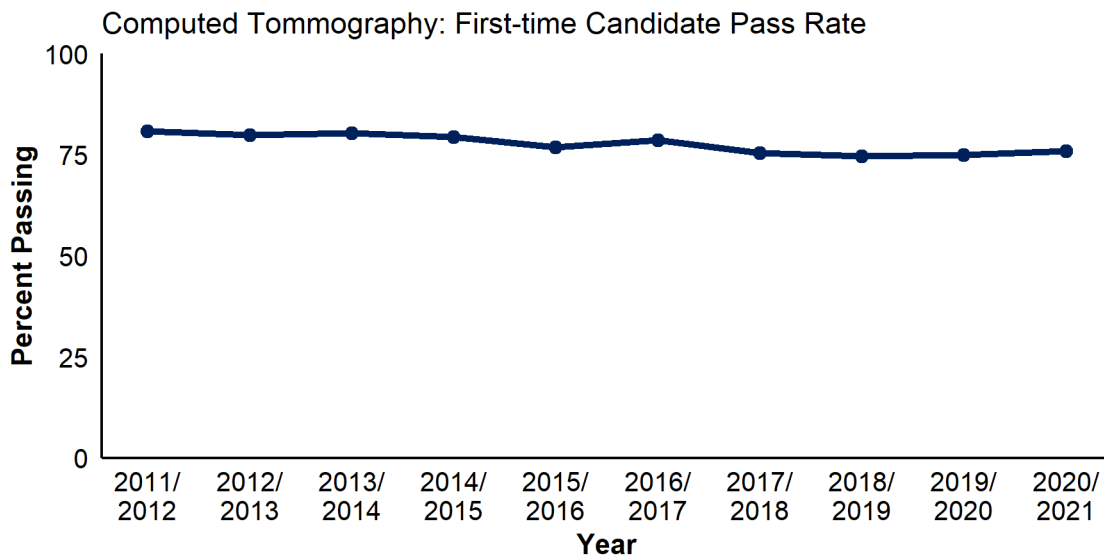


Exam Performance for Computed Tomography

Content Categories and First-time Candidate Scores

Content Categories	# Items	Mean Score
Patient Interactions and Management	22	8.2
Radiation Safety and Dose	20	8.2
Image Formation	30	7.8
Image Evaluation and Archiving	25	7.8
Head, Spine, and Musculoskeletal	24	7.9
Neck and Chest	20	8.1
Abdomen and Pelvis	<u>24</u>	<u>8.0</u>
Total	165	79.8

