“Progress lies not in enhancing what is, but in advancing toward what will be”.
-Khalil Gibran

My journey as ARIN President began three months ago and it has been an amazing journey thus far. I am in awe of the knowledge and experiences shared by all those I have encountered, learning about the many different roles and settings in which radiology nurses practice. It is evident as nurses, our knowledge and experiences are constantly expanding and furthering our professional growth.

A Comprehensive Body of Knowledge

First, as nurses, we have a responsibility to use our knowledge and experiences to advance our nursing profession. Second, as radiology nurses, we have a more personal responsibility to continue to advance the specialty by sharing knowledge, experiences and creating education. Lastly, as the premier radiology nursing organization, ARIN has the responsibility to be cognizant that advancement of the specialty is integral to the continued care and safety of our patients and our professional growth. It is through education that our members achieve success and better outcomes.

Working in the various radiology and imaging departments, we are aware that there are many clinical subspecialties in which we provide care. Through educational platforms, ARIN affords its members the opportunity to learn about the various clinical conditions patients present within our workplace. It is evident that radiology and imaging nursing should occupy a clinical specialty with a comprehensive body of knowledge to provide safe, quality care to all patients. Whether it is caring for a patient with an acute stroke, a patient undergoing a diagnostic mammography study, or a patient having a tumor ablation to treat cancer; radiology nurses need to be prepared to provide the best care possible.

Advancing Radiology Nursing Clinical Pathways

Advancement of our specialty involves expanding into new areas of educational opportunities through clinical pathways. The plan is to accomplish this through educational platforms for members to be able to continue to grow in knowledge and skills. This past year, ARIN has
successfully grown and improved its educational platform for members and radiology nursing professionals. Through virtual capabilities, such as our broadcasts of this year’s annual convention and through our increased number of webinars, members have been able to learn and grow their radiology body of knowledge.

In continuing ARIN’s momentum of expanding the education platform to its members, the need to grow our clinical pathways is a high priority. Areas of focus include increased education on interventional oncology, leadership and advanced practice. As stated in my inaugural speech during the annual convention, it is important that we let others know the many ways we contribute to patient care. The first pathway I will be concentrating on is interventional oncology. The 1.6 million new cases of cancer that will be diagnosed this year, as estimated by the American Cancer Society, will eventually be arriving to our radiology and imaging departments for care whether it is for a diagnostic imaging study looking for newfound or metastatic disease, for treatment of an existing cancerous tumor through the use of CT-guided ablation, or an intervention for palliation and supportive care at end of life. The reality is that we, as radiology nurses, are responsible for providing quality care to this segment of the population, with ARIN having the responsibility to advance the knowledge of this subspecialty within radiology nursing.

ARIN committees are working on developing the interventional oncology clinical pathway and I am confident that it will result in an in-depth educational platform outlining the various aspects of interventional cancer care. Some of the initiatives related to this clinical pathway also include new ARIN webinars as well as oncology topics for the 2017 annual convention being held from March 4th through the 9th in Washington, D.C.

These are exciting times to be a radiology and imaging nurse. The value we bring to our practice and patients is immeasurable and makes us the leaders in patient care. Additionally, the collective enthusiasm radiology nurses bring to the specialty are assets to advancing the profession. I encourage all of you to continue learning, educating, and sharing our specialty and our roles in radiology and imaging. It is through a collective voice that we will see progress and advancement towards a future of increased knowledge and continued excellence in patient care.
With advancing technology and the increase in patient population, radiology nursing is growing rapidly across the nation. I have been a nurse since 1997; yet when I began my career in radiology in 2012, I knew very little about the role and responsibilities of a radiology nurse. Seeking to gain more knowledge, I explored the radiologic nursing certification through the Certified Radiology Nurse (CRN®) Exam. After reviewing the requirements, I decided to take the Association for Radiologic & Imaging Nursing (ARIN) Imaging Nurse Review Course, digest the ARIN Core Curriculum for Radiologic & Imaging Nursing, and take the certification exam. Needless to say, my hard work paid off as I passed the exam in 2013.

My message to those who are thinking about taking the CRN® exam is that the time is now. With a historically 82% passing rate, the odds are in your favor! The exam questions are now nursing oriented. Although you may not have an understanding or knowledge of the numerous and various radiological procedures, that is not unusual. My experience is that the ARIN Imaging Nurse Review Course along with the Core Curriculum for Radiologic & Imaging Nursing, and a little bit of Google and You Tube – should provide you with the information you need to successfully pass the exam.

