



Annual Report of Examinations: Postprimary Eligibility Pathway 2022-2023

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 2022 through June 2023 including Mammography, Computed Tomography, Magnetic Resonance Imaging, Cardiac-Interventional Radiography, Vascular-Interventional Radiography, 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 these exams. During the reported cycle, the Magnetic Resonance Imaging, and Vascular Sonography 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 2022 through June 2023 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.

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

New content specifications for Computed Tomography went into effect on July 1, 2022. For more information, follow this [link](#) to the ARRT news article.

New content specifications for Bone Densitometry went into effect on July 1, 2022. For more information, follow this [link](#) to the ARRT news article.

Summary Statistics

Exam Volume

| Exam | First-time Candidates | Repeat | State | Reinstatement | Total |
|----------------------------|-----------------------|--------|-------|---------------|-------|
| Mammography | 1891 | 247 | 153 | 7 | 2298 |
| Computed Tomography | 4241 | 1641 | 0 | 16 | 5898 |
| Magnetic Resonance Imaging | 2015 | 652 | 0 | 10 | 2677 |
| Vascular Sonography | 4 | 1 | 0 | 0 | 5 |
| Bone Densitometry | 285 | 81 | 0 | 0 | 366 |
| Cardiac Interventional | 128 | 54 | 0 | 0 | 182 |
| Vascular Interventional | 454 | 241 | 0 | 0 | 695 |
| Breast Sonography | 122 | 19 | 0 | 0 | 141 |

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 | 83.8 | 88.3 |
| Computed Tomography | 66 | 79.0 | 72.7 |
| Magnetic Resonance Imaging | 67 | 79.9 | 75.2 |
| Vascular Sonography | 67 | 69.8 | 25.0 |
| Bone Densitometry | 70 | 78.4 | 67.4 |
| Cardiac Interventional | 66 | 75.5 | 57.0 |
| Vascular Interventional | 70 | 75.3 | 54.8 |
| Breast Sonography | 67 | 82.4 | 85.2 |

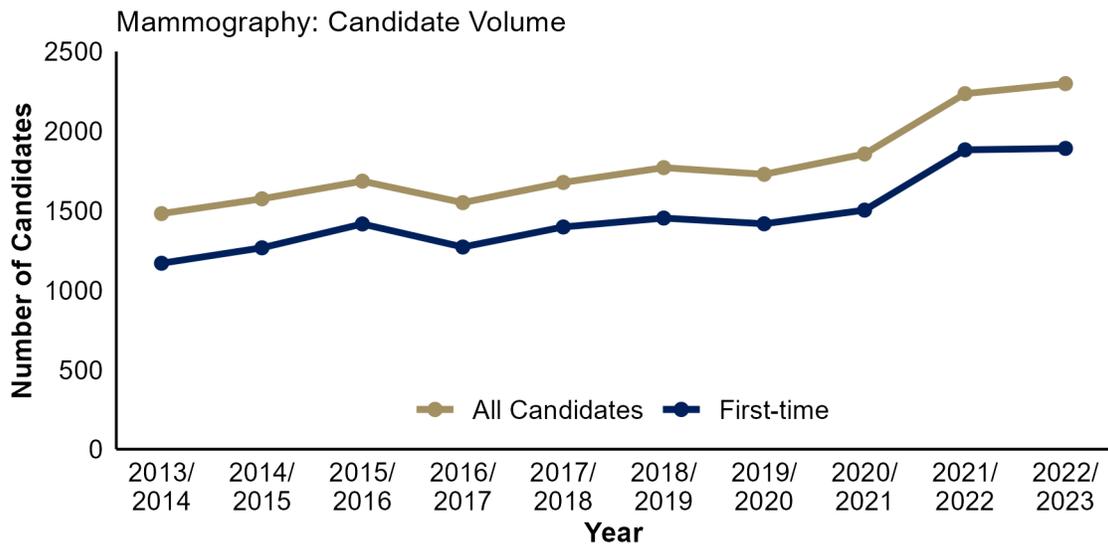
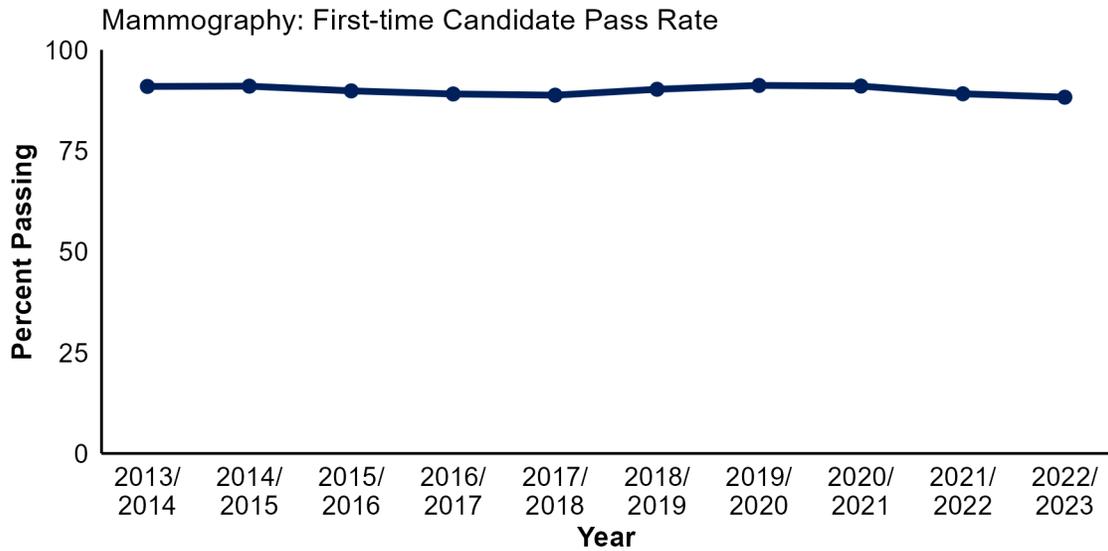


Exam Performance for Mammography

Content Categories and First-time Candidate Scores

| Content Categories | # Items | Mean Score |
|---|------------|-------------|
| Patient Interactions and Management | 14 | 8.4 |
| Image Acquisition and Quality Assurance | 33 | 8.3 |
| Anatomy, Physiology, and Pathology | 26 | 8.5 |
| Mammographic Positioning, Special Needs, and Imaging Procedures | <u>42</u> | <u>8.3</u> |
| Total | 115 | 83.8 |

Pass Rate: 88.3%

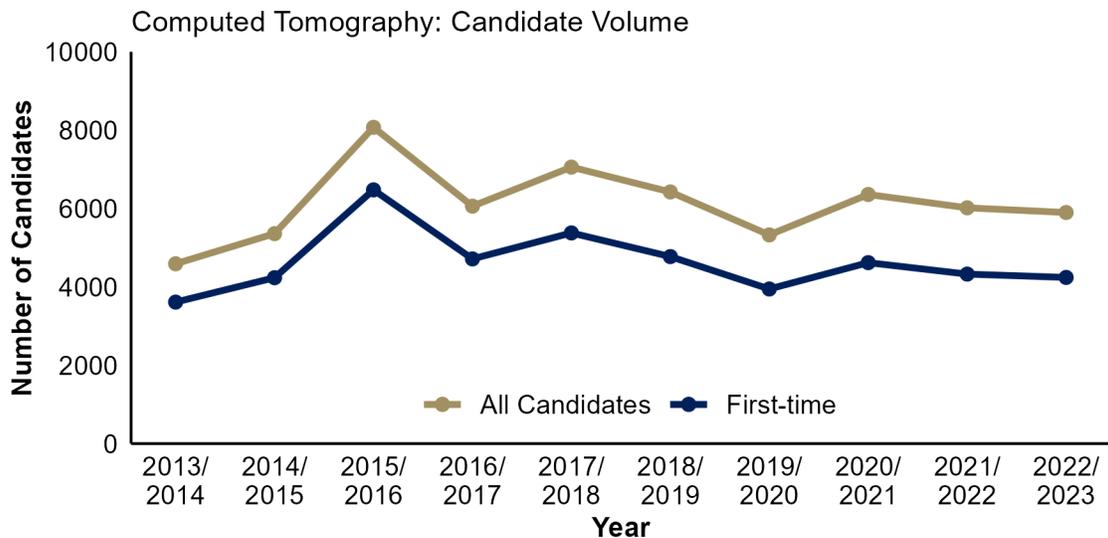
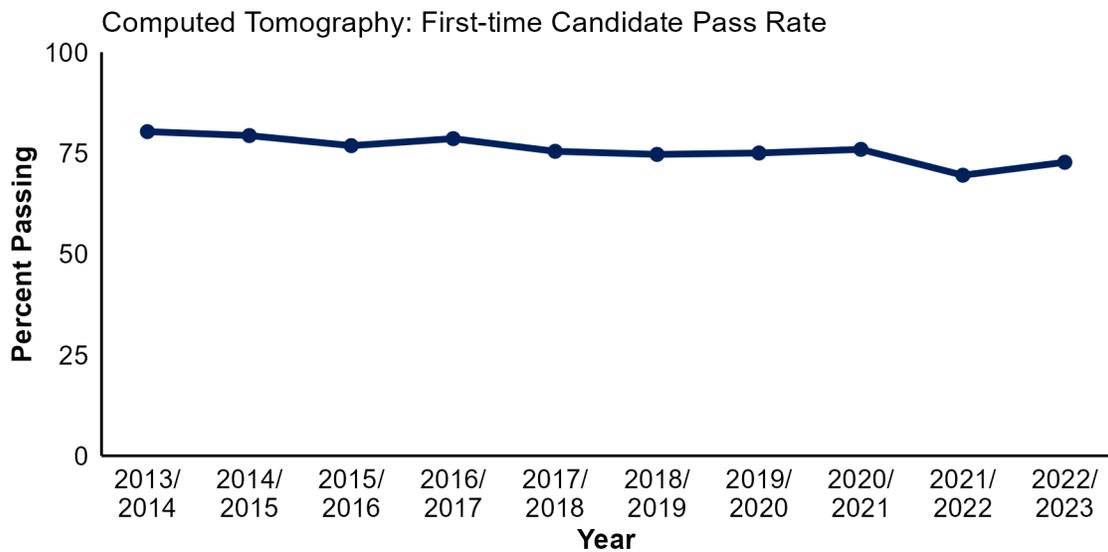


Exam Performance for Computed Tomography

Content Categories and First-time Candidate Scores

| Content Categories | # Items | Mean Score |
|-------------------------------------|------------|-------------|
| Patient Interactions and Management | 22 | 8.2 |
| Radiation Safety and Dose | 22 | 8.1 |
| Image Formation | 28 | 7.8 |
| Image Evaluation and Archiving | 22 | 7.8 |
| Head, Spine, and Musculoskeletal | 25 | 7.9 |
| Neck and Chest | 21 | 8.0 |
| Abdomen and Pelvis | <u>25</u> | <u>7.6</u> |
| Total | 165 | 79.0 |

Pass Rate: 72.7%

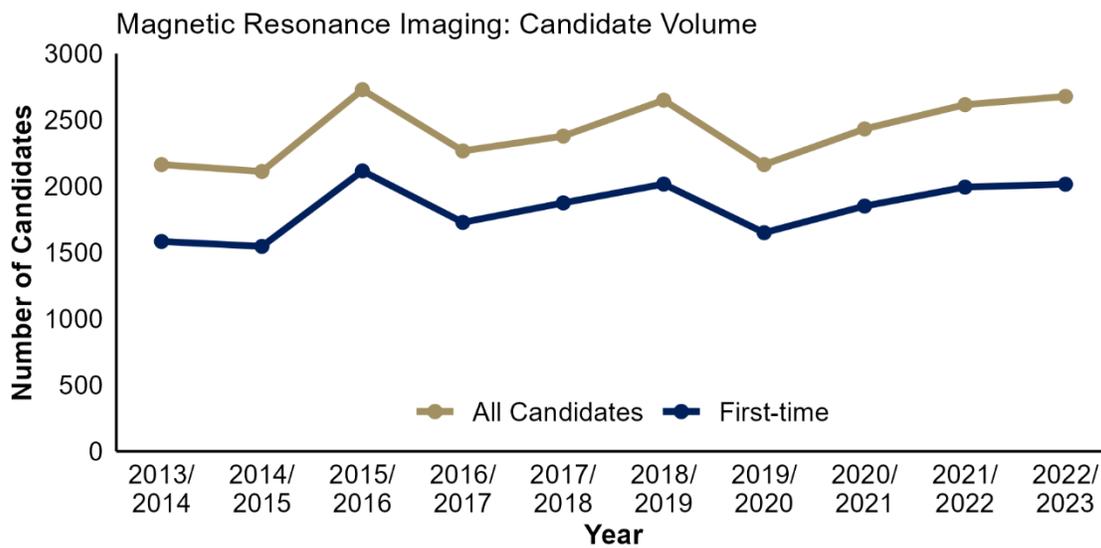
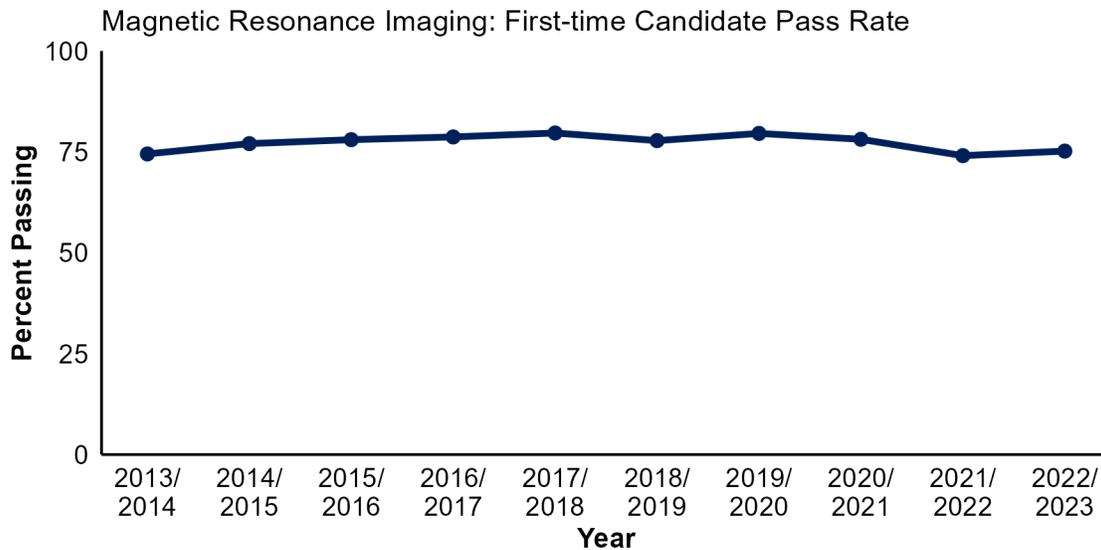


Exam Performance for Magnetic Resonance Imaging

Content Categories and First-time Candidate Scores

| Content Categories | # Items | Mean Score |
|---|------------|-------------|
| Patient Interactions and Management | 18 | 8.4 |
| MRI Screening and Safety | 20 | 8.3 |
| Physical Principles of Image Formation | 39 | 8.0 |
| Sequence Parameters and Options | 36 | 8.0 |
| Data Acquisition, Processing, and Storage | 30 | 7.4 |
| Neurological | 25 | 8.2 |
| Body | 15 | 7.1 |
| Musculoskeletal | <u>17</u> | <u>8.1</u> |
| Total | 200 | 79.9 |

Pass Rate: 75.2%

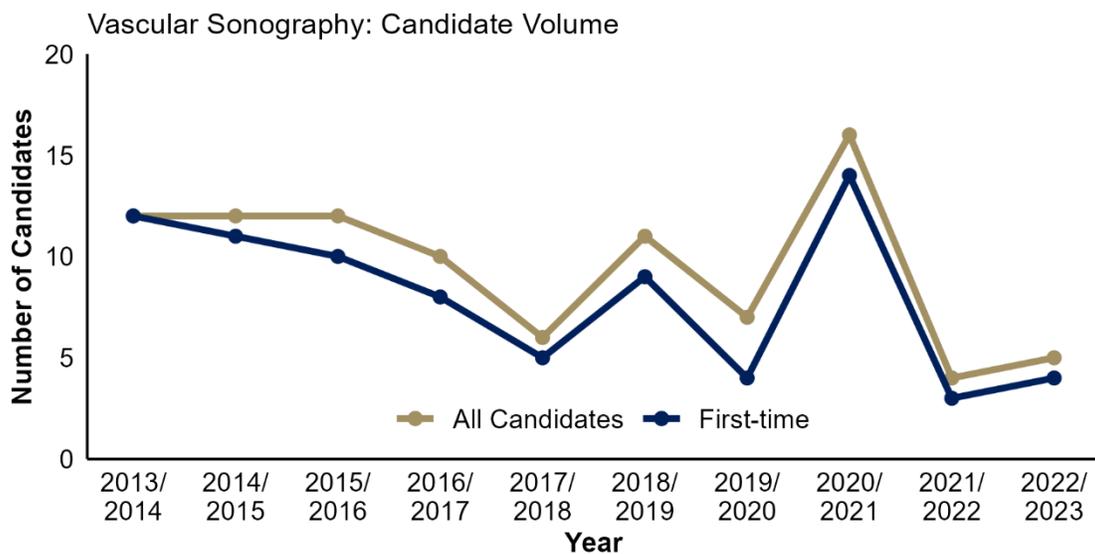
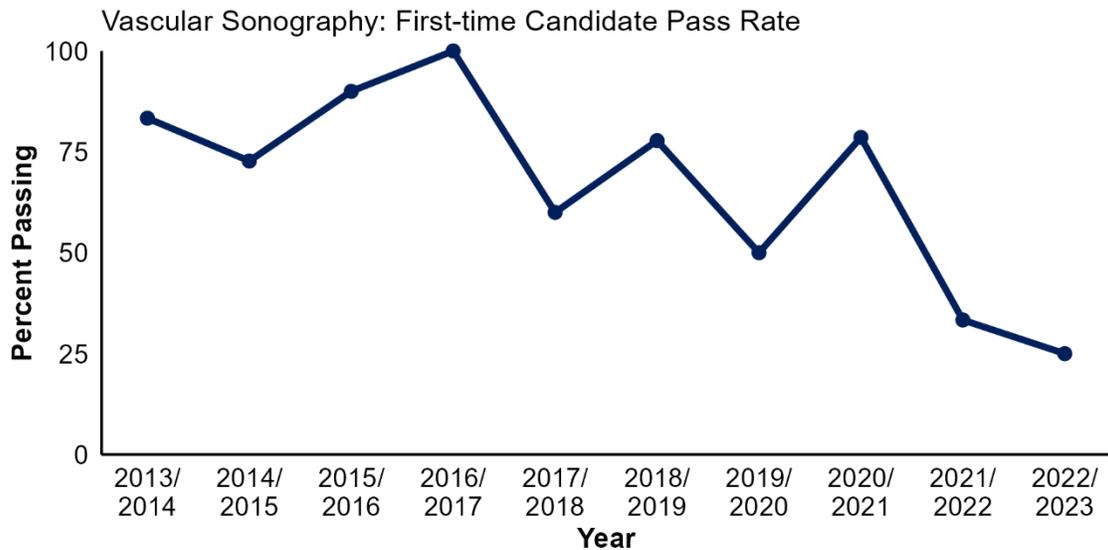


Exam Performance for Vascular Sonography

Content Categories and First-time Candidate Scores

| Content Categories | # Items | Mean Score |
|--|------------|-------------|
| Patient Interactions and Management | 20 | 8.1 |
| Basic Principles of Ultrasound | 26 | 6.4 |
| Image Formation | 14 | 6.7 |
| Evaluation and Selection of Representative Images | 35 | 6.8 |
| Abdominal/Pelvic Vasculature | 23 | 7.4 |
| Arterial Peripheral Vasculature | 21 | 6.6 |
| Venous Peripheral Vasculature | 18 | 7.0 |
| Extracranial Cerebral Vasculature and Other Sonographic Procedures | <u>18</u> | <u>7.0</u> |
| Total | 175 | 69.8 |

Pass Rate: 25.0%

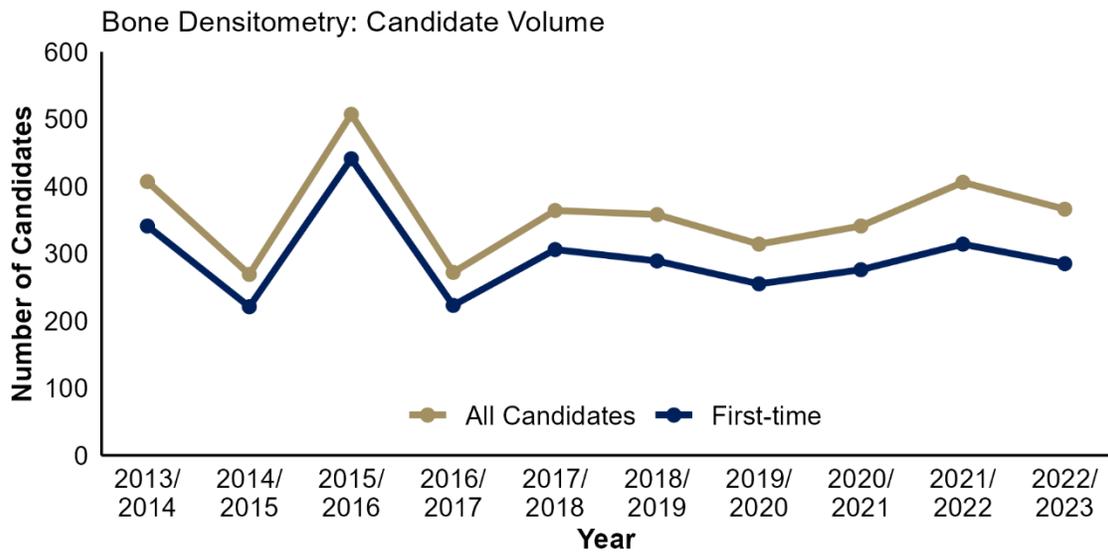
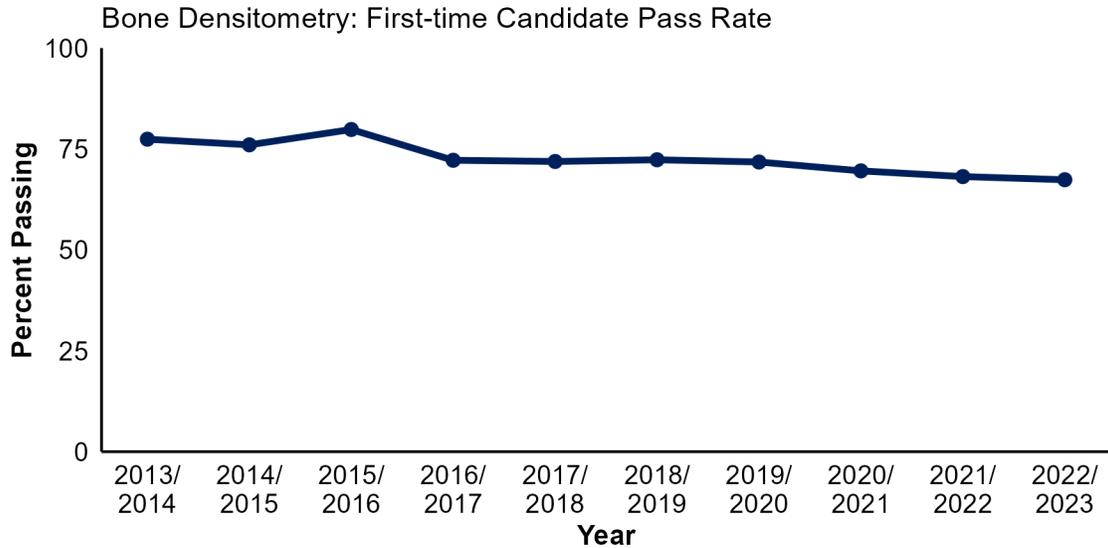


Exam Performance for Bone Densitometry

Content Categories and First-time Candidate Scores

| Content Categories | # Items | Mean Score |
|---|-----------|-------------|
| Patient Bone Health, Care, and Radiation Principles | 17 | 7.9 |
| Equipment Operation and Quality Control | 20 | 7.7 |
| DXA Scanning | <u>38</u> | <u>7.9</u> |
| Total | 75 | 78.4 |

Pass Rate: 67.4%

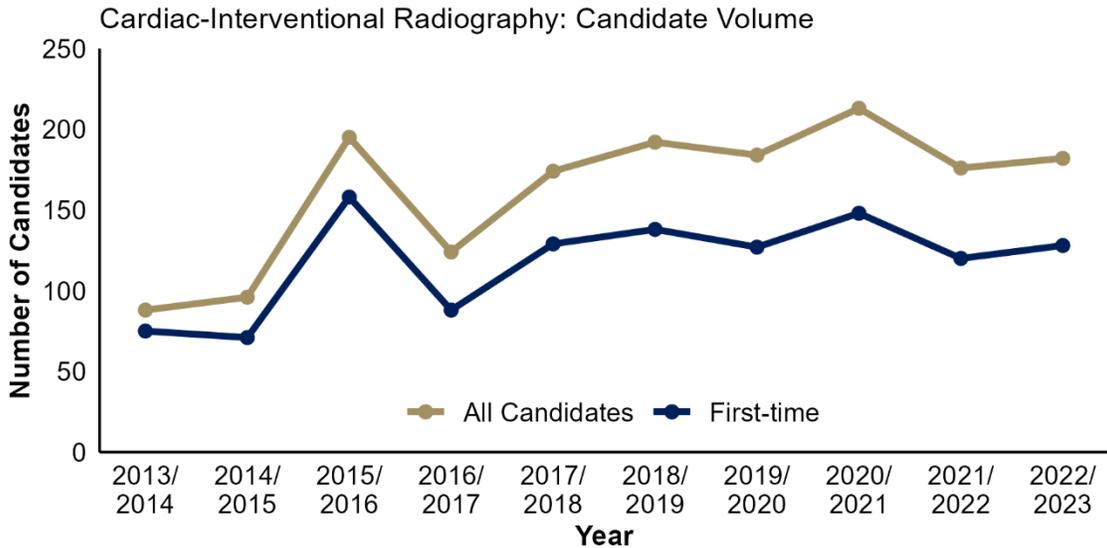
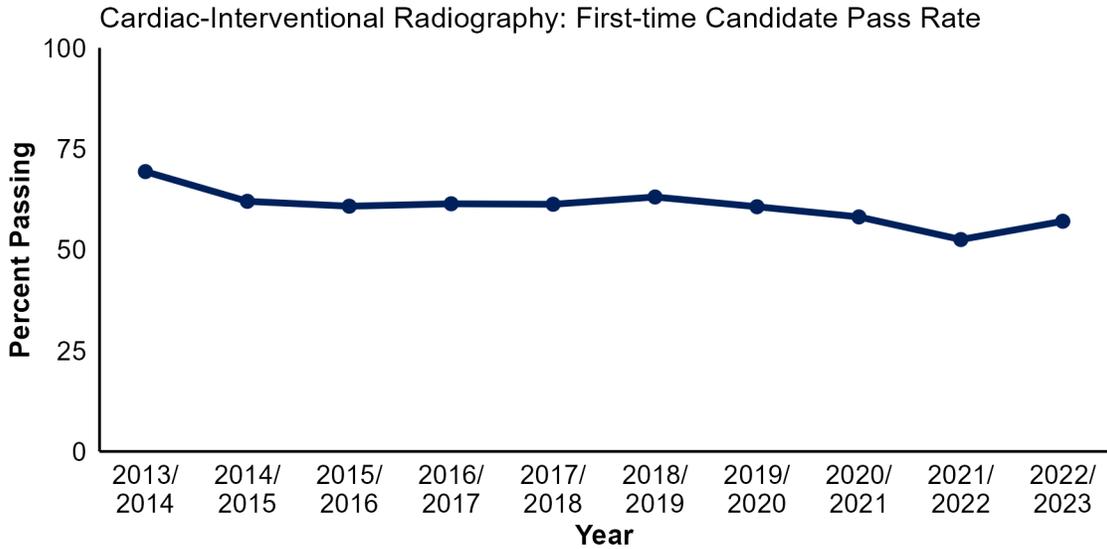


Exam Performance for Cardiac-Interventional Radiography

Content Categories and First-time Candidate Scores

| Content Categories | # Items | Mean Score |
|---|------------|-------------|
| Patient Interactions and Management | 35 | 7.4 |
| Image Acquisition and Equipment | 30 | 7.5 |
| Diagnostic and Conduction System Studies | 36 | 7.7 |
| Hemodynamics, Calculations, and Percutaneous Intervention | <u>44</u> | <u>7.6</u> |
| Total | 145 | 75.5 |

Pass Rate: 57.0%

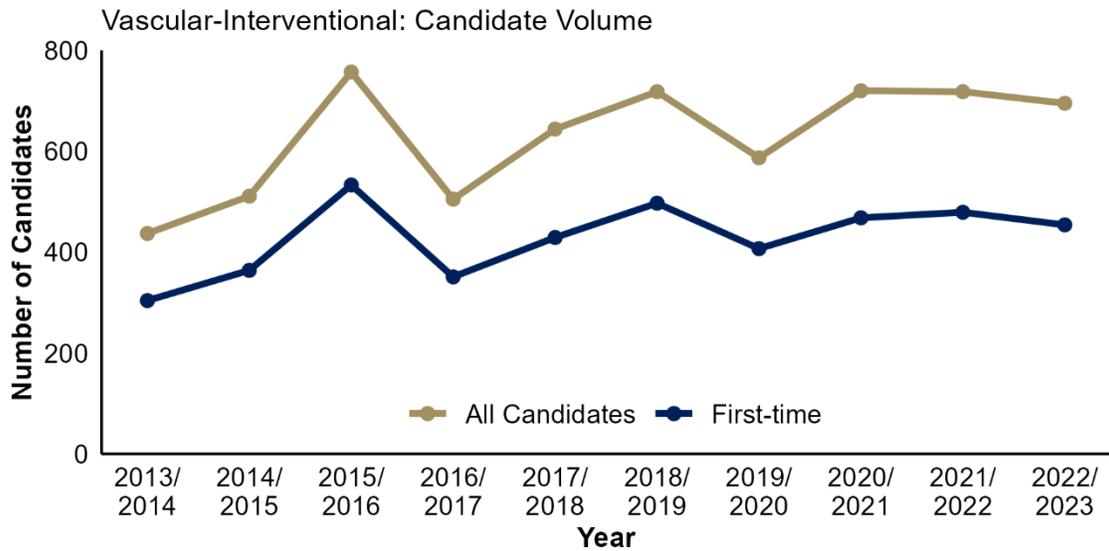
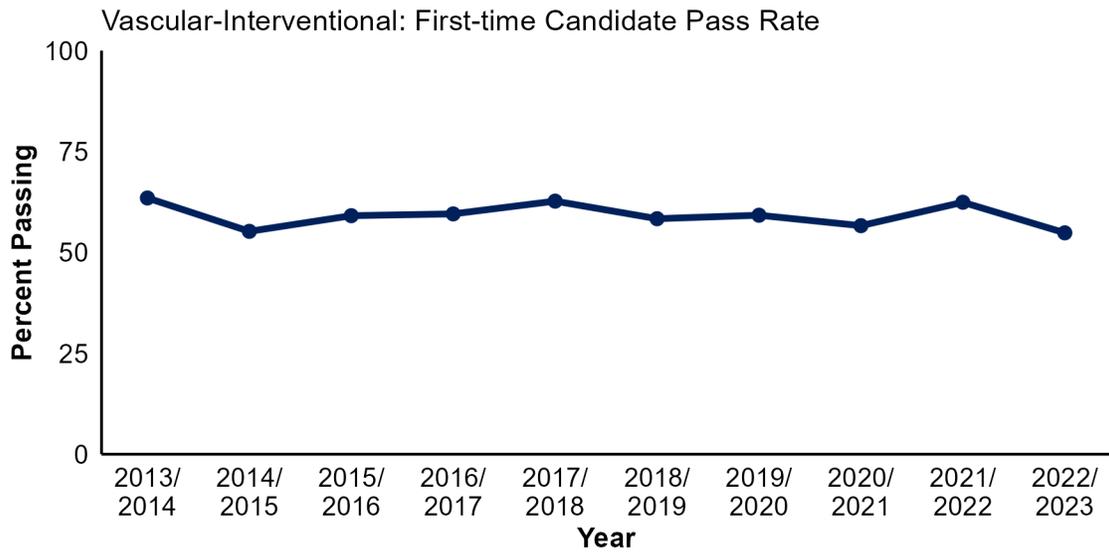


Exam Performance for Vascular-Interventional Radiography

Content Categories and First-time Candidate Scores

| Content Categories | # Items | Mean Score |
|-------------------------------------|------------|-------------|
| Patient Interactions and Management | 30 | 7.6 |
| Image Acquisition and Equipment | 25 | 7.5 |
| Vascular Diagnostic Procedures | 50 | 7.4 |
| Vascular Interventional Procedures | 35 | 7.6 |
| Nonvascular Procedures | <u>20</u> | <u>7.8</u> |
| Total | 160 | 75.3 |

Pass Rate: 54.8%



Exam Performance for Breast Sonography

Content Categories and First-time Candidate Scores

| Content Categories | # Items | Mean Score |
|---|------------|-------------|
| Patient Interactions and Management | 18 | 8.4 |
| Basic Principles of Ultrasound | 37 | 7.7 |
| Image Formation | 32 | 8.1 |
| Evaluation and Selection of Representative Images | 33 | 8.4 |
| Anatomy and Physiology | 15 | 8.4 |
| Pathology | 35 | 8.4 |
| Breast Interventions | <u>15</u> | <u>8.7</u> |
| Total | 185 | 82.4 |

Pass Rate: 85.2%