Pass Rate: 75.9%

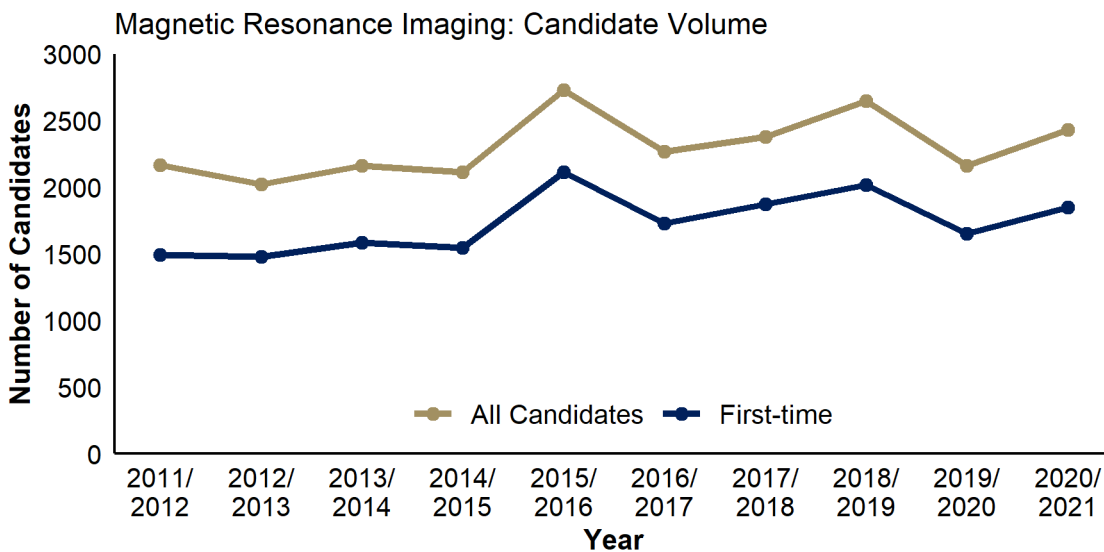
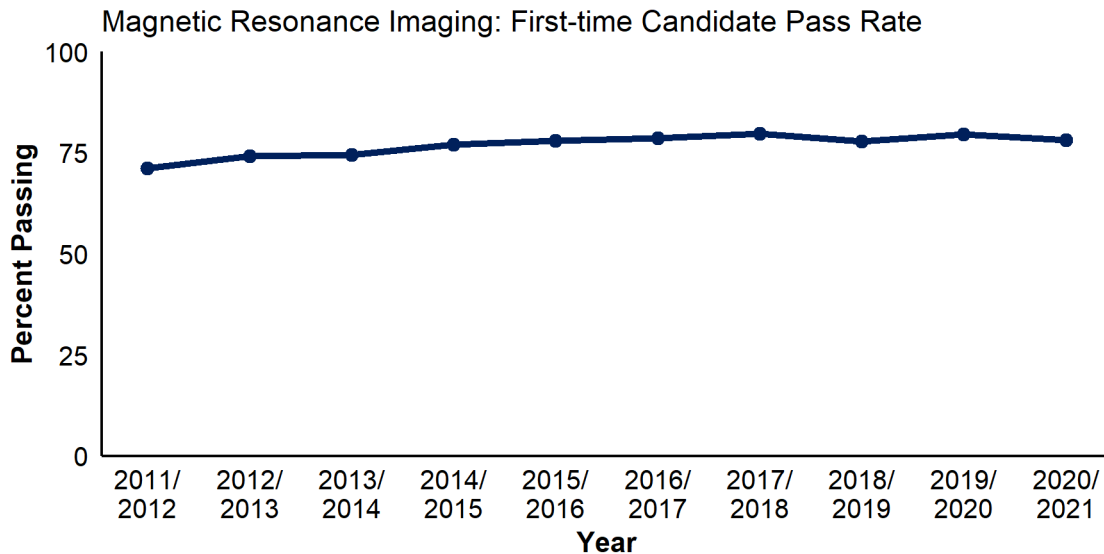


Exam Performance for Magnetic Resonance Imaging

Content Categories and First-time Candidate Scores

Content Categories	# Items	Mean Score
Patient Interactions and Management	18	8.3
MRI Screening and Safety	20	8.1
Physical Principles of Image Formation	39	7.9
Sequence Parameters and Options	36	8.1
Data Acquisition, Processing, and Storage	30	7.8
Neurological	25	8.3
Body	15	8.0
Musculoskeletal	<u>17</u>	<u>8.3</u>
Total	200	80.6