In April of 2016, I was privileged and elated to receive an invitation from the Radiologic Nursing Certification Board (RNCB®) to participate on the 2016 Modified Angoff Task Force to review the CRN® Exam questions. At the meeting, I joined seven other nurses from different radiology specialties across the United States of America. Our nursing experience ranged from 18 to 51 years! Our nursing experience ranged from 18 to 51 years!

The RNCB meets every five years to conduct the Modified Angoff Procedure evaluation and review the CRN® exam questions. At the meeting, I joined seven other nurses from different radiology specialties across the United States of America. Our nursing experience ranged from 18 to 51 years! The RNCB meets every five years to conduct the Modified Angoff Procedure evaluation and review the CRN® exam questions. At the meeting, I joined seven other nurses from different radiology specialties across the United States of America. Our nursing experience ranged from 18 to 51 years! The RNCB meets every five years to conduct the Modified Angoff Procedure evaluation and review the CRN® exam questions. At the meeting, I joined seven other nurses from different radiology specialties across the United States of America. Our nursing experience ranged from 18 to 51 years! The RNCB meets every five years to conduct the Modified Angoff Procedure evaluation and review the CRN® exam questions. At the meeting, I joined seven other nurses from different radiology specialties across the United States of America. Our nursing experience ranged from 18 to 51 years! The RNCB meets every five years to conduct the Modified Angoff Procedure evaluation and review the CRN® exam questions. At the meeting, I joined seven other nurses from different radiology specialties across the United States of America. Our nursing experience ranged from 18 to 51 years! The RNCB meets every five years to conduct the Modified Angoff Procedure evaluation and review the CRN® exam questions. At the meeting, I joined seven other nurses from different radiology specialties across the United States of America. Our nursing experience ranged from 18 to 51 years!

All judges came from different hospitals and different radiology modalities; however, we all worked together as a cohesive team. By the end of the day, it was a smooth process. What I took away from this experience was how much time, knowledge, and teamwork is involved in the careful process of validating the questions/answers for the CRN exam. It was a unique and wonderful experience to remember throughout my career.

Reference
Certification is one of the most important decisions a nurse can make. Certified nurses are recognized by their peers and employers for having achieved a standard of competency in the nursing specialty. The next Certified Radiology Nurses (CRN®) Exam will be administered October 15, 2016, at selected sites across the United States.

The deadline to submit an application for the October 15 exam is August 5, 2016; applications will be accepted with an additional late fee until August 19, 2016. For more information about the CRN® Exam and the downloadable application and handbook, visit www.certifiedradiologynurse.org

Congratulations to the Newly Certified and Recertificatified CRNs!

The Radiologic Nursing Certification Board, Inc. (RNCB®) would like to congratulate the following nurses who passed the Radiology Nurse Certification exams on April 6, 2016 and May 14, 2016. These nurses have met the requirements to obtain the Certified Radiology Nurse (CRN) credential.

April 6, 2016 Exam

Melissa Meister Cottage Grove, WI
Luis Valdes Happy Valley, OR
Patricia Chongtenn Brooklyn, NY
Meg Krake Fitchburg, WI

A total of 5 nurses took the Certified Radiology Nurses (CRN®) Exam on April 6, 2016, in Vancouver, BC, with a total of 4 passing. This is a pass rate of 80 %.

May 14, 2016 Exam

Rennan Abella Las Vegas, NV
Jennifer Ashton Carbondale, IL
Denise Campbell Wilmington, NC
Terri Risley-Campbell Williamstown, NJ
Donna Collins Coram, NY
Donna Cook Myrtle Beach, SC
Sheri Falcone San Jose, CA
Cynthia Gould Langhorne, PA
Heidi Grebe Wayne, NJ
Samantha Green Dallas, TX
Michelle Grover-Wilkins Fort Edwards, NY
Mark Hammons Minford, OH
Christine Hensley Springfield, OH
Rita Herges Denver, CO
Dinah Hernandez Sylmar, CA
Karri Hesselrode Hurst, TX
Thomas Hewston Kennett Square, PA
Staci House Minneapolis, MN
Jeannette Howlett Wilminton, NC
Angela Jones Manchester, TN
Jennifer Kump Fairport, NY
Cynthia Lamb Louisville, KY

A total of 58 nurses took the Certified Radiology Nurses (CRN®) Exam on May 14, 2016 with a total of 47 passing. This is a pass rate of 81.03 %.

Recertification

The Radiologic Nursing Certification Board, Inc. (RNCB®) works hard to maintain the standard of excellence among nurses who have made the commitment to set themselves apart as Certified Radiology Nurses by maintaining certification. The RNCB would like to congratulate the following 63 nurses who met the stringent standards to maintain their certification between February and May, 2016.

February 2016 Renewals

Linda Battigaglia Bellbrook, OH
Karen Dimick Queensbury, NY
Christine Hockenberry Ocean City, NJ
Heather Hussein Rivera, NJ
Christy Lee Lafayette, LA
Mary Myrthil Miami, FL
Cynthia Maricle Eire, CO

March 2016 Renewals

Dale Barnett Long Beach, CA
Edith Bonds Metairie, LA
Marcy Cappello Schaumburg, IL
Biana Elberg Brooklyn, NY
Sara Marks Longview, TX
Anne Riley San Francisco, CA
2017 NOMINATIONS ARE OPEN

Piera M. Cote Robson, MSN, CNS, NP, AOCNS, ANP-BC, OCN, CRN
2016 Leadership Development Committee

The application for the 2017 nomination cycle have been posted. Please apply to become a member of the ARIN Board of Directors in 2017. ARIN becomes a stronger organization when qualified candidates join our dedicated team of leaders. Leadership offers an excellent opportunity to grow professionally as well as to develop a deeper understanding of national nursing opportunities.

Open positions for nominations include:
- President-Elect
- Secretary
- Director of Membership
- Two (2) Leadership Development Committee Member

Nominations are solicited, reviewed, and approved by the Leadership Development Committee. The final nomination slate is reviewed by the ARIN Board of Directors. Following the election, Officers and Leadership Development Committee members will begin their term at the Annual ARIN Convention in April 2017. Please refer here for application criteria.

Any questions or concerns may be directed to:
Piera M. Cote Robson, MSN, CNS, NP, AOCNS, ANP-BC, OCN, CRN
Director of Leadership
Piera.robson@arinursing.org
Application deadline: September 1, 2016
The results from the latest Vision Survey are in. The ARIN BOD and Vision Editor would like to thank you for your input. Sixty-three members took the time to share their feedback with us. The survey results will be used in shaping your periodical. Below are the results of your comments.

1. How many years of experience do you have in nursing?

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<tr>
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<td>Greater than 30</td>
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answered question 63
skipped question 0

2. How many years of experience in radiology nursing?

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<td>27.0%</td>
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<td>10-20</td>
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<td>20-30</td>
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<td>Greater than 30</td>
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answered question 63
skipped question 0

3. In 2014 the Vision newsletter expanded from 4 newsletters a year to 6. Is this a value added benefit?

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answered question 59
skipped question 4

4. Do you find the following columns of benefit to you as a radiology nurse?

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<th>Agree</th>
<th>Neutral</th>
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<td>28</td>
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<td>60</td>
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<tr>
<td>I am a Radiology Nurse</td>
<td>29</td>
<td>27</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>59</td>
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<tr>
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<td>59</td>
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answered question 60
skipped question 3

5. What types of information or articles would you like to see included in the Vision newsletter?

<table>
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<tr>
<th>Answer Options</th>
<th>Response Count</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

answered question 25
skipped question 38

A list of suggested articles for the publication from members include:
- Oncology articles
- Standards of care
- Innovations in radiology
- Product columns
- Product articles
- Medications and interactions in radiology
- Evidence based research in radiology
- Oncology articles
- Any info regarding medications/interactions with what we do
- Contrast guidelines and clinical updates
- Very short informational articles with pictures
- Chapter information
- Continue what we deal with every day
- Look at radiology nursing and other countries; how they manage the workload; how to use patient labs; how many scans cases and assist with daily work
- Look at interesting unusual case studies
- Nursing care of patients undergoing procedures
- Regulations governing IR practice
- Evidence-based practice
- CEU and conference info; JC information pertinent to radiology nursing
- Quality and regulatory standards for radiology
- More member or practice information
- More info on CRN exam and reviews, practices and’s, questions, it’s Sandra.
- Assistance in obtaining certification
- Short bullets on JC regulations and safety
- Interventional approaches in to caring for radiology patients
- A technical type of column where over time a library if possible “how to use” could be built
- Technical information on the procedures themselves
- Current events and how they impact radiology, like the attacked in Belgium, that when US what would a radiology nurse need to know
- Legal issues concerning sedation etc.
- Product articles
- Product column
- CRN certification, option for hard copy so I can share with fellow nurses
- More radiology nurses in the news, honors, awards, from their facility
- Quality and regulatory regulations
- CEU and conference information, the joint commission information specific to radiology nursing
- Updates or alerts regarding contrast or floro, something pertinent to imaging that immediately affects our practice
- Regulations governing IR practice, evidence-based nursing procedures
- Continue with what we enjoy every day
- Contrast guidelines and clinical updates
- Evidence-based research for radiology

We invite all submissions especially submissions that can meet the member feedback. VISION is a member supported publication of ARIN. Submissions may be sent to Lizboulter@arinursing.org.
With Vancouver in the rear view and Summer weather taunting us around the country, it is now time to look forward to the momentum of ARIN and how we can all become more engaged with the passion we know as Radiology Nursing. One element with which we can all agree, is that we are busy. The competing demands for our time challenges our ability to get everything done in the course of the day or a week. Professional and personal lives often collide, requiring us to prioritize and leave out some otherwise important activities such as professional networking. It goes without saying that family and self-health should always come first. Yet being a part of a professional organization, one which embodies the passion and expertise of our specialty, can augment and reinforce the reasons for the work we do.

Even with this stated, it may be difficult to conceptualize the importance and significance of belonging to a professional organization. At first glance, it appears like more work and competition for your time. The truth is that this is a possibility but it is dependent on how much time you are willing to commit. Membership doesn’t require an additional ten hours a week, but it does ask for your voice, experience, and expertise. Our practice environment is changing and challenging. It has always been and will continue to require gifted, passionate, and critical thinkers that are patient-centric and show up every day to perform the work of the Radiology Nurse.

The benefits of membership include the ability to network and share your daily work challenges and opportunities, a sense of belonging, pride in being part of an organization dedicated to your specialty, resources from a highly regarded professional organization, and education that will bolster professional development. While these are just a few examples of what ARIN membership provides, there are more opportunities. These include the potential to serve in many capacities at the grassroots level or to advance to a leadership position within the organization. Do as much or as little as you can, whatever fits into your life at the moment.

Being a nurse in the present healthcare and practice environment is not easy. If it was, everyone would do it. There might be easier nursing positions you could be doing, but you have chosen Radiology Nursing… or it has chosen you? Regardless, you have made the commitment to radiology and imaging nursing because ‘it fits’ you. You are looked to for your expertise and knowledge. The well-being and safety of every patient is largely dependent on your abilities to navigate through best-practice and advocacy. Each one present in the complex practice environment known as the Radiology Department. I challenge you to consider partnering with ARIN to afford yourself the tools, resources
“Those who know, do. Those that understand, teach.”
– Aristotle

Have you ever considered presenting at an ARIN convention? Abstract review is open for members to present at the anniversary celebration in Washington, DC. This is the opportunity you have been waiting for to teach what you know to your colleagues. It is also a great opportunity to network and find solutions to those issues you have been grappling with. Criteria and topics are listed below for consideration.

The Planning Committee will review abstracts based on the following selection criteria:

- Abstracts should be limited to 250 words
- Clarity and description of content, and presentation methods
- Importance, depth, focus, and level of audience interest
- Feasibility of application to a variety of settings
- Presenter’s professional background and speaking experience
- Absence of commercial content
- Originality of topic/presentation (has not been presented at other radiological nursing programs)

The Association for Radiologic & Imaging Nursing (ARIN) functions to provide evidence-based information related to radiologic and imaging nursing. Material presented at the annual convention, available on the website, or provided in any printed materials must be of professional quality, evidence-based, and demonstrate an absence of proprietary or prejudicial/biased commentary.

Anecdotal observations should be limited in their scope and not presented as proven fact. It is inappropriate to endorse or imply endorsement of any specific product or service. One speaker per accepted abstract will receive a complimentary, single-day registration.

Presentations, both podium and poster, are being sought on topics listed below and should have an interdