# The History of the American Registry of Radiologic Technologists 1996-2022

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# 100 YEARS

## A CENTURY OF RADIOLOGIC TECHNOLOGY

In November 1895, Wilhelm Conrad Roentgen discovered mysterious rays that could pass through most substances, casting shadows of solid objects. He named them X-rays, after the algebraic term for an unknown quantity. Soon, medical practitioners were using X-rays to identify bone structures, locate foreign objects in the body, and perform other types of medical imaging.

A year later, Antoine Henri Becquerel began to study radioactivity and look for natural sources of radiation. Marie Curie and Pierre Curie in 1898 discovered two radioactive elements: radium and polonium. By 1901, doctors were testing radium on skin lesions and using it to treat lupus and cancer at the Saint-Louis Hospital in Paris. Roentgen and the Curies would later win Nobel Prizes in Physics.

Their discoveries led to the job of X-ray technician—and now to the profession of radiologic technologist. Today's technologists work throughout health care, performing medical imaging, interventional procedures, and radiation therapy. Follow our timeline to see highlights from the profession's history. And visit arrt.org to see more!

### 1922

The Radiological Society of North America (RSNA)—with support from the American Roentgen Ray Society and the American Society of X-Ray Technicians (now ASRT)—founds what is now The American Registry of Radiologic Technologists (ARRT).

ARRT administers our first Radiography exam to Sister Mary Beatrice Merrigan. After answering 20 essay questions and submitting 10 required radiographic films, she becomes ARRT's first R.T.

### 1936

Rose Marie Pegues, R.N., becomes the first Black R.T.

### 1943

Erminda R. Clarke, R.T., of Lincoln, Nebraska, becomes the first woman to serve on our Board of Trustees.

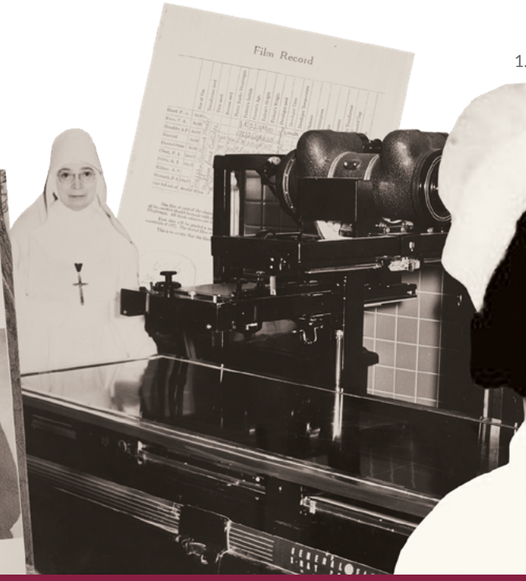
### 1954

The ARRT exam eliminates sample X-rays. The next year, ARRT drops the essay component and moves to all multiple-choice questions.

### 1962

ARRT adopts the more inclusive term "radiologic technologist" over "X-ray technician."


1.





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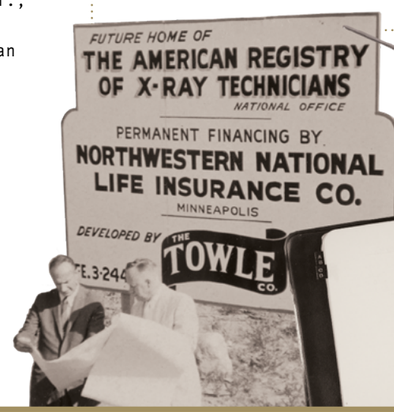


### 1959
**ARRT publishes its first Code of Ethics**

### 1963
**First ARRT Nuclear Medicine Technology exam**

### 1964
**First ARRT Radiation Therapy exam**

*1: The Shadowmakers: A History of Radiologic Technology. American Society of Radiologic Technologists, 2020, (Page 45)*
*2: The Shadowmakers: A History of Radiologic Technology. American Society of Radiologic Technologists, 2020, (Cover 2)*
*3: Image courtesy of American Society of Radiologic Technologists*

**1896** Enrico Salvioni invents, Thomas Edison improves the first commercial fluoroscope to take radiographs (X-rays).

**1913** William Coolidge invents the hot cathode X-ray tube, which is more dependable than previous versions and can treat deeper cancers.

**1914** Marie Curie invents a mobile X-ray unit, enabling medics to scan wounded soldiers near battlefields during World War I.

**1928** The Second International Congress of Radiology defines an international unit of radiation exposure—the roentgen—which enables physicists to reliably compare doses and results.

**1940s** Radiographers conduct chest X-rays in schools, workplaces, and clinics, screening for tuberculosis before patients become seriously ill.

**1945** Tests and deployment of atomic bombs help bring an end to World War II, broaden awareness of the effects of radiation, and lead to the use of atomic energy in nuclear medicine.

**1958** U.S. cardiologist F. Mason Sones Jr. mistakenly injects the small vessels of a patient's heart with a significant amount of contrast dye. The error ultimately leads to modern cardiac imaging.

**1963** The first U.S. cyclotron begins operation at Washington University Medical School. By manufacturing radioisotopes, it reduces the need for natural radioactive sources.

4: The Shadowmakers: A History of Radiologic Technology, American Society of Radiologic Technologists, 2020. (Page 224)
5: The Shadowmakers: A History of Radiologic Technology, American Society of Radiologic Technologists, 2020. (Page 82)
* We no longer issue new credentials for Quality Management and Cardiovascular Interventional Radiography People who hold these credentials can maintain them indefinitely, however, if they continue to meet our ethical standards and other requirements for doing so.

## 1969

Royce Osborn, R.T., becomes the first Black president of ASRT. Today, ARRT funds a scholarship program that honors him.

## 1973

To commemorate ARRT's 50th anniversary, First Lady Patricia Nixon—a former radiographer—invites organizational representatives to the White House for tea.

## 1990

ARRT adopts its Standards of Ethics.

## 1991

ARRT administers our first "advanced level" (now postprimary) exams.

## 1995

ARRT adopts biennial continuing education requirements to help ensure that R.T.s stay up to date with their knowledge.

## 1999

ARRT begins the transition to computer-based exams, enabling candidates to take an exam throughout the year at locations across the U.S.

## 2005

ARRT launches a certification process for a new role,the Registered Radiologist Assistant (R.R.A.).

## 2007

ARRT's Board of Trustees approves time-limited certification for all credentials awarded on or after Jan. 1, 2011. The decision leads to the Continuing Qualifications Requirements (CQR) process.

## 2007

ARRT and the Society for Imaging Informatics in Medicine form the American Board of Imaging Informatics (ABII), which offers certification to imaging informatics professionals.

## 2022

ARRT and R.T.s celebrate a century of gold standard patient care.







**1991**
First ARRT Cardiovascular Interventional Radiography* and Mammography exams

**1995**
First ARRT MRI and CT exams

**1997**
First ARRT Quality Management* exam

**2000**
First ARRT Sonography exam

**2001**
First ARRT Vascular Sonography and Bone Densitometry exams

**2003**
ARRT splits Cardiovascular Interventional Radiography exam and administers our first Cardiac Interventional Radiography and Vascular Interventional Radiography exams

**2004**
First ARRT Breast Sonography exam

**2005**
First ARRT R.R.A. exam

**1967** Godfrey Hounsfield invents the CT scanner, which increases by 100 times the amount of information in each image.

**1977** Raymond Damadian, M.D., along with Lawrence Minkoff and Michael Goldsmith, perform the first MRI body scan of a human being.

**1983** Nuclear medicine specialist Henry Wagner Jr., M.D., uses a positron emission tomography (PET) scanner to take an image of a radioactive tracer in his own brain.

**1986** Ultrasound technology improves, resulting in the first 3D image of a fetus. By the late 1990s, 4D ultrasounds can show movement in real time.

**1991** John Belliveau presents images of human brain activity using functional MRI, a process that measures changes in blood flow that correspond with brain activity.

**1995** DuPont Diagnostic Imaging introduces a system that converts X-rays into electronic data, making it possible to immediately view images on a screen instead of having to develop film.

**2008** A new generation CT scanner makes it possible to take images of the heart and coronary arteries in less than one second.

**2020** The worldwide COVID-19 pandemic severely disrupts every part of society—including health care as a whole and technologist education programs.

# ARRT Staff Leaders

**H.S. Tyler**: 1922 - 1923

**J.R. Bruce**: 1923 – 1933

**Alfred B. Greene**, R.T., FASRT: 1934 – 1965

**Roland C. McGowan**, R.T., FASRT: 1965 – 1991

**Jerry B. Reid**, Ph.D.: 1992 – 2022

**Liana Watson**, DM, R.T.(R)(M)(S)(BS)(ARRT), RDMS, RVT, PMP, FASRT, CAE: 2023 – present



## Chapter One

# 1996-1999

*OVERVIEW*

Roland McGowan would retire after 26 years of service as Executive Director. He would be replaced by Jerry B. Reid, Ph.D., who previously served as Associate Executive Director and Director of Psychometric Services. The ARRT staff would be reorganized into three separate divisions: Administrative Services, Regulatory Services, and Technical Services. The Board of Trustees would also be reorganized to provide for majority representation of technologists on the Board. The first advanced-level examinations in Cardiovascular Interventional Technology and Mammography would be administered in 1991. Computed Tomography (CT) and MRI would be added in 1995 and Quality Management in 1997. As the decade ended, preparations were underway for examinations in Sonography, Vascular Sonography, and Bone Densitometry. ARRT would clarify language related to primary versus advanced-level examinations.

The Board would reverse its previous position on re-examination by placing restrictions on the number of times a candidate could repeat the examination and the length of time eligibility for examination and re-examination could be retained. The impending dissolution of CAHEA would necessitate that the Registry adopt a new statement on accreditation that would recognize regional accrediting agencies in addition to the Joint Review Committees (JRCs). ARRT would adopt and implement mandatory continuing education requirements. The Board would also adopt and publish *ARRT Standards of Ethics* to describe the procedures ARRT follows in evaluating compliance with the ethical standards of professional behavior and the steps to be followed in cases of noncompliance. The Board would also adopt and implement a transfer agreement under which a rival credentialing body would be dissolved, and its members absorbed by ARRT.

As of early 2000, the count of certificates in good standing would reach 220,573, including 209,750 in Radiography, 10,893 in Nuclear Medicine Technology, 12,300 in Radiation Therapy, 3,940 in Cardiovascular Interventional Technology, 43,194 in Mammography, 19,148 in CT, 11,525 in MRI, and 1,234 in Quality Management. By the end of the decade, about one-third of R.T.s would be certified in more than one category; about 29% would hold at least one advanced-level certification.

## 1996

Accreditation remained a hot topic in 1996 following ARRT's decision to recognize the six regional accrediting agencies in addition to the Joint Review Committee on Education in Radiologic Technology (JRCERT) and Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT) as acceptable to ARRT. An ad hoc committee was formed due

to concerns expressed by the educational community and reported to the whole Board. Following review of the report and considerable discussion, the Board reaffirmed its decision. It noted, "Accreditation's intent is not to assess the competence of individuals, but rather to evaluate the learning environment. The purpose of certification is to assess the competence of the individual." The Board noted that it would monitor the activities of the regional accrediting bodies and the health of the JRCs in response to concerns that college programs would drop their programmatic accreditation and jeopardize the financial health of the JRCs.

The Board also accepted the "Standards for Endorsement of Accreditation Agencies" which stated in part, "*The ARRT Rules and Regulations* require that applicants for certification in Radiography, Nuclear Medicine, and Radiation Therapy must have completed a formal educational program accredited by a mechanism acceptable to ARRT." The document was sent to the ASRT, American College of Radiology (ACR), ACERT, JRCERT, JRCNMT, AHRA, Adverse Event Reporting System (AERS), and regional accrediting bodies.

The mortgage on ARRT's building in Mendota Heights was retired in 1995, and the Board began considering purchasing two additional lots behind the current building for future expansion. Expansion of the parking lot on the current site was approved.

The Board adopted multiple recommendations from the Ethics Committee meeting of October 1995, which addressed the types of sanctions that could be issued, information to be considered in determining the level of sanction in a specific case, public notification of the most serious sanctions, and internal committee processes related to conflict of interest of an Ethics Committee member.

Development of the new Quality Management certification continued with approval of the task inventory, setting of eligibility requirements, and setting of the number of items at 140. The Board also discussed broader issues of eligibility requirements for current and future advanced exams.

The Board discussed an ASRT proposal for a baccalaureate degree requirement for entry into radiation therapy by the year 2000, but no action was taken pending further development of the proposal.

In November, the Board held a long-range planning meeting, facilitated by former Board member Sal Martino, Ed.D. The Board reviewed the strategic plan that was adopted in July 1994 and reviewed and revised the goals. The revisions were adopted at the January 1997 Board meeting.

The number of first-time examinees continued to decline with decreases of 9% in Radiography, 13% in Nuclear Medicine Technology, and 25% in Radiation Therapy Technology compared to 1995.

# 1997

ARRT celebrated its 75th anniversary with new letterhead, a lapel pin that was given out at





selected meetings during the year, and a 75th anniversary panel for the ARRT exhibit. A website was approved with an initial focus on the anniversary. A time capsule was created to be opened on the 100th anniversary in 2022.

The Board continued to develop practice-specific eligibility requirements for advanced-level examinations with an expected implementation date of January 1999.

The Board noted that special eligibility requirements would be discontinued in 2000, meaning that all applicants must graduate from an accredited educational program. This would be most relevant to technologists educated outside the U.S. and who were currently subject to review by a credentials committee. Those technologists would need to seek advanced placement in U.S. programs to meet ARRT's education eligibility requirement.

ARRT issued a position statement on the baccalaureate degree in radiation therapy. It concluded that "the link between a baccalaureate degree and the requirements for professional practice must be demonstrated before ARRT could consider the baccalaureate degree as an eligibility requirement for certification."

The Board approved developing an advanced-level certification in Sonography that would be available to ARRT Registered Technologists only. The Board chose not to seek a strategic alliance with the American Registry for Diagnostic Medical Sonographers (ARDMS). A negative reaction from some members of the imaging community was noted. The Sonography exam would be developed as a computer-based examination rather than the standard paper-and-pencil format.

ARRT's financial status was becoming increasingly negative after several years of a decreasing number of examinees. The Board approved fee increases effective in 1998 and 1999.

The first Quality Management examination was administered in March 1997, and the pass/fail standard (cut score) was set for that discipline. 70% of examinees passed the examination.

The initial effects of the continuing education (CE) requirements that began in 1995 were noted as technologists were completing their first biennial requirements. Data showed a small increase in the number of technologists dropping their registration, from 6.5% prior to required CE to 7.5% after the CE requirement. However, subsequent information indicated that more than half of the people who were reported as dropped reinstated later in the same year. In addition, 12.5% of technologists went on CE probation with the risk that some of them would also lose their registration.

The number of first-time examinees continued to decline with decreases of 8% in Radiography, 22% in Nuclear Medicine Technology, and 30% in Radiation Therapy compared to 1996.

# 1998

The Board made a small change to ARRT's mission statement, indicating that the mission is to "recognize individuals qualified" rather than to "identify" such individuals. Corresponding edits

were made in the supporting statements.

Clinical competencies remained an active topic for primary and advanced-level examinations. The Board adopted revised didactic and clinical competency requirements for primary examinations but delayed implementation until Jan. 1, 2002. It continued to develop clinical experience requirements for advanced-level examinations with a revised effective date of 2000.

The Board moved toward computer-based test (CBT) administration for all examinations. It also approved the addition of unscored experimental items, later known as pilot items, with a limit of 10% per examination. Sylvan Prometric was chosen to administer the examinations in computer-based format. The Mammography examination would be the first offered by computer on Jan. 1, 1999, with other examinations anticipated in 2000. The lessons learned with the transition of Mammography from paper and pencil to CBT would be applied to the other examination programs.

Development of the Sonography examination remained on schedule, and the Board decided to create a separate examination in Vascular Sonography with a launch date of 2001. An initial proposal was presented for the development of an examination in Bone Densitometry. Consideration was given to examinations in phlebotomy and electrocardiography, but lithotripsy was rejected as a possible subject. Initial discussions began on splitting out the cardiac section from the Cardiovascular-Interventional Radiography examination.

To avoid confusion with the term "advanced-level examinations," an initial position statement was drafted to clarify that the examinations in Radiography, Nuclear Medicine Technology, and Radiation Therapy Technology are professional level examinations. A second position statement on examination category terminology further clarified the issue by stating:

> ARRT refers to the Radiography, Nuclear Medicine Technology, and Radiation Therapy Technology examinations as primary categories and considers them to be the foundation of certification in the profession of radiologic technology. "Primary" is used in the sense of being of highest importance. The advanced-level examinations build upon and extend the knowledge and skills represented by the primary categories. The existence of certificates of advanced qualifications is not intended to diminish the importance of the primary certifications.

30% of Registered Technologists held more than one certification, up from 5% in 1991 when the first advanced-level examinations were offered.

The number of first-time examinees continued to decline with decreases of 6% in Radiography, 22% in Nuclear Medicine Technology, and 11% in Radiation Therapy Technology compared to 1997. It was noted that the current examinee numbers were similar to those of the late 1980s, but 1998 was also the first year in many that the total number of Registered Technologists decreased.





# 1999

The mission statement was updated with insertion of the phrase "to promote high standards of patient care in" replacing the words "for purposes of." ARRT changed the terminology "radiation therapy technology" to "radiation therapy."

With increasing computerization of ARRT and development of the internet, ARRT announced that it would no longer print a hard copy of the Directory of Registered Technologists as of 2000. Instead, the information would be available via the ARRT website.

ARRT began to consider mechanisms by which graduates of Canadian programs could be eligible for ARRT certification. JRCERT volunteered to evaluate the Canadian accreditation system relative to the JRCERT system, and ARRT agreed to consider that information in its deliberations. ARRT also began to investigate ways for technologists certified by NMTCB but not ARRT to be eligible for the MRI examination and the feasibility of allowing graduates of accredited sonography educational programs to sit for the Sonography examination.

Computer-based testing in Mammography was implemented smoothly, although a glitch occurred in September due to a software conversion by Prometric. Plans continued for all examinations to be computer-based beginning in 2000. Development of the Sonography, Vascular Sonography, and Bone Densitometry certification programs remained on schedule.

The Board heard initial discussion of advanced-practice technologists and requested that the ASRT forward scope of practice, practice standards and curriculum for the Radiology Practitioner and Radiation Therapy Practitioner. The Board was concerned with the term "practitioner" and felt it was premature to consider exam development.

Although the number of first-time candidates in primary exams again fell compared to the previous year, the October 1999 administration was the largest in ARRT history due to increasing numbers for advanced exams. Only Mammography volume did not increase among the advanced categories. This was felt to be partly due to clinical experience requirements scheduled for implementation in January 2000.

For several years, the world was concerned about computer issues with the change in the century since most dates were stored with only the final two digits. This was known as the Y2K problem. ARRT's computer services department prepared internally and monitored external entities. In the end, it was much ado about nothing, and the year 2000 began without problems.

# Chapter Two
# 2000-2009

OVERVIEW

The first decade of the new millennium would be a period of growth for ARRT. New certification programs would be added in Sonography, Bone Densitometry, Vascular Sonography, and Breast Sonography. For the first time, ARRT would retire an examination, as Cardiovascular-Interventional Radiography was split into two new exams: Cardiac Interventional Radiography and Vascular Interventional Radiography. Those registrants holding the original certification could maintain it without having to earn one of the new certifications. ARRT would also credential a new type of practitioner, the Registered Radiologist Assistant (R.R.A.). The R.R.A. would be the first advanced-level practitioner certified by ARRT; because of that role, R.R.A.s would be required to obtain more CE credits than other technologists. The R.R.A. exam would also include a constructed response (essay) component in addition to the usual selected response (multiple choice) format used for all other disciplines. ARRT began to explore time-limited certification and would initially implement it for Bone Densitometry, but that requirement would be withdrawn until it could be applied to all other modalities. However, the R.R.A. certification was limited to 10 years from the start. Certification of other advanced practitioners would be considered, but none of the proposals would advance to a level that would warrant certification programs. CBT would be a big success, although a change in vendor would be needed. The staff would continue to expand, including the addition of several new leadership positions, and ARRT would become more active in government affairs. After years of discussion and negotiation, ARRT would purchase two lots behind the Northland Drive building and construct a large addition. Examination volume would reverse the declining trend seen in the late 1990s, and an increasing number of registrants would pursue additional certifications, mostly in what would become known as postprimary disciplines.

## 2000

CBT began for all ARRT certification programs, which allowed candidates to examine on any weekday at nearly 250 locations across the country rather than on only three days per year at about 125 locations. The only drawback for candidates was a $50 increase in the fees to support the increased costs of the new system. Our psychometrics department noted no effect on test scores when items were presented in a randomized vs. nonrandomized order. Candidate satisfaction with CBT was in the 90% range. Psychometrics also reported on computer adaptive sequential testing for informational purposes only.

The certifications previously known as “advanced-level” were increasingly referred to as “postprimary.”





ARRT continued to monitor and study the proposal for a baccalaureate degree for radiation therapists but did not believe that the information provided supported that degree as a certification requirement.

Initial plans for the Bone Densitometry credential indicated that it would be listed as a certificate of “added qualifications in bone densitometry” and limited to five years, with re-examination needed to maintain the qualification. Applicants must have and maintain registration in Radiography, Nuclear Medicine Technology, or Radiation Therapy to be eligible for certification and registration in Bone Densitometry and must meet clinical experience requirements.

The Board approved certification by the NMTCB as a qualification for the MRI examination. However, it clarified that only the MRI certificate would be registered with ARRT. The Board also approved splitting the Cardiovascular Interventional Technology examination into two exams, cardiac and noncardiac, to better reflect the practice patterns of technologists.

The Sonography certification was launched, and ARRT made plans to market the new certification and to promote its acceptance by outside entities. Initial exam volumes were very low.

ARRT recognized the accreditation mechanism of the Conjoint Secretariat of the Canadian Medical Association as acceptable for 2000-2004 and requested that JRCERT repeat its review of the Canadian system in five years. The time frame was later changed to Jan. 1, 1999. The recognition applied to Radiography and Radiation Therapy educational programs but not to Nuclear Medicine Technology educational programs.

The Board completed a long-range planning meeting with an external moderator in November 2000 and scheduled the next meeting for spring 2002.

The trend of decreasing exam volumes in the primary eligibility pathway disciplines continued, with an 11% decrease in Radiography, a 36% decrease in Nuclear Medicine, and a 6% decrease in Radiation Therapy compared to 1999.

## 2001

ARRT continued with its plans to split the Cardiovascular Interventional Technology examination into a Cardiac Interventional examination and a Vascular Interventional examination. Those who held the current certification would maintain the designation of CV, while those passing the new examinations would be designated as CI and VI. No new applications would be accepted for the CV exam after Dec. 31, 2002, but the exam would remain available for some time to accommodate repeat examinees. The new CI and VI exams would launch in January 2003.

The Board endorsed a new public relations campaign with multiple goals focused on its constituencies. The key message was “ARRT–ensuring quality patient care by certifying qualified radiologic technology professionals.” The organization also sought to correct inaccurate depictions of the radiologic sciences in advertisements, news articles, and other media outlets and to maximize its efforts by coordinating activities with other organizations.

The Bone Densitometry and Vascular Sonography certifications launched, and ARRT offered to administer its Bone Densitometry examination to state licensing candidates under contractual arrangement if the candidates could meet eligibility requirements "similar to those of ARRT." After meeting with ARRT and investigating the development of the Vascular Sonography examination, the Intersocietal Commission on the Accreditation of Vascular Laboratories (ICAVL) voted to recognize the ARRT Vascular Sonography credential as meeting its accreditation standards for technologists in vascular laboratories.

The Board continued to discuss the baccalaureate degree for radiation therapists. It also continued to explore options for internationally educated technologists, with a focus on those educated in the United Kingdom, South Africa, New Zealand, and Australia. The term "international" was deemed preferable to "foreign."

ARRT worked on converting all ARRT files to digitized versions. This would eliminate duplication of paper and electronic files for any that were received on paper and reduce the need for physical storage space. ARRT's computer services department continued to work on a disaster recovery plan and noted that copies of all computer files were already stored off-site.

ARRT decided to apply for accreditation of its Radiography, Nuclear Medicine Technology, and Radiation Therapy certification programs by the National Commission for Certifying Agencies (NCCA). It was noted that such accreditation could require the addition of a public member to the Board.

Examination volumes increased in all disciplines except Mammography. This was especially notable in Radiography with a 4% increase, Nuclear Medicine Technology with a 15% increase, and Radiation Therapy with a 45% increase compared to 2000. This was the first time since the mid-1990s that volumes in the primary disciplines increased.

# 2002

ARRT recognized the accreditation mechanism of the Australian Institute of Radiography (AIR) as acceptable for radiography and radiation therapy educational programs in Australia, with an effective date of Jan. 1, 2000. ARRT also extended recognition by the Conjoint Secretariat of the Canadian Medical Association to nuclear medicine technology programs effective Jan. 1, 1999.

Staff reported on the feasibility of ARRT owning CBT centers and recommended against that, but ARRT decided to request proposals from other computer-based testing vendors. Only two vendors had the ability to meet ARRT's needs.

ARRT began to develop a certification in Breast Sonography and set eligibility requirements for ARRT certification in Mammography or Sonography. The Board also approved funds to develop a Bone Density Equipment Operators examination for use by licensing states beginning in 2003. By the end of the year, seven states were under contract.





In light of ongoing negotiations between ACR and ASRT regarding the development of a new practitioner, the radiologist assistant (RA), ARRT approved development of a certification program and explored how to handle radiographers certified as radiology practitioner assistants (RPA) by the Certification Board for Radiology Practitioner Assistants (CBRPA). ARRT accepted an invitation to participate in an ASRT task force to develop the role of the RA. As part of its development efforts, ARRT assembled information on the RPA educational program at Weber State University.

After several years of discussion, ARRT disbanded the ad hoc committee on the baccalaureate degree for radiation therapists and considered the issue closed without adopting that degree as a requirement for examination.

After several years of monitoring efforts to establish national technologist licensure through a federal effort known as the Consumer Assurance of Radiological Excellence (CARE) bill, ARRT decided to participate as a member of the Alliance for Quality Medical Imaging (AQMIRT). ARRT explored fusion imaging, particularly related to positron emission tomography (PET) and CT. A consensus conference organized by ASRT and SNMTS stated, "Any registered radiographer with the credential R.T.(R), registered radiation therapist with the credential R.T.(T) or CNMT may operate PET-CT equipment after obtaining appropriate additional education or training and demonstrating competency."

ARRT developed a new marketing message: "Ethics + Education + Examination = The ARRT Equation for Excellence." It also adopted a vision statement: "ARRT strives to be the premier organization for credentialing health care technology professionals in all aspects of diagnostic medical imaging, interventional procedures, and radiation therapy." And it adopted a values statement: "ARRT is a principled and mission-driven organization that values and demonstrates quality, integrity, and objectivity."

First-time examinees in the primary categories increased compared to 2001 by 9% in Radiography and 6% in Radiation Therapy, although Nuclear Medicine saw an 8% decrease. About 20% of all exams were in the postprimary disciplines.

# 2003

As part of the ongoing discussion about PET/CT imaging, Nuclear Medicine was added as a supporting category for ARRT's CT certification. This required some modifications to the CT exam to include material previously assumed to be assessed by the Radiography and Radiation Therapy supporting categories. PET would be added to the Nuclear Medicine examination if supported by practice analysis data. ARRT recognized NMTCB certification in nuclear medicine technology as a supporting category for ARRT's MRI and Quality Management certification programs.

The new certifications in Cardiac Interventional Radiography and Vascular Interventional Radiography were launched as planned.

ARRT was concerned with the performance of Prometric as the CBT firm, but it initially sought to extend the contract with Prometric through the end of 2004. Later in the year, however, ARRT entered negotiations with Pearson VUE and chose it as the new vendor, effective Jan. 1, 2004.

The Board began initial discussions on the topic of recertification for all modalities. ASRT was noted to be in favor of the concept. Since continuing qualifications were being considered for all disciplines, the Board suspended the requirement for recertification in Bone Densitometry.

The Board added a primary pathway for Sonography certification for graduates of an accredited sonography program with the goal of transitioning to that pathway for all candidates, but it maintained the postprimary pathway for an indefinite period. It also voted to develop a business plan to convert the MRI program to a primary pathway.

With ACR and ASRT adopting a joint position statement on the RA, ARRT moved forward with plans for a certification program and appointed an RA advisory committee.

ARRT launched an online renewal option, with about 10% of technologists initially electing that method. The online method took about six minutes, compared to 19 minutes for the paper-based process.

Examination volumes continued to rebound. Nine-month figures showed an increase of 16% in Radiography, 48% in Nuclear Medicine Technology, and 42% in Radiation Therapy compared to 2002. About 23% of all exams were postprimary.

# 2004

The Breast Sonography certification launched at the start of the year, and a standard-setting process determined the exam's passing score. In 2004 registration in Mammography was required as an eligibility requirement, but a pathway for Sonographers was planned for 2005.

Progress continued toward developing RA certification. The Board decided that certification and registration in Radiography would be a prerequisite for RA certification and that there would not be a physician assistant or nurse practitioner eligibility route. The RA advisory committee drafted a role delineation document. After initially declining to require RAs to work only under the supervision of a radiologist, ARRT issued a position statement saying, "It is in the best interests of providing high-quality patient care for radiologist assistants to work only under the supervision of such physicians." This statement was in line with the statement of ACR and ASRT.

After many years of long-range planning meetings resulting in smaller changes to the ARRT strategic plan, the Board held a "blue sky" meeting in October to look further into the future, asking what a technologist would look like in 2010 and 2015 and what the R.T. designation should mean at that time.

The change to Pearson VUE as the CBT vendor was successful. Candidate satisfaction rose from 93% to 96%, and several operational issues were resolved.





By the end of 2004, the total number of registrants was about 246,000, and they held more than 350,000 certificates. Radiography represented 66% of the certificates, followed by Mammography at 13%, CT at 7%, MRI and Radiation Therapy at 4%, and Nuclear Medicine at 3%. About 40% of R.T.s held two or more certificates.

# 2005

Preparations to administer the first RA examination dominated the year. ARRT decided to require at least one year of full-time clinical experience after Radiography certification to be eligible for RA certification. However, that year could be concurrent with the RA educational program. Candidates would need to possess a minimum of a baccalaureate degree awarded by an accredited institution. ARRT expressed its commitment to creating an eligibility pathway for RPAs to become RAs. It made graduates of an RPA educational program that is based in an institution accredited by a mechanism acceptable to ARRT, and/or individuals certified by CBRPA, eligible to sit for the RA exam through the end of 2007. The advisory committee judged that the education and ethics requirements of the CBRPA were substantially equivalent to ARRT's requirements, but there was insufficient information to determine if its examination was equivalent. Although all other ARRT exams were available on a continual basis, the RA exam would return to the "event schedule" format because it would consist of selected response (multiple choice) and constructed response (essay) components. The essay component would require scoring by a panel of experts. Because the term "RA" was in general use for multiple purposes, ARRT chose the designation of Registered Radiologist Assistant (R.R.A.) for those who achieved ARRT certification. The R.R.A. certification would be time-limited to 10 years, with the mechanism for recertification to be determined. CE requirements were set at a minimum of 25 credits per year, with at least 70% related to the RA's area of practice and 50% intended for a physician or physician extender. The first exam was held on Oct. 28, 2005. Four of eight candidates passed the exam and earned the R.R.A. designation.

The Board adopted a statement of purpose for clinical competency requirements that read:

> *The purpose of clinical competency requirements is to verify that individuals certified by ARRT 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 covered by the certification examination, 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 his or her formal education.*

ARRT recognized ARDMS certification in any category as a supporting category for ARRT's Sonography, Vascular Sonography and Breast Sonography certifications. ARRT launched a pilot study for transitioning Sonography to a primary program and delayed implementation until 2006. NMTCB certification in nuclear medicine technology was accepted as satisfying the same supporting category requirements as ARRT's Nuclear Medicine Technology certification. Sonography certification and registration was recognized as a supporting category for the postprimary eligibility pathway of the MRI certification program.

ARRT received NCCA accreditation for our primary programs of Radiography, Nuclear Medicine, Radiation Therapy, and Sonography. Although we would submit postprimary programs for consideration only if a specific reason was identified, we made plans to submit the MRI and RA programs when appropriate.

Seven important trends to monitor were identified from the blue sky meeting:

1) Demographics of R.T.s
2) Coincidence of education and certification with clinical practice
3) CARE and RadCARE bills
4) State licensing trends
5) Changing patterns of reimbursement and the impact on new professions
6) Acceptance of RAs
7) R.T.s who don't work for radiologists

The Board held an ethics retreat to review the philosophical foundations of ARRT's ethics standards.

# 2006

ARRT compared the R.R.A. and the RPA and noted some conceptual differences, particularly related to the manner in which responsibilities were defined and the appropriate supervision levels. ARRT turned more of its attention to lobbying federal and state agencies for recognition of the R.R.A. credential and appropriate reimbursement for RA work. The recertification process continued to develop, with plans for an assessment of key information every 10 years and remedial CE courses to address areas of deficiency.

With the R.R.A. concept approved and operationalized, discussions were held with appropriate organizations regarding possible advanced practice technologists in Nuclear Medicine and Sonography.

Four new major staff positions were added: Director of Education, Director of Governmental and Regulatory Agency Relations, Communications Specialist, and Senior Psychometrician. A Chief Financial Officer was hired.

ARRT began to consider requiring a minimum of an associate degree for certification and planned to explore the implications and possible implementation in conjunction with ASRT. Discussions also continued related to a bachelor's degree requirement in some modalities, such as Nuclear Medicine.

The Canadian Medical Association Conjoint Accreditation Services was recognized as an accreditation mechanism acceptable for MRI educational programs.

The Board asked to develop a proposal for assessing and acknowledging qualifications in disci-





plines that are less extensive than ARRT's traditional certification categories. It also reviewed progress on integrating digital imaging into certification programs and acknowledged the need to address roadblocks to more substantive coverage of digital imaging.

ARRT met with the Society of Imaging Informatics in Medicine (SIIM) to discuss ARRT's possible role in a certification program for picture archiving and communication system (PACS) administrators. The organizations decided to proceed as partners in developing an imaging informatics professional certification program.

The Board approved new examination item formats, including hot spots, sorted lists, and selected multiples to be introduced in some exams in 2007.

# 2007

R.R.A. examination volume increased substantially from 16 in 2006 to 42 in 2007 as program graduates increased and more RPAs took advantage of the opportunity to test. The first-time pass rate increased to 85.7%. CE requirements for the R.R.A. were adjusted to allow more flexibility due to limited offerings, but 50 credits every two years were still required. RPA eligibility was extended to 2010, but RPAs were required to meet the bachelor's degree requirement. ARRT decided to apply for NCCA accreditation of the R.R.A. certification program. ARRT also requested that ASRT select an R.R.A. as its next Board appointee. The Board expressed its concern about the lack of progress toward securing reimbursement for R.R.A.-performed procedures.

Topics for a blue sky meeting in October included increasing use of CT in place of radiography; automation of imaging equipment; increased use of imaging by radiation therapists; fusion imaging; molecular imaging; interventional oncology; interdependence of organizations; and pay-for-performance initiatives by payers. There was a desire to include presentations from futurists at strategic planning meetings and some Board meetings.

With CBT well-established, ARRT would begin to provide a preliminary score report to candidates via the computer screen, with new forms launched in January 2008. There would be no paper copy.

The Board approved time-limited certification for all new certifications awarded on or after Jan. 1, 2011. Requirements to assure continued qualifications must be documented before the end of the 10-year period to continue certification for another 10 years.

ARRT and SIIM formed a new organization, the American Board of Imaging Informatics (ABII), to certify imaging informatics professionals. Each organization would appoint half of the board of ABII.

After years of discussion and negotiation, the Board authorized funds to purchase the two lots adjacent to the current building for expansion and additional money to maintain and repair the current building.

# 2008

The Board approved a broad outline of Continuing Qualifications Requirements (CQR), establishing the final three years of the 10-year period as the time when technologists would participate in an ARRT-administered assessment to determine areas of needed professional development; document completion of activities to address the identified areas of need; and complete a reassessment demonstrating successful remediation. The nature of the assessment was left broad for future refinement. Later in the year, the three-year period was increased to five years.

ARRT continued to monitor advanced practice initiatives in radiation therapy, nuclear medicine, and sonography, but there were no immediate plans for new certification mechanisms. ARRT endorsed the title of nuclear medicine advanced associate and reopened discussions with the NMTCB to determine if the organizations might collaborate on a certification program.

Specific plans were approved and funds allocated for constructing a 30,000-square-foot addition to the headquarters building, with half to be furnished and half to be unfurnished for future expansion.

Preliminary score reports were provided in the primary disciplines as planned, with no discrepancies noted with the final scores. Satisfaction with Pearson VUE remained high.

ARRT joined a new group to promote reimbursement of R.R.A.-performed procedures: the Coalition on Radiologist Assistants (CORA). With no significant progress on the CARE bill, ARRT began to consider hiring its own lobbying firm.

# 2009

The Board adopted a definition of unauthorized disclosure of exam information and proposed related revisions to the *ARRT Standards of Ethics*. These actions clarified that examinees may not transmit or receive information "using language that is substantially similar to that used in questions and/or answers on ARRT examinations." They also noted that "copying answers on a directed reading's post-test from another individual is a violation of the *ARRT Rules of Ethics*."

ARRT decided to assume a leadership role in advocating efforts to secure reimbursement for R.R.A.-performed procedures.

The building expansion project was completed. Two departments moved in before April. Formal dedication occurred on Aug. 7.

ARRT increased its efforts in state licensing and developed multiple position statements to support appropriate regulation of medical imaging, interventional procedures, and radiation therapy. ARRT also stated that other nonphysician health care providers, including nurse practitioners and physician assistants, must receive appropriate education, training, and competence





assessments if they are to perform medical imaging, interventional procedures, and radiation therapy, and that such practitioners should be appropriately certified and licensed.

The Board affirmed support for the link between the associate degree as a certification requirement and the ARRT mission. Candidates for certification graduating on or after Jan. 1, 2015, would be required to earn an associate degree, baccalaureate degree, or graduate degree from an institution accredited by a mechanism acceptable to ARRT. The degree need not be in the radiologic sciences and could be earned before or after the professional education program.

After several years of discussion, the Board discontinued consideration of the development of an advanced-practice certification program in Nuclear Medicine Technology.

As the decade closed, first-time examinee volume in the primary disciplines decreased from 2008, but postprimary examination numbers were increasing—perhaps at least in part as technologists looked to avoid the time-limited certification that would begin in 2011.

# Chapter Three
# 2010-2019

OVERVIEW

Development and refinement of CQR would be a big topic for much of the decade. Although a few R.R.A.s would enter their three-year compliance windows early in the decade, other technologists would not begin compliance until 2018. Sixteen hours of structured education based on the content specifications would become required for postprimary pathways as of 2016. Issues related to the R.R.A. would also continue as ARRT had the lead role in attempting to achieve reimbursement through either the Centers for Medicare and Medicaid Services (CMS) or Congress. Despite extensive efforts, there would be limited success with CMS and no success in passing the Medicare Access to Radiology Care Act (MARCA) bill. Toward the end of the decade, opposition from some factions of the ACR would complicate matters. The certification examination in Quality Management would end in July 2018, but existing certificates would remain valid. Sonography certification would move to a primary eligibility pathway only at the end of the decade. ARRT would develop plans for discipline-specific CE, but begin to have second thoughts and delay implementation into the next decade.

Selection of Board members would move from direct appointment by ASRT and ACR to a nomination process of at least two candidates and election by the ARRT Board. The Board would also expand to 10 members, including a new technologist position that could come from an organization other than ASRT. A nuclear medicine technologist would be chosen from nominations by the Society of Nuclear Medicine and Molecular Imaging (SNMMI).

## 2010

The Board continued to refine CQR. It noted that the primary goal of recertification is "to reflect competency, which has many components." The content specifications for examinations define the body of knowledge that must be mastered and maintained to meet ARRT's definition of "qualified." Therefore, CQR will be based on demonstrating—through assessment activities and prescribed educational activities linked to areas of need—maintained mastery of the body of knowledge identified in the content specifications.

The Board endorsed requiring documentation of structured education for all postprimary certification modalities, beginning in 2016. Applicants would be required to document completion of 16 hours of structured education that both reflects the content specifications of the modality and is earned within the 24-month period immediately preceding submission of an application for certification.





Congress passed the Medicare Improvements for Patients and Providers Act (MIPPA), which required practice accreditation for CT, MRI, and NMT/PET. This complicated efforts on the CARE Act, and there was controversy among imaging organizations as to whether those modalities should be removed from CARE. The differences between practice accreditation and personnel requirements were a point of contention.

The Board reaffirmed the "limited in breadth, not in depth" philosophy for the Limited Scope of Practice in Radiography examination. That means if the same task is performed by a radiographer and a limited scope radiographer, the underlying content and level of understanding assessed should be the same.

Slow migration from conventional units of radiation to the international system of units (SI units) continued. Either could be used depending on the situation, but both units would not be used in the same item on ARRT exams.

A business plan to develop a Fluoroscopy examination program for use by licensing states was accepted.

ARRT entered the growing world of social media with the launch of a Facebook site on Jan. 4.

MRI certification earned through the primary eligibility pathway was recognized as a supporting category for postprimary Sonography.

After many years of discussion regarding the retired status registration category, the Board passed an interim rule to discontinue the category effective Aug. 1, 2010. A final decision, scheduled for July 2011, would determine whether the rule would become permanent.

Efforts to achieve R.R.A. reimbursement shifted from a CMS-focused approach to a Congressional-focused approach. Sixty first-time examinees sat for the R.R.A. examination.

Postprimary exam volumes reached record levels as technologists sought certification prior to the onset of CQR requirements.

## 2011

The Board reviewed the practice analysis methodology and suggested that practice analysis data could be supplemented with additional data, such as that from CMS and sentinel sites. It adopted decision guidelines that would include tasks with responsibility from more than 40% of respondents and with 20% or more reporting daily or weekly frequency of performance. It would exclude tasks falling below those thresholds. Tasks meeting only one threshold would be "on watch," with those exceeding 40% responsibility likely included and under 40% responsibility likely excluded. Committees could also consider whether a task was trending up or down.

The Board adopted contract provisions for agreements with states to use the new Fluoroscopy examination. Key provisions included that candidates have relevant foundational qualifications,

including at least 40 hours of structured didactic educational activities and at least 40 hours of supervised clinical experience.

The RPA eligibility pathway for the R.R.A. certification continued until the end of 2011. First-time R.R.A. examinees reached an all-time high of 79, but that number was inflated by moving the January 2012 administration to December 2011 to accommodate the closing window for RPA candidates. With the first certified R.R.A.s approaching the end of their 10-year certification window, their CQR requirements were clarified to include a clinical profile that identifies their area of practice, professional growth and development, and accomplishments; a self-assessment based on the current content specifications of the R.R.A. certification examination; and CE activities to address areas of weakness. Any required CE activities would also count toward their biennial requirements. They could complete the CQR requirements within the last three years of the 10-year cycle.

The Board reduced the timeframe for eligibility to participate in a primary category certification examination from five years to three years effective Jan. 1, 2013. It eliminated the fourth examination attempt for primary and R.R.A. categories effective Jan. 1, 2015.

"Retired status" was defined as a voluntary, permanent status for technologists no longer active in the profession in any capacity, with the note that such individuals cannot use the R.T. designation. If they wished to regain credentials, they would need to apply, pay for, and pass any applicable examinations. Although initial proposals called for an age-based qualification, the final rules required: age of at least 55 years, certification for at least 20 years, or combined age plus years certified of at least 70. The Board also defined a disabled status.

The Board voted to add a sixth technologist with an implementation date of Aug. 1, 2014. It considered the possibility of adding a public member but chose not to do so. It also changed the long-standing process of direct appointment of Trustees by ASRT and ACR to a process of nominating candidates with appointment by the Board, effective Aug. 1, 2013. It also explored alternative governance models and chose to consider ways to raise the profile of committees and opportunities for committees to have input into Board deliberations on modality-specific policy decisions. The offices of Secretary and Treasurer were combined into a single position.

Discussion continued about nuclear medicine technologists performing diagnostic CTs. ARRT's position was that such technologists should have specific education and experience in CT and ideally have CT certification.

# 2012

The Board adopted changes to its Bylaws related to the Board structure and indicated that the sixth technologist could be nominated by organizations other than ASRT. The final directly appointed Trustees would have begun their terms Aug. 1, 2012, but there were no expiring terms.

The Board approved a change to Sonography examination scoring effective Jan. 1, 2013. Instead of a single cut score for the entire examination, there would be "noncompensatory scoring," with separate cut scores for the abdominal and OB/GYN sections in addition to the overall cut score. Additionally, ARRT would rescore examinations from 2011 and 2012 using the noncompensatory method. Those holding an ARRT Sonography credential would also have sonography-specific CE requirements starting with 2013 biennia. As a result of these modifications, the American Institute of Ultrasound in Medicine (AIUM) would recognize ARRT credentials in its accreditation standards.

CQR requirements that had been developed for the R.R.A. were defined for all other certifications awarded on or after Jan. 1, 2011. During the final three years of the 10-year period, the technologist must complete a professional profile on ARRT-specified forms; participate in an ARRT-administered assessment to determine areas needing professional development; and document completion of CE activities to address identified areas of need. The purpose of the professional profile was defined as to assist Registered Technologists in documenting their qualifications and accomplishments in the categories of certification held. It was noted that "this documentation indirectly addresses the psychomotor domain of ARRT's competence model."

ARRT adopted a position statement that said, in part, "ARRT supports the creation of a national database of disciplinary actions related to the competence or professional conduct of radiologic technologists as issued by state and/or federal regulatory bodies, employers, or professional certification agencies." It noted that many issues would need to be addressed for this to occur.

# 2013

The Board clarified structured education requirements for postprimary certification eligibility. It stated that the 16 hours must be distributed among the major content categories of the relevant content specifications document, with at least one hour from each major category.

The Board approved the segmentation of the 24 biennial CE credits into at least 16 discipline-specific credits and at most eight self-selected CE credits related to health care.

The first two Trustees elected by the Board from nominations by ASRT attended the July meeting and officially joined the Board on Aug. 1. The Board requested two nominees from SNMMI for the new technologist trustee position, with the request that they be certified and registered in Nuclear Medicine Technology by ARRT.

The Board adopted a new statement of purpose for the Professional Profile component of CQR. It said the Professional Profile helps "the R.T. to gain an awareness of the clinical expectations for newly certified professionals in a given discipline and provides opportunities to learn more about those clinical procedures not in the individual's current practice." The performance standard for the Structured Self-Assessment (SSA) component of CQR was set at 70% or more items correct for each section. Technologists who do not complete CQR at the end of their 10-year period will not be certified and registered; they may reinstate within one year, however, by completing any remaining CQR components within that time.

As part of ARRT efforts to convert to online processes from paper-based processes, certification

handbooks were moved online, and plans were made to convert the application for certification and registration under the primary eligibility pathway to an online format. The purpose of the hard copy (printed) certificate of registration was clarified to indicate only that initial certification requirements were met. ARRT would discontinue sending an annual seal. The ARRT website would be the primary source of verification of certification and registration status.

Examination volumes generally increased in 2013 versus 2012 except for Radiography, which was down 5.3%. Nuclear Medicine was up 11.3%, Radiation Therapy was up 3.6%, and postprimaries were up 14.4%, led by CT (up 17.0%) and MRI (up 14.4%).

# 2014

The Board expanded for the first time since 1993 with the addition of a 10th technologist, who was nominated by SNMMI.

Legislative efforts continued on the CARE bill and on reimbursement for R.R.A. work through a bill known as the Medicare Access to Radiology Care Act (MARCA). As in prior years, no bills were passed.

Work continued on CQR implementation. Business development and marketing efforts continued in an attempt to increase ARRT's market share in Nuclear Medicine Technology and Sonography certification.

# 2015

The Board reinstituted discussion of alternative models for recognizing individuals in areas that would not qualify for a full credentialing program. The annual renewal form was suggested as a way to gauge interest in potential areas.

Content categories in the content outlines were standardized across all disciplines to consist of Patient Care, Safety, Image Production, and Procedures. Some disciplines would not use all four categories.

Efforts to pass the CARE bill ended, and ARRT focused efforts on state licensure and MARCA.

Biennial CE requirements were further modified to "24 CE credits every two years, with 16 of the 24 CE credits linked to the content outline for the discipline of certification and registration, with at least one CE credit from each major category of the content outline for that discipline and at least one CE credit from ethics." Plans were also announced to eliminate the policy that earning an additional certification met the biennial CE requirement.

A cohesively themed marketing plan for 2015-2017 was launched with the key message: I Am the Gold Standard.





The Board placed a high priority on cybersecurity protection and authorized resources as needed to protect sensitive information.

Exam volumes were generally slightly decreased in the primary eligibility pathways but substantially increased in the postprimary eligibility pathways.

# 2016

Criteria for inclusion of procedures on the task inventory changed with modification of the "responsibility and frequency" scale to a "frequency only" scale. The 40% threshold remained as a basic parameter for frequency, but committees were charged to also incorporate criticality in determining whether to include a task with frequency of less than 40%.

Accrediting agency recognition criteria were simplified to require recognition by either Council for Higher Education Accreditation (CHEA) or U.S. Department of Education (USDE) and eliminate the need to assess them against separate ARRT criteria.

Modifications were proposed to the Sonography certification program. A three-year transition was planned to convert to a primary eligibility pathway only (graduation required from an accredited sonography education program). Current registration with ARDMS was deleted as an option for meeting the professional education requirement in Sonography.

Operational details of the CQR process continued to be developed. Pilot testing was performed for remote proctored internet delivery (RPID) of the SSA. Initial plans were for RPID only, but the Board recognized that some technologists might prefer or need to use traditional test centers. Maximum CE prescriptions were established, with 36 hours for Radiography set as a baseline against which other disciplines would be determined. Because technologists could take the SSA early in year eight of their 10-year cycle, even a maximum prescription would not necessarily increase the required amount of CE over those three years compared to usual biennial requirements. The Board also ruled that the 10-year CQR periods would be permanently fixed, even if a credential is discontinued and later reinstated. ARRT contracted with ASRT to produce up to 313 clinical refreshers for the Radiography CQR program and worked on contracts with SNMMI and SDMS for refreshers in Nuclear Medicine and Sonography, respectively. The refreshers would be optional learning tools available during the CQR process, but participants would not earn CE for completing the refreshers.

The RPA eligibility pathway for the R.R.A. examination was reopened through the end of 2020. ARRT waived the usual timeframe for examination relative to the time of program completion. All other requirements, including the baccalaureate degree, remained in place.

Proton beam radiation therapy was identified as a candidate for an alternative model of recognition.

ARRT decided to accept only credit and debit cards for payment of fees effective Jan. 1, 2017.

# 2017

ARRT decided to discontinue issuing new Quality Management credentials as of July 1, 2018, because of decreasing exam volume and a decreased knowledge base caused by the transition from analog to digital imaging. Those holding the credential could maintain it, but CQR would not be required or available. Work was underway to create a primary eligibility pathway for Vascular Sonography certification.

Pearson VUE was selected to administer the SSA component of CQR via both RPID and traditional test centers. Technologists could choose either method. R.T.s with older credentials could opt in to complete CQR at a future time to be determined, but once in could not opt out.

# 2018

ARRT continued to lead the way in seeking reimbursement for R.R.A.-performed procedures, and ACR announced that MARCA support would be one of the topics for its Capitol Hill Day in May. Although this seemed like good news, it stirred up opposition to MARCA and the RA concept among part of the ACR membership. Although legislative success remained elusive, CMS did approve some changes in reimbursement for diagnostic procedures, effective at the start of 2019.

The number of first-time R.R.A. examinees fell to 15, the lowest yearly number except for 2005, when the program had just begun.

ARRT noted that a few candidates were completing clinical experience requirements for postprimary pathway examinations in as little as one to two weeks. This raised doubts that they were completing all criteria required and truly learning enough about the modality. The Board worked to develop daily maximum numbers of procedures that could satisfy the requirements.

Progress continued on recognition for proton beam radiation therapy with development of the *Body of Knowledge Standard and Requirements for Proton Beam Radiation Therapy* document. The Board authorized development of a formal application and documentation submission process and set the duration of recognition at seven years.

The Canadian accreditation mechanism for educational programs changed from the Conjoint Accreditation Services of the Canadian Medical Association to a new entity, Accreditation Canada. ARRT recognized Accreditation Canada on an interim basis and planned to review new standards when they would be available in 2019 to make a final decision on continued recognition.

The Board delayed the implementation of discipline-specific CE until 2022 to allow more study. Questions were raised as to the rationale for 16 discipline-specific credits and how this requirement would apply to technologists with multiple certifications.





# 2019

The Board approved maximum numbers of procedures that could be reported daily to satisfy clinical experience requirements for the postprimary eligibility pathways. It also requested improvements in the process for verifying that the procedures had been completed as intended.

The Board approved policies and procedures for simulation of clinical competency procedures. Simulations must be on a live person and must meet the same criteria as competencies performed on a patient. Simulations were capped at 20% of the total number of mandatory and elective competencies for the modality.

ARRT discontinued paper credentials cards. The ARRT website and phone system would be the only mechanisms to verify if an individual is certified and registered.

Selected ARRT staff and Board members attended a meeting on the Future Role of the Radiographer. Ultimately, the report provided little guidance due to a diversity of attendees' opinions. ARRT planned to organize similar meetings related to other disciplines.

Attempts to pass the MARCA bill continued to be unsuccessful, and opposition within segments of ACR grew. In particular, ACR raised concerns about the *Entry Level Clinical Activities* document and some procedures that R.R.A.s might perform. First-time R.R.A. examinees fell again to 13. The postprimary eligibility pathway in Sonography closed at the end of the year.

# Chapter Four
# 2020-2022

OVERVIEW

A decade that seemed normal as it began would soon be disrupted by a novel coronavirus infection that came to be known as COVID-19 and resulted in a pandemic. Like every other organization, ARRT would quickly modify its processes and convert much of its work and meetings to virtual formats. Fortunately, those efforts would be successful, and some of the new ways would become permanent. ARRT would make temporary modifications to its policies and procedures to help students and R.T.s whose lives, education, and work were disrupted.

The initial cohorts of technologists with credentials subject to CQR would complete their compliance periods beginning in 2021. After initial concerns that large numbers of R.T.s would not comply, at least 88% would complete the process on time. Some of the remainder would use the Year 11 option to reinstate their certification and registration. Modifications to CQR prescriptions would decrease the number of CE hours prescribed for many R.T.s.

ARRT would change the R.R.A. examination by replacing the constructed response component with a case study component using selected response, thus allowing computer scoring. ARRT would continue to explore alternative forms of recognition—a project now known as Area of Concentration (AOC) Recognition—and make progress toward computer adaptive testing.

After 31 years as Executive Director and CEO, Jerry Reid, Ph.D., would retire at the end of 2022. After a year-long nationwide search, Liana Watson, DM, R.T.(R)(M)(S)(BS)(ARRT), RDMS, RVT, FASRT, PMP, CAE, was chosen as his successor. ARRT would celebrate its centennial in November 2022 and look forward to a second century of success.

## 2020

The year began normally with a Board meeting in January, but reports began to emerge about a novel coronavirus infection. First found in China, by February the virus spread into some areas of the U.S. By mid-March, the World Health Organization declared COVID-19 a global pandemic. That led to a nationwide shutdown of many businesses and other activities, as local and national governments restricted gatherings of more than a few people. Initially it was hoped that the situation would resolve in a few weeks to months, but as the year progressed, it became clear that the pandemic would last much longer and changes to operations would be needed. ARRT quickly shifted to remote work from home for its employees. Spring committee meetings were cancelled. When the COVID-19 situation didn't resolve, virtual meetings were arranged for fall. ARRT's Information Technology department ensured the security of confidential materials. Board





meetings were also virtual, and the usual July meeting was split into two parts, with the second half in September.

In January, the projected compliance rate for people whose 10-year CQR windows would end in 2021 was only 50%. ARRT made additional efforts to reach out to those technologists, and the subsequent pandemic created additional challenges. Data also showed that about 15% of credentials were not maintained long enough to enter the compliance period. Review of historical data showed that this was not a new trend.

Plans were underway to replace the constructed response part of the R.R.A. exam with a case study component, effective in 2023, that could be scored by computer. Initial pilot items were approved for trial in 2021. The Board also approved a minimum master's degree requirement for new R.R.A.s, effective in 2024. The master's degree requirement was later moved up to 2023. R.R.A. exam volume rebounded slightly, with 23 first-time examinees. ACR replaced its joint statement with ASRT about the R.R.A. with a new one, which didn't include ASRT involvement. ACR passed other resolutions related to nonphysician radiology providers, some of which ARRT didn't view favorably.

The COVID-19 pandemic severely disrupted technologist educational programs and the working environment of many R.T.s. Although some classes could be held virtually, students were initially excluded from clinical sites in almost all locations. ARRT granted time extensions for students and studied modifications to simulations and other requirements. Registered Technologists also received time extensions for maintaining their credentials.

In recognition of declining return rates of practice analysis surveys over three decades, the Board approved a sentinel site program pilot initiative. However, the ongoing pandemic prevented the program from launching.

The Board continued discussing alternative forms of recognition and renamed the process AOC Recognition. The Board adopted 13 criteria to determine if a certification program should be created or ended and if an AOC would be appropriate.

The Board changed Jerry Reid's title from Executive Director to Chief Executive Officer (CEO), reflecting the increasing size and complexity of the organization and common usage by similar organizations. Reid notified the Board of his intention to retire at the end of 2022, and the Board began to consider succession planning.

Not surprisingly, examination volumes decreased in 2020, presumably largely due to the pandemic. First-time primary eligibility pathway candidates decreased by 11%—and postprimary pathway candidates by 18%—compared to 2019.

## 2021

The pandemic continued to disrupt operations throughout 2021, with some easing later in the year as vaccines became widely available. The winter Board meeting was held virtually in two

parts, but a live meeting was possible in July. Staff continued to work primarily off-site, although some limited return to the office was possible. ARRT recognized that some of the changes to off-site work could be permanent and beneficial to operations. Pandemic-related extensions related to certification and registration were scheduled to conclude no later than the end of the year.

A significant modification was made to the assignment of CE based on the SSA component of CQR. Previously, the maximal amount of CE was assigned for each section of the SSA in which the R.T. didn't meet the standard. Going forward, the CE prescription would be proportional to the R.T.'s score. Those closer to meeting the standard would receive a smaller prescription than those with lower scores. This change was applied retroactively to those who had completed the SSA but not their prescription. As a thank-you and gesture of recognition, the Board also waived 2022 renewal fees for all technologists who completed the SSA portion of CQR before 2021.

CQR compliance was noted to be improving, and ARRT realized that some technologists weren't reporting their compliance until close to their deadline, even if they'd completed CE prescriptions earlier. By the end of the year, 91% of credential holders with a compliance deadline in 2021 completed the SSA, and 97% of those people completed their CE prescriptions. Thus, 88% completed the entire CQR process. Preliminary data in 2022 showed that a substantial number of the remaining 12% were using the 11th-year option to complete CQR and reinstate their credential.

Substantial changes to the not-yet-implemented discipline-specific CE requirements were made, and the implementation date was pushed back to at least 2026. The discipline-specific requirement would be one CE credit from each major category of the content outline for the discipline. The ethics requirement was removed.

Plans to pilot computerized adaptive testing for the Mammography examination in 2023 were approved, but later delayed until at least 2025 to allow for expansion of the item bank. Based on the success of the Mammography experience, ARRT would determine whether to expand computerized adaptive testing to other modalities.

# 2022

The COVID-19 pandemic continued, as virus variants caused infections even among vaccinated people. Fortunately, most cases were mild, and death rates declined. ARRT, like other organizations, continued to adapt to a "new normal," including hybrid work patterns that combined in-office and at-home work. ARRT committees remained virtual for the time being. ARRT held in-person Board meetings, and larger meetings such as ACR and ASRT returned to live events but were a source of some infections. The types of modifications granted to students and R.T.s over the past two years were no longer needed.

R.R.A. reimbursement remained elusive, with declining Congressional co-sponsorship for MARCA. In April, ACR adopted an official position of neutrality on MARCA. ARRT continued to explore all avenues, including again reaching out to CMS and working on state initiatives. ARRT finalized plans to replace the constructed response part of the R.R.A. exam with case studies in 2023.





Other state advocacy efforts increasingly focused on attempted scope expansions by nurse practitioners and physician assistants, who changed their name to physician associates. In this area ARRT had many allies, including ASRT and ACR. ARRT also continued to seek technologist-licensure laws where they did not exist and, as needed, to defend existing ones.

ARRT continued to assess future roles and in February held a meeting on the Future Role of the Radiation Therapist using a scenario-planning format. As with the previous Future Role of the Radiographer meeting, there was a lack of actionable items. Thus, ARRT canceled plans for similar meetings focused on other modalities.

Data from the second cohort of technologists completing their CQR compliance period was similar to that of the first cohort. At least 50% of those in the first cohort who did not complete CQR by the end of Year 10 reinstated in Year 11 by completing the process.

ARRT celebrated the centennial of granting its first certificate in November. A special logo was created to recognize the event. The celebration weekend also included recognition of Jerry Reid as he prepared to retire. Liana Watson, DM, R.T.(R)(M)(S)(BS)(ARRT), RDMS, RVT, FASRT, PMP, CAE, succeeded Reid in January 2023.

Ensuring Gold Standard
Patient Care Since 1922

In November 2022, ARRT held an open house celebrating our centennial anniversary. We welcomed present and past Board members and staff to our headquarters in St. Paul.





# Appendix: Board of Trustees

| | |
|---|---|
| 1995-96 | |
| President | Belinda H. Phillips, R.T., DeLand, Florida |
| Vice President | Hywel Madoc-Jones, Ph.D., Boston, Massachusetts |
| Treasurer | Edwin L. (Ted) Palmer, M.D., Boston, Massachusetts |
| Secretary | Edwin J. Dice, R.T., Gainesville, Florida |
| Trustee | Rosanne A . Paschal, Ph.D., R.T., Henderson, Nevada |
| Trustee | Darrell E. McKay, Ph.D., R.T., St. Louis, Missouri |
| Trustee | Robert J. Walker, R.T., Salt Lake City, Utah |
| Trustee | Clare E. Bender, M.D., Rochester, Minnesota |
| Trustee | Jonathan D. Mishkin, M.D., Albany, New York |
| 1996-97 | |
| President | Hywel Madoc-Jones, Ph.D., Boston, Massachusetts |
| Vice President | Robert J. Walker, R.T., Salt Lake City, Utah |
| Treasurer | Edwin L. (Ted) Palmer, M.D., Boston, Massachusetts |
| Secretary | Rosanne A. Paschal, Ph.D., R.T., Henderson, Nevada |
| Trustee | Edwin J. Dice, R.T., Gainesville, Florida |
| Trustee | Belinda H. Phillips, R.T., Deland, Florida |
| Trustee | Darrell E. McKay, Ph.D., R.T., St. Louis, Missouri |
| Trustee | Clare E. Bender, M.D., Rochester, Minnesota |
| Trustee | Jonathan D. Mishkin, M.D., Albany, New York |
| 1997-98 | |
| President | Edwin J. Dice, R.T., Gainesville, Florida |
| Vice President | Edwin L. (Ted) Palmer, M.D., Boston, Massachusetts |
| Treasurer | Darrell E. McKay, Ph.D., R.T., St. Louis, Missouri |
| Secretary | Clare E. Bender, M.D., Rochester, Minnesota |
| Trustee | Charles M. Washington, R.T., Houston, Texas |
| Trustee | Rosanne A. Paschal, Ph.D., R.T., Henderson, Nevada |
| Trustee | George M. Ancil, R.T., Battle Creek Michigan |
| Trustee | Jonathan D. Mishkin, M.D., Albany, New York |
| Trustee | Hywel Madoc-Jones, Ph.D., Boston, Massachusetts |
| 1998-99 | |
| President | Edwin L. (Ted) Palmer, M.D., Boston, Massachusetts |
| Vice President | Rosanne A. Paschal, Ph.D., R.T., Henderson, Nevada |
| Treasurer | Darrell E. McKay, Ph.D., R.T., St. Louis, Missouri |
| Secretary | Clare E. Bender, M.D., Rochester, Minnesota |
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| Trustee | Charles M. Washington, R.T., Houston, Texas |
| Trustee | George M. Ancil, R.T., Battle Creek Michigan |
| Trustee | Jonathan D. Mishkin, M.D., Albany, New York |
| Trustee | Hywel Madoc-Jones, Ph.D., Boston, Massachusetts |
| 1999-2000 | |
| President | Rosanne A. Paschal, Ph.D., R.T., Henderson, Nevada |
| Vice President | Clare E. Bender, M.D., Rochester, Minnesota |
| Treasurer | Edwin J. Dice, R.T., Gainesville, Florida |
| Secretary | Charles M. Washington, R.T., Houston, Texas |
| Trustee | Darrell E. McKay, Ph.D., R.T., St. Louis, Missouri |
| Trustee | Shirley L. Pinette, R.T., New Haven, Connecticut |
| Trustee | Edward I. Bluth, M.D., New Orleans, Louisiana |
| Trustee | Hywel Madoc-Jones, Ph.D., Boston, Massachusetts |
| Trustee | Edwin L. (Ted) Palmer, M.D., Boston, Massachusetts |
| 2000-01 | |
| President | Darrell E. McKay, Ph.D., R.T., St. Louis, Missouri |
| Vice President | Charles M. Washington, R.T., Houston, Texas |
| Treasurer | Edwin L. (Ted) Palmer, M.D., Boston, Massachusetts |
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| Trustee | Anne C. Chapman, R.T., Mankato, Minnesota |
| Trustee | Rosanne A. Paschal, Ph.D., R.T., Henderson, Nevada |
| Trustee | Clare E. Bender, M.D., Rochester, Minnesota |
| Trustee | Edward I. Bluth, M.D., New Orleans, Louisiana |
| Trustee | Timothy R. Williams, M.D., Boca Raton, Florida |



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|---|---|
| 2001-02 | |
| President | Clare E. Bender, M.D., Rochester, Minnesota |
| Vice President | Shirley L. Pinette, M.S., R.T.(R)(M)(QM)(ARRT), FASRT, CRA, New Haven, Connecticut |
| Treasurer | Charles M. Washington, R.T., Houston, Texas |
| Secretary | Edward I. Bluth, M.D., FACR, New Orleans, Louisiana |
| Trustee | Anne C. Chapman, R.T., Mankato, Minnesota |
| Trustee | Rosanne A. Paschal, Ph.D., R.T., Henderson, Nevada |
| Trustee | Darrell E. McKay, Ph.D., R.T., St. Louis, Missouri |
| Trustee | Timothy R. Williams, M.D., Boca Raton, Florida |
| Trustee | Lawrence E. Holder, M.D., Jacksonville, Florida |
| 2002-03 | |
| President | Charles M. Washington, B.S.,R.T.(T)(ARRT), FASRT, Houston, Texas |
| Vice President | Timothy R. Williams,M.D., FACR, Boca Raton, Florida |
| Treasurer | Edward I. Bluth, M.D., FACR, New Orleans, Louisiana |
| Secretary | Anne C. Chapman, R.T.(R)(N)(ARRT), CNMT, Mankato, Minnesota |
| Trustee | Lawrence E. Holder, M.D., FACR, Jacksonville, Florida |
| Trustee | Bettye G. Wilson, M.A.Ed., R.T.(R)(CT)(ARRT), RDMS, FASRT, Birmingham, Alabama |
| Trustee | Darrell E. McKay, Ph.D., R.T., St. Louis, Missouri |
| Trustee | Shirley L. Pinette, M.S., R.T.(R)(M)(QM)(ARRT), FASRT, CRA, New Haven, Connecticut |
| Trustee | Jordan B. Renner, M.D., FACR, Chapel Hill, North Carolina |
| 2003-04 | |
| President | Edward I. Bluth, M.D., FACR, New Orleans, Louisiana |
| Vice President | Anne C. Chapman, R.T.(R)(N)(ARRT), CNMT, Mankato, Minnesota |
| Treasurer | Shirley L. Pinette, M.S., R.T.(R)(M)(QM)(ARRT), FASRT, CRA, New Haven, Connecticut |
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| Trustee | Michael DelVecchio, B.S.,R.T.(R)(ARRT), Boston, Massachusetts |
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| Trustee | Timothy R. Williams, M.D., FACR, Boca Raton, Florida |
| 2004-05 | |
| President | Shirley L. Pinette, M.S., R.T.(R)(M)(QM)(ARRT), FASRT, CRA, New Haven, Connecticut |
| Vice President | Lawrence E. Holder, M.D., FACR, Jacksonville, Florida |
| Treasurer | Timothy R. Williams, M.D., FACR, Boca Raton, Florida |
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| Trustee | Michael DelVecchio, B.S., R.T.(R)(ARRT), Boston, Massachusetts |
| Trustee | Edward I. Bluth, M.D., FACR, New Orleans, Louisiana |
| Trustee | Jordan B. Renner, M.D., FACR, Chapel Hill, North Carolina |
| 2005-06 | |
| President | Timothy R. Williams, M.D., FACR, Boca Raton, Florida |
| Vice President | Bettye G. Wilson, M.A.Ed., R.T.(R)(CT)(ARRT), RDMS, FASRT, Birmingham, Alabama |
| Treasurer | Anne C. Chapman, R.T.(R)(N)(ARRT), CNMT, Mankato, Minnesota |
| Secretary | Jordan B. Renner, M.D., FACR, Chapel Hill, North Carolina |
| Trustee | Kevin L. Rush, MHA, R.T.(R)(T)(ARRT), Bloomington, Indiana |
| Trustee | Michael DelVecchio, B.S., R.T.(R)(ARRT), Boston, Massachusetts |
| Trustee | Eileen M. Maloney, M.Ed., R.T.(R)(M)(ARRT), FASRT, Paterson, New Jersey |
| Trustee | Edward I. Bluth, M.D., FACR, New Orleans, Louisiana |
| Trustee | Lawrence E. Holder, M.D., FACR, Jacksonville, Florida |
| 2006-07 | |
| President | Anne C. Chapman, R.T.(R)(N)(ARRT), CNMT, Mankato, Minnesota |
| Vice President | Jordan B. Renner, M.D., FACR, Chapel Hill, North Carolina |
| Treasurer | Lawrence E. Holder, M.D., FACR, Jacksonville, Florida |
| Secretary | Michael DelVecchio, B.S., R.T.(R)(ARRT), Boston, Massachusetts |
| Trustee | Kevin L. Rush, MHA, R.T.(R)(T)(ARRT), Bloomington, Indiana |
| Trustee | Bettye G. Wilson, M.A.Ed., R.T.(R)(CT)(ARRT), RDMS, FASRT, Birmingham, Alabama |
| Trustee | Eileen M. Maloney, M.Ed., R.T.(R)(M)(ARRT), FASRT, Paterson, New Jersey |
| Trustee | Edward I. Bluth, M.D., FACR, New Orleans, Louisiana |
| Trustee | Timothy R. Williams, M.D., FACR, Boca Raton, Florida |

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|---|---|
| 2007-08 | |
| President | Bettye G. Wilson, M.A.Ed., R.T.(R)(CT)(ARRT), RDMS, FASRT, Birmingham, Alabama |
| Vice President | Michael DelVecchio, B.S., R.T.(R)(ARRT), Boston, Massachusetts |
| Treasurer | Jordan B. Renner, M.D., FACR, Chapel Hill, North Carolina |
| Secretary | Jay A. Harolds, M.D., FACR, FACNP, Oklahoma City, Oklahoma |
| Trustee | Anne C. Chapman, R.T.(R)(N)(ARRT), CNMT, Mankato, Minnesota |
| Trustee | Eileen M. Maloney, M.Ed., R.T.(R)(M)(ARRT), FASRT, Paterson, New Jersey |
| Trustee | Kevin L. Rush, MHA, R.T.(R)(T)(ARRT), Bloomington, Indiana |
| Trustee | Timothy R. Williams, M.D., FACR, Boca Raton, Florida |
| Trustee | Leslie Scoutt, M.D., New Haven, Connecticut |
| 2008-09 | |
| President | Jordan B. Renner, M.D., FACR, Chapel Hill, North Carolina |
| Vice President | Kevin L. Rush, MHA, R.T.(R)(T)(ARRT), Bloomington, Indiana |
| Treasurer | Bettye G. Wilson, M.A.Ed., R.T.(R)(CT)(ARRT), RDMS, FASRT, Birmingham, Alabama |
| Secretary | Leslie Scoutt, M.D., New Haven, Connecticut |
| Trustee | Jeffrey L. Crowley, R.R.A., R.T.(R)(VI)(ARRT), Tupelo, Mississippi |
| Trustee | Michael DelVecchio, B.S., R.T.(R)(ARRT), Boston, Massachusetts |
| Trustee | Eileen M. Maloney, M.Ed., R.T.(R)(M)(ARRT), FASRT, Paterson, New Jersey |
| Trustee | Jordan B. Renner, M.D., FACR, Chapel Hill, North Carolina |
| Trustee | Jay A. Harolds, M.D., FACR, FACNP, Oklahoma City, Oklahoma |
| 2009-10 | |
| President | Michael DelVecchio, B.S., R.T.(R)(ARRT), Boston, Massachusetts |
| Vice President | Leslie Scoutt, M.D., New Haven, Connecticut |
| Treasurer | Jeffrey L. Crowley, R.R.A., R.T.(R)(VI)(ARRT), Tupelo, Mississippi |
| Secretary | Eileen M. Maloney, M.Ed., R.T.(R)(M)(ARRT), FASRT, Paterson, New Jersey |
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| Trustee | Jordan B. Renner, M.D., FACR, Chapel Hill, North Carolina |
| Trustee | Gary S. Gustafson, M.D., Troy, Michigan |
| Trustee | Jay A. Harolds, M.D., FACR, FACNP, Oklahoma City, Oklahoma |
| 2010-11 | |
| President | Jay A. Harolds, M.D., FACR, FACNP, Oklahoma City, Oklahoma |
| Vice President | Eileen M. Maloney, M.Ed., R.T.(R)(M)(ARRT), FASRT, Paterson, New Jersey |
| Treasurer | Kevin L. Rush, MHA, R.T.(R)(T)(ARRT), Bloomington, Indiana |
| Secretary | Gary S. Gustafson, M.D., Troy, Michigan |
| Trustee | Jeffrey L. Crowley, R.R.A., R.T.(R)(VI)(ARRT), Tupelo, Mississippi |
| Trustee | Ann Obergfell, J.D., R.T.(R)(ARRT), Fort Wayne, Indiana |
| Trustee | Michael DelVecchio, B.S., R.T.(R)(ARRT), Boston, Massachusetts |
| Trustee | Kenneth W. Chin, M.D., FACR, FSIR, Encino, California |
| Trustee | Leslie Scoutt, M.D., New Haven, Connecticut |
| 2011-12 | |
| President | Eileen M. Maloney, M.Ed., R.T.(R)(M)(ARRT), FASRT, Paterson, New Jersey |
| Vice President | Jeffrey L. Crowley, R.R.A., R.T.(R)(VI)(ARRT), Tupelo, Mississippi |
| Treasurer | Gary S. Gustafson, M.D., Troy, Michigan |
| Secretary | Kevin L. Rush, MHA, R.T.(R)(T)(ARRT), Bloomington, Indiana |
| Trustee | Ann Obergfell, J.D., R.T.(R)(ARRT), Fort Wayne, Indiana |
| Trustee | Steven M. Herrmann, MSA, R.T.(R)(M)(ARRT), CRA, FASRT, New York, New York |
| Trustee | Kenneth W. Chin, M.D., FACR, FSIR, Encino, California |
| Trustee | Leslie Scoutt, M.D., New Haven, Connecticut |
| Trustee | Jay A. Harolds, M.D., FACR, FACNP, Oklahoma City, Oklahoma |
| 2012-13 | |
| President | Kevin L. Rush, MHA, R.T.(R)(T)(ARRT), Bloomington, Indiana |
| Vice President | Leslie Scoutt, M.D., New Haven, Connecticut |
| Treasurer/Secretary | Gary S. Gustafson, M.D., Troy, Michigan |
| Trustee | Jeffrey L. Crowley, R.R.A., R.T.(R)(VI)(ARRT), Tupelo, Mississippi |
| Trustee | Ann Obergfell, J.D., R.T.(R)(ARRT), Fort Wayne, Indiana |
| Trustee | Steven M. Herrmann, MSA, R.T.(R)(M)(ARRT), CRA, FASRT, New York, New York |
| Trustee | Eileen M. Maloney, M.Ed., R.T.(R)(M)(ARRT), FASRT, Paterson, NJ |
| Trustee | Kenneth W. Chin, M.D., FACR, FSIR, Encino, California |
| Trustee | Jay A. Harolds, M.D., FACR, FACNP, Oklahoma City, Oklahoma |



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| 2013-14 | |
| President | Leslie Scoutt, M.D., New Haven, Connecticut |
| Vice President | Ann Obergfell, J.D., R.T.(R)(ARRT), Fort Wayne, Indiana |
| Treasurer/Secretary | Jay A. Harolds, M.D., FACR, FACNP, Oklahoma City, Oklahoma |
| Trustee | Jeffrey L. Crowley, R.R.A., R.T.(R)(VI)(ARRT), Tupelo, Mississippi |
| Trustee | Lisa Bartenhagen, M.S., R.T.(R)(T)(ARRT), Omaha, Nebraska |
| Trustee | Steven M. Herrmann, MSA, R.T.(R)(M)(ARRT), CRA, FASRT, New York, New York |
| Trustee | Barbara J. Smith, M.S., R.T.(R)(QM)(ARRT), FASRT, FAEIRS, Portland, Oregon |
| Trustee | Kenneth W. Chin, M.D., FACR, FSIR, Encino, California |
| Trustee | Gary S. Gustafson, M.D., Troy, Michigan |
| 2014-15 | |
| President | Jeffrey L. Crowley, R.R.A., R.T.(R)(VI)(ARRT), Tupelo, Mississippi |
| Vice President | Gary S. Gustafson, M.D., Troy, Michigan |
| Treasurer/Secretary | Ann Obergfell, J.D., R.T.(R)(ARRT), Fort Wayne, Indiana |
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| Trustee | Kenneth W. Chin, M.D., FACR, FSIR, Encino, California |
| Trustee | Leslie Scoutt, M.D., New Haven, Connecticut |
| Trustee | Paul A. Larson, M.D., FACR, Oshkosh, Wisconsin |
| Trustee | Elizabeth (Liz) Hackett, B.B.A., R.T.(N)(CT)(ARRT), PET, FSNMMI-TS, Orlando, Florida |
| 2015-16 | |
| President | Gary S. Gustafson, M.D., Troy, Michigan |
| Vice President | Steven M. Herrmann, MSA, R.T.(R)(M)(ARRT), CRA, FASRT, New York, New York |
| Treasurer/Secretary | Kenneth W. Chin, M.D., FACR, FSIR, Encino, California |
| Trustee | Jeffrey L. Crowley, R.R.A., R.T.(R)(VI)(ARRT), Tupelo, Mississippi |
| Trustee | Lisa Bartenhagen, M.S., R.T.(R)(T)(ARRT), Omaha, Nebraska |
| Trustee | Ann Obergfell, J.D., R.T.(R)(ARRT), Fort Wayne, Indiana |
| Trustee | Barbara J. Smith, M.S., R.T.(R)(QM)(ARRT), FASRT, FAEIRS, Portland, Oregon |
| Trustee | Deborah J. Rubens, M.D., Rochester, New York |
| Trustee | Paul A. Larson, M.D., FACR, Oshkosh, Wisconsin |
| Trustee | Elizabeth (Liz) Hackett, B.B.A., R.T.(N)(CT)(ARRT), PET, FSNMMI-TS, Orlando, Florida |
| 2016-17 | |
| President | Ann Obergfell, J.D., R.T.(R)(ARRT), Fort Wayne, Indiana |
| Vice President | Kenneth W. Chin, M.D., FACR, FSIR, Encino, California |
| Treasurer/Secretary | Steven M. Herrmann, MSA, R.T.(R)(M)(ARRT), CRA, FASRT, New York, New York |
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| Trustee | Barbara J. Smith, M.S., R.T.(R)(QM)(ARRT), FASRT, FAEIRS, Portland, Oregon |
| Trustee | Elizabeth (Liz) Romero, M.S., R.T.(N)(CT)(ARRT), PET, FSNMMI-TS, Saint Pete Beach, Florida |
| Trustee | Paul A. Larson, M.D., FACR, Oshkosh, Wisconsin |
| Trustee | Deborah J. Rubens, M.D., Rochester, New York |
| Trustee | Travis Prowant, M.S.H.S., R.R.A., R.T.(R)(CV)(CT)(ARRT), Richmond, Virginia |
| Trustee | Albert Blumberg, M.D., FACR, Baltimore, Maryland |
| 2017-18 | |
| President | Steven M. Herrmann, MSA, R.T.(R)(M)(ARRT), CRA, FASRT, New York, New York |
| Vice President | Paul A. Larson, M.D., FACR, Oshkosh, Wisconsin |
| Treasurer/Secretary | Lisa Bartenhagen, M.S., R.T.(R)(T)(ARRT), Omaha, Nebraska |
| Trustee | Elizabeth (Liz) Romero, M.S., R.T.(N)(CT)(ARRT), PET, FSNMMI-TS, Saint Pete Beach, Florida |
| Trustee | Travis Prowant, M.S.H.S., R.R.A., R.T.(R)(CV)(CT)(ARRT), Richmond, Virginia |
| Trustee | Ann Obergfell, J.D., R.T.(R)(ARRT), Fort Wayne, Indiana |
| Trustee | Barbara J. Smith., M.S., R.T.(R)(QM)(ARRT), FASRT, FAEIRS, Portland, Oregon |
| Trustee | Kenneth W. Chin, M.D., FACR, FSIR, Encino, California |
| Trustee | Deborah J. Rubens, M.D., FACR, FAIUM, FSRU, Rochester, New York |
| Trustee | Albert Blumberg, M.D., FACR, Baltimore, Maryland |
| 2018-19 | |
| President | Paul A. Larson, M.D., FACR, Oshkosh, Wisconsin |
| Vice President | Lisa Bartenhagen, M.S., R.T.(R)(T)(ARRT), Omaha, Nebraska |
| Treasurer/Secretary | Deborah J. Rubens, M.D., FACR, FAIUM, FSRU, Rochester, New York |
| Trustee | Elizabeth (Liz) Romero, M.S., R.T.(N)(CT)(ARRT), PET, FSNMMI-TS, Saint Pete Beach, Florida |
| Trustee | Travis Prowant, M.S.H.S., R.R.A., R.T.(R)(CV)(CT)(ARRT), FASRT, Richmond, Virginia |
| Trustee | Cheryl DuBose, Ed.D., R.T.(R)(CT)(MR)(QM)(ARRT), MRSO, FASRT, Jonesboro, Arkansas |
| Trustee | Steven M. Herrmann, MSA, R.T.(R)(M)(ARRT), CRA, FASRT, New York, New York |

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| Trustee | Barbara J. Smith., M.S., R.T.(R)(QM)(ARRT), FASRT, FAEIRS, Portland, Oregon |
| Trustee | David C. Madoff, M.D., FSIR, FACR, FCIRSE, New Haven, Connecticut |
| Trustee | Albert Blumberg, M.D., FACR, Baltimore, Maryland |

2019-20

| | |
|---|---|
| President | Lisa Bartenhagen, M.S., R.T.(R)(T)(ARRT), Omaha, Nebraska |
| Vice President | Elizabeth (Liz) Romero, M.S., R.T.(N)(CT)(ARRT), PET, FSNMMI-TS, Saint Pete Beach, Florida |
| Treasurer/Secretary | Barbara J. Smith., M.S., R.T.(R)(QM)(ARRT), FASRT, FAEIRS, Portland, Oregon |
| Trustee | Travis Prowant, M.S.H.S., R.R.A., R.T.(R)(CV)(CT)(ARRT), FASRT, Richmond, Virginia |
| Trustee | Lisa Bartenhagen, M.S., R.T.(R)(T)(ARRT), Omaha, Nebraska |
| Trustee | Cheryl DuBose, Ed.D., R.T.(R)(CT)(MR)(QM)(ARRT), MRSO, FASRT, Jonesboro, Arkansas |
| Trustee | Beth Weber, MPH, R.T.(R)(ARRT), RDMS, CRA, FASRT, Sioux Falls, South Dakota |
| Trustee | Paul A. Larson, M.D., FACR, Oshkosh, Wisconsin |
| Trustee | David C. Madoff, M.D., FSIR, FACR, FCIRSE, New Haven, Connecticut |
| Trustee | Deborah J. Rubens, M.D., FACR, FAIUM, FSRU, Rochester, New York |

2020-21

| | |
|---|---|
| President | Elizabeth (Liz) Romero, M.S., R.T.(N)(CT)(ARRT), PET, FSNMMI-TS, Saint Pete Beach, Florida |
| Vice President | Paul A. Larson, M.D., FACR, Oshkosh, Wisconsin |
| Treasurer/Secretary | Travis Prowant, M.S.H.S., R.R.A., R.T.(R)(CV)(CT)(ARRT), FASRT, Richmond, Virginia |
| Trustee | Lisa Bartenhagen, M.S., R.T.(R)(T)(ARRT), Omaha, Nebraska |
| Trustee | Cheryl DuBose, Ed.D., R.T.(R)(CT)(MR)(QM)(ARRT), MRSO, FASRT, Jonesboro, Arkansas |
| Trustee | Candice Johnstone, M.D., M.P.H., FAAWR, FACR, West Bend, Wisconsin |
| Trustee | David C. Madoff, M.D., FSIR, FACR, FCIRSE, New Haven, Connecticut |
| Trustee | Deborah J. Rubens, M.D., FACR, FAIUM, FSRU, Rochester, New York |
| Trustee | Barbara J. Smith., M.S., R.T.(R)(QM)(ARRT), FASRT, FAEIRS, Portland, Oregon |
| Trustee | Beth Weber, MPH, R.T.(R)(ARRT), RDMS, CRA, FASRT, Sioux Falls, South Dakota |

2021-22

| | |
|---|---|
| President | Paul A. Larson, M.D., FACR, Oshkosh, Wisconsin |
| Vice President | Travis Prowant, M.S.H.S., R.R.A., R.T.(R)(CV)(CT)(ARRT), FASRT, Richmond, Virginia |
| Treasurer/Secretary | Cheryl DuBose, Ed.D., R.T.(R)(CT)(MR)(QM)(ARRT), MRSO, FASRT, Jonesboro, Arkansas |
| Trustee | Sandra Hayden, MA, R.T.(T)(ARRT), FASRT, Dallas, Texas |
| Trustee | Candice Johnstone, M.D., M.P.H., FAAWR, FACR, West Bend, Wisconsin |
| Trustee | Jeff Killion, Ph.D., R.T.(R)(QM)(ARRT), Wichita Falls, Texas |
| Trustee | David C. Madoff, M.D., FSIR, FACR, FCIRSE, New Haven, Connecticut |
| Trustee | Elizabeth (Liz) Romero, M.S., R.T.(N)(CT)(ARRT), PET, FSNMMI-TS, Saint Pete Beach, Florida |
| Trustee | Deborah J. Rubens, M.D., FACR, FAIUM, FSRU, Rochester, New York |
| Trustee | Beth Weber, MPH, R.T.(R)(ARRT), RDMS, CRA, FASRT, Sioux Falls, South Dakota |

2022-23

| | |
|---|---|
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