Pass Rate: 78.1%

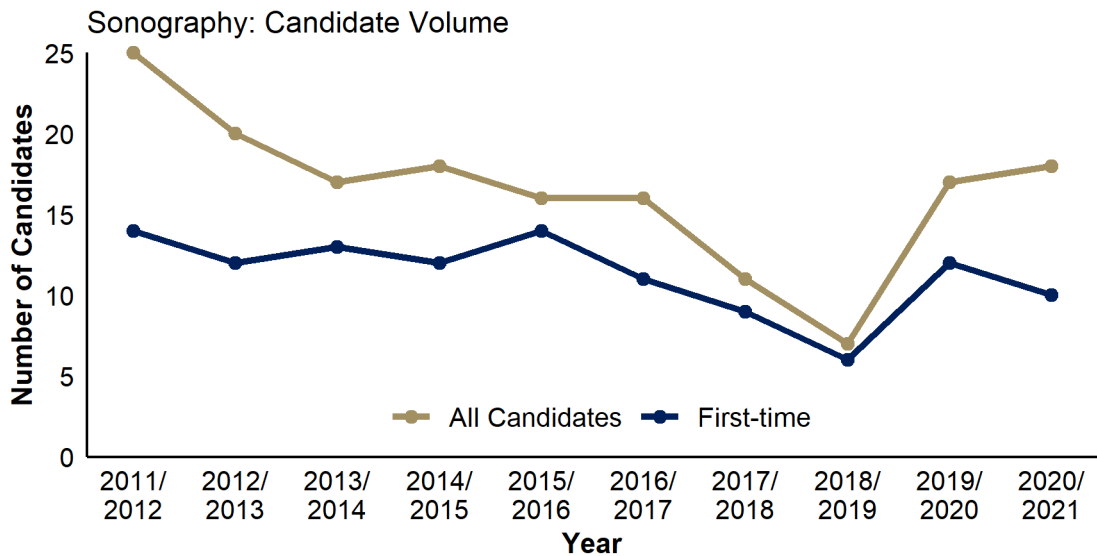
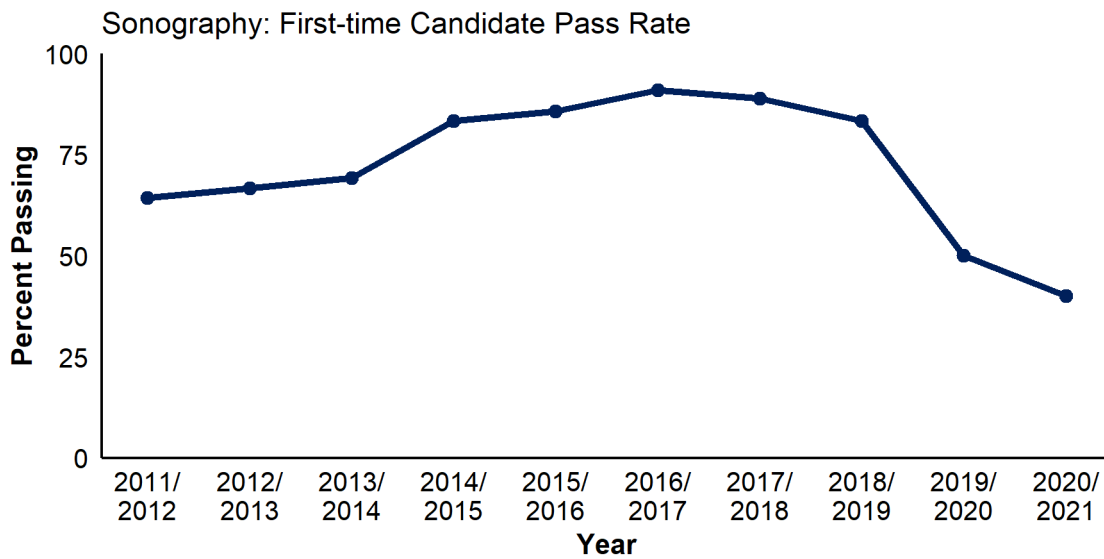


Exam Performance for Sonography

Content Categories and First-time Candidate Scores

Content Categories	# Items	Mean Score
Patient Interactions and Management	29	8.7
Basic Principles of Ultrasound	50	6.7
Image Formation	44	7.1
Evaluation and Selection of Representative Images	21	7.8
Abdomen	75	7.6
OB/GYN	109	7.6
Superficial Structures and Other Sonographic Procedures	<u>32</u>	<u>7.8</u>
Total	360	75.5

Pass Rate: 40.0%



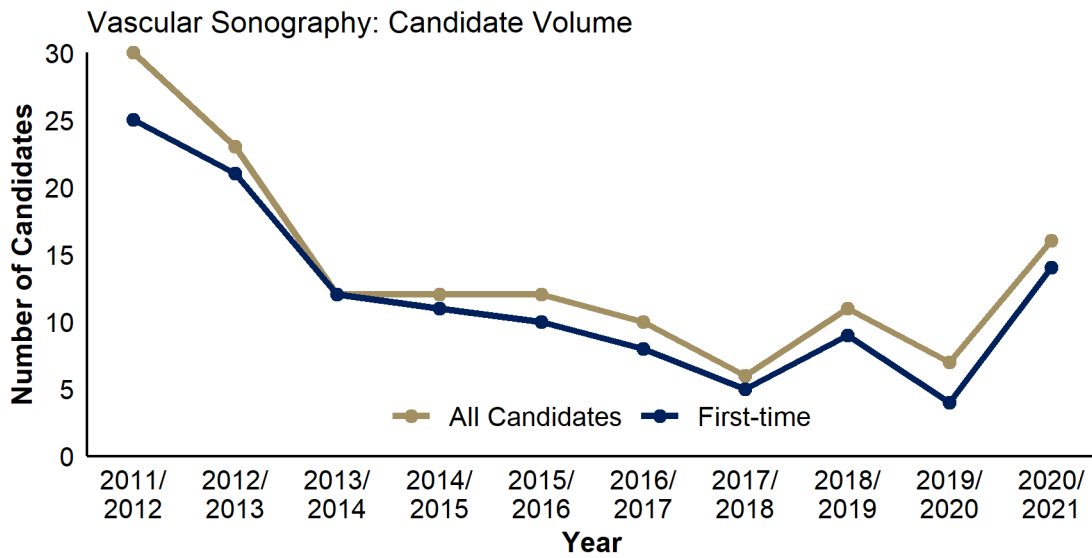
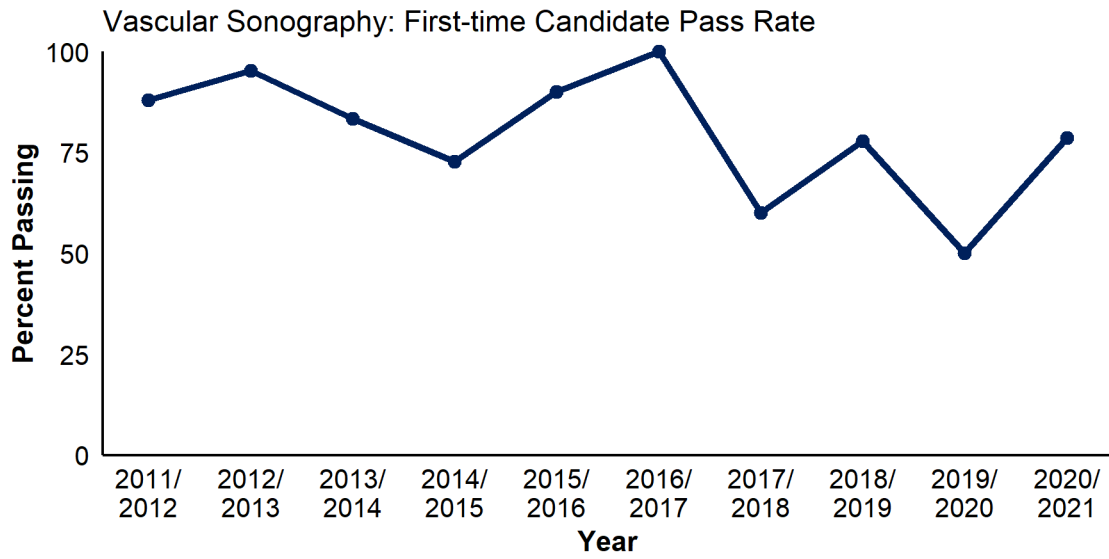
Exam Performance for Vascular Sonography

Content Categories and First-time Candidate Scores

Content Categories (July 1, 2020 - May 25, 2021)	# Items	Mean Score
Image Production	75	7.9
Procedures	<u>85</u>	<u>8.1</u>
Total	160	80.0
Pass Rate: 66.7%		

Content Categories (May 26, 2021 - June 30, 2021)	# Items	Mean Score
Patient Interactions and Management	20	8.0
Basic Principles of Ultrasound	26	7.8
Image Formation	14	7.9
Evaluation and Selection of Representative Images	35	8.3
Abdominal/Pelvic Vasculature	23	8.4
Arterial Peripheral Vasculature	21	7.6
Venous Peripheral Vasculature	18	8.0
Extracranial Cerebral Vasculature and Other Sonographic Procedures	<u>18</u>	<u>8.5</u>
Total	175	80.7
Pass Rate: 81.8%		



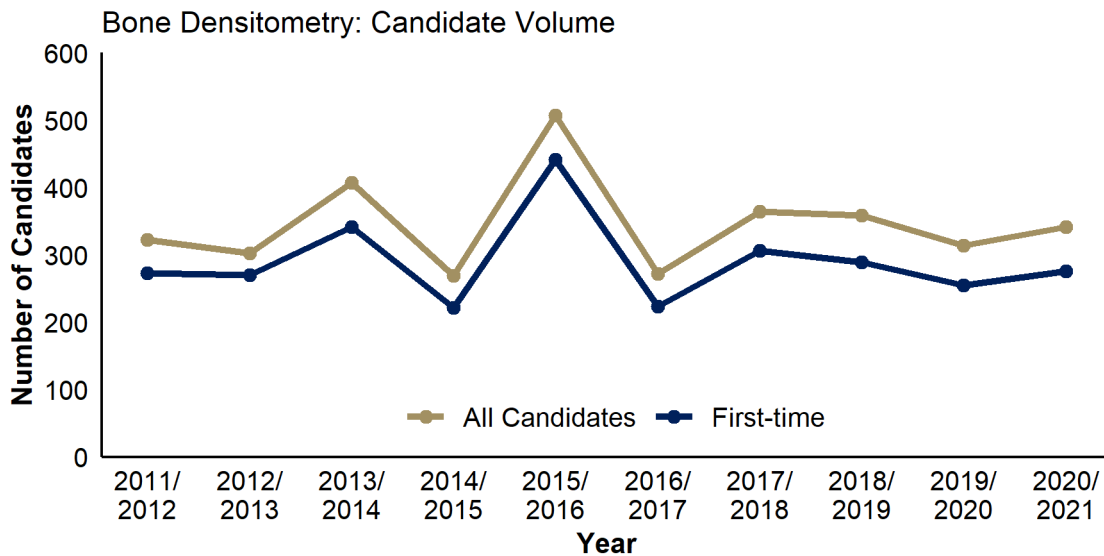
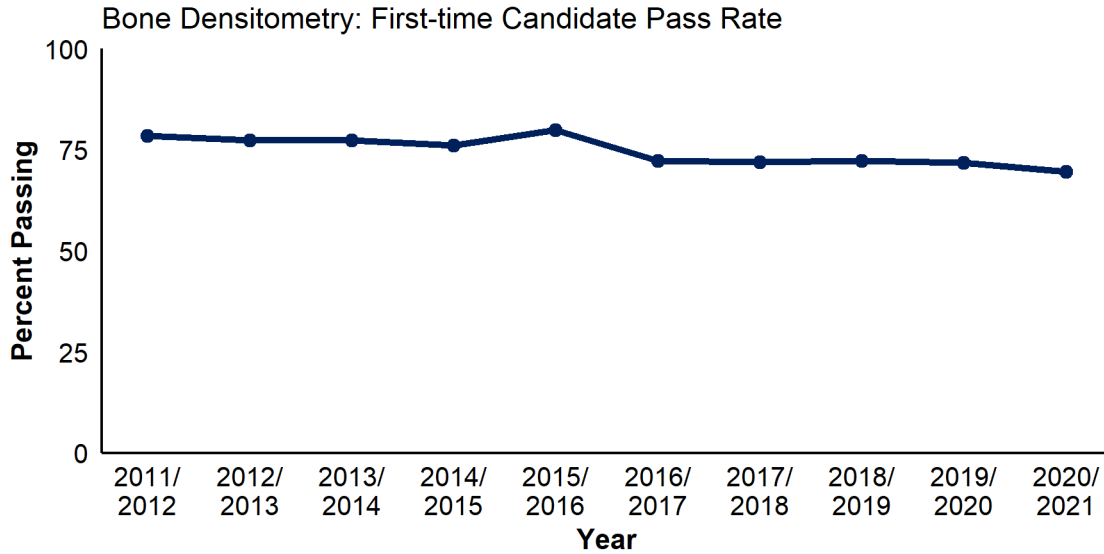


Exam Performance for Bone Densitometry

Content Categories and First-time Candidate Scores

Content Categories	# Items	Mean Score
Patient Bone Health, Care, and Radiation Principles	16	8.1
Equipment Operation and Quality Control	21	7.9
DXA Scanning	<u>38</u>	<u>8.0</u>
Total	75	79.8

Pass Rate: 69.6%

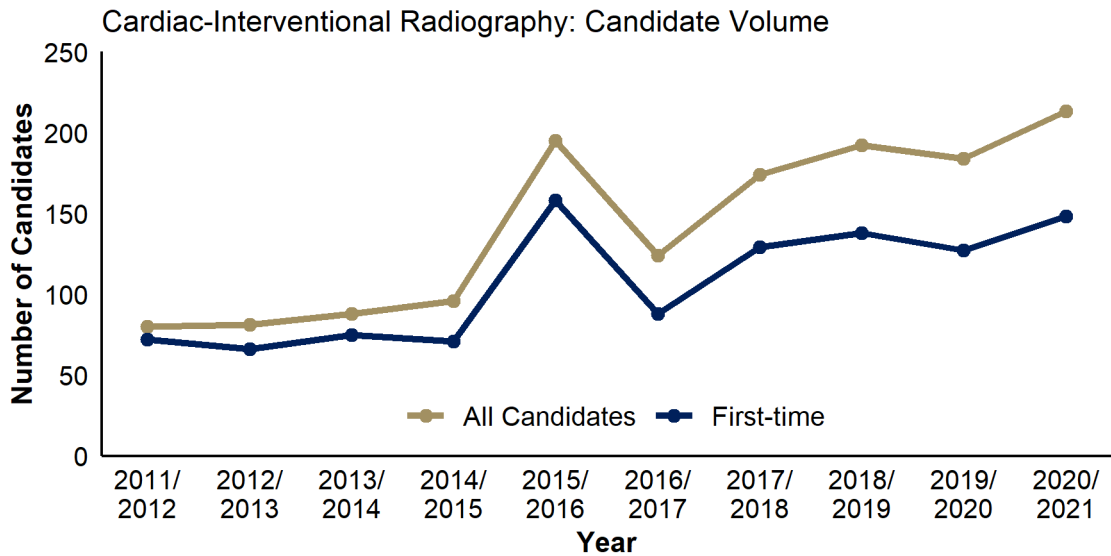
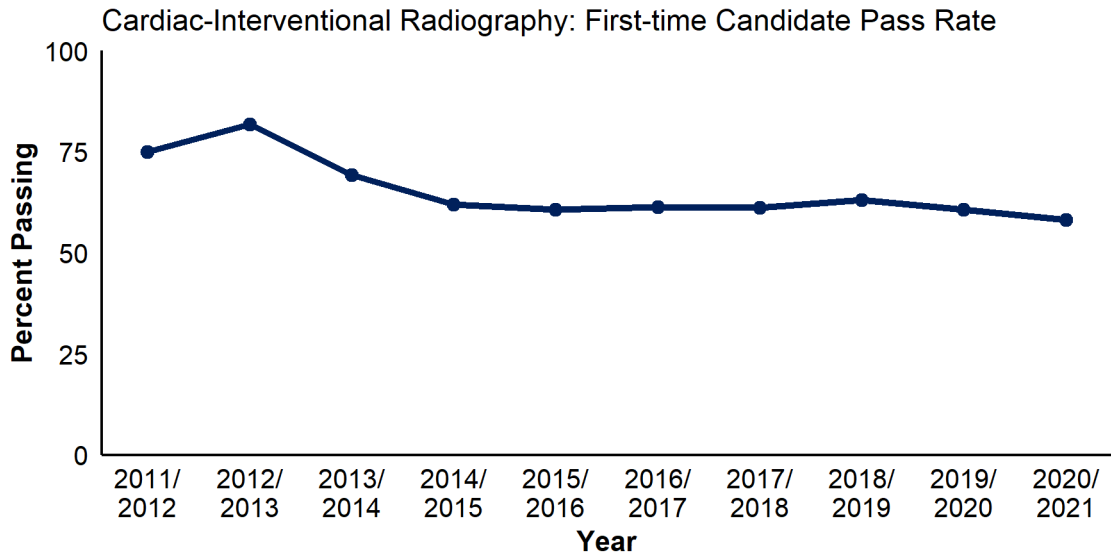


Exam Performance for Cardiac-Interventional Radiography

Content Categories and First-time Candidate Scores

Content Categories	# Items	Mean Score
Patient Interactions and Management	35	7.6
Image Acquisition and Equipment	30	7.5
Diagnostic and Conduction System Studies	36	7.7
Hemodynamics, Calculations, and Percutaneous Intervention	<u>44</u>	<u>7.7</u>
Total	145	76.4

Pass Rate: 58.1%

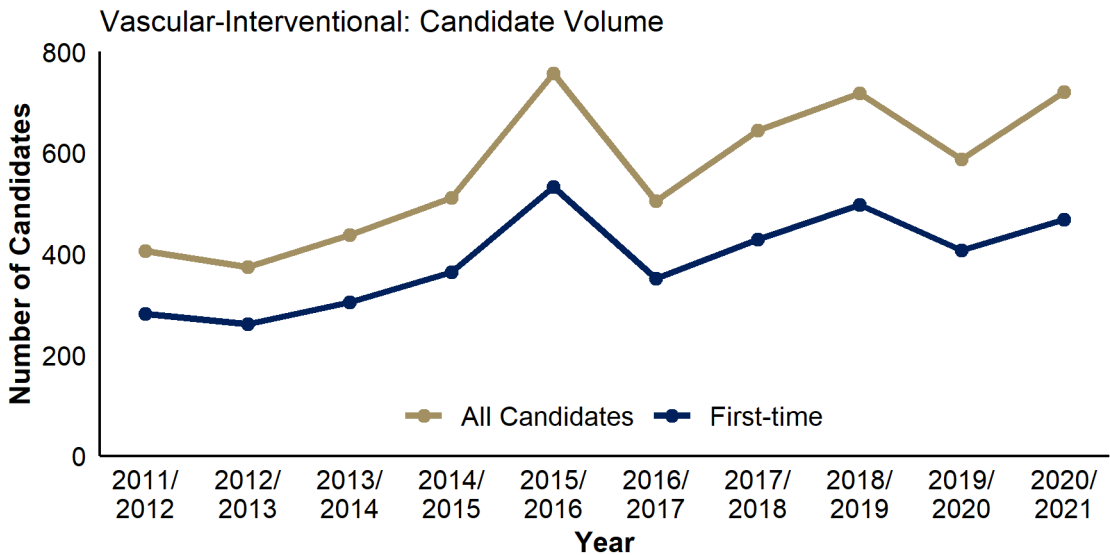
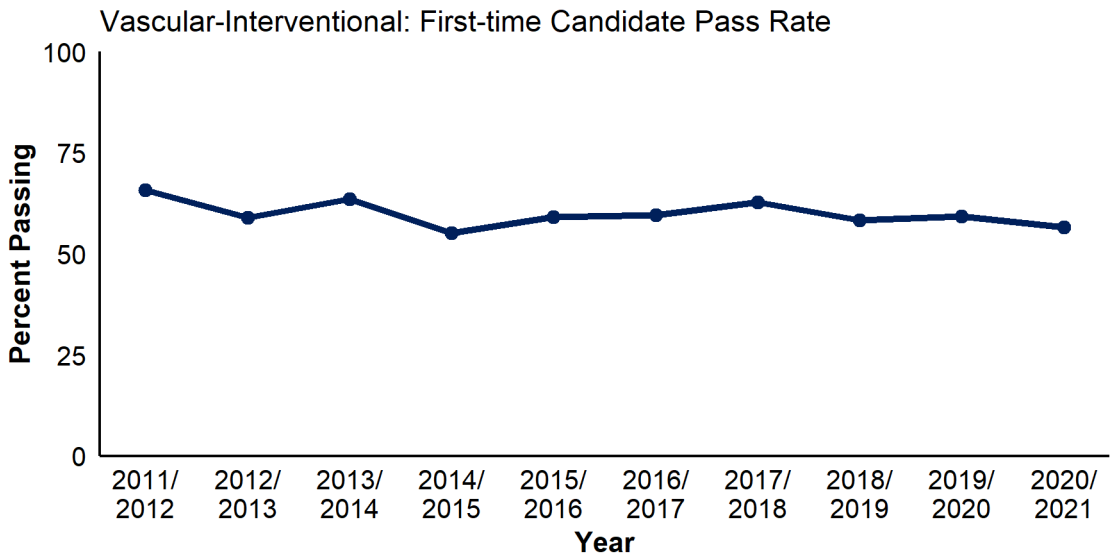


Exam Performance for Vascular-Interventional Radiography

Content Categories and First-time Candidate Scores

Content Categories	# Items	Mean Score
Patient Interactions and Management	30	7.6
Image Acquisition and Equipment	25	7.7
Vascular Diagnostic Procedures	50	7.4
Vascular Interventional Procedures	35	7.5
Nonvascular Procedures	<u>20</u>	<u>7.6</u>
Total	160	75.3

Pass Rate: 56.6%



Exam Performance for Breast Sonography

Content Categories and First-time Candidate Scores

Content Categories	# Items	Mean Score
Patient Interactions and Management	14	8.8
Basic Principles of Ultrasound and Equipment	42	7.6
Image Formation	27	8.4
Evaluation and Selection of Representative Images	32	8.2
Anatomy and Physiology	17	8.9
Pathology	33	8.5
Surgical/Treatment Changes and Interventional Procedures	<u>20</u>	<u>8.9</u>
Total	185	83.4

Pass Rate: 87.7%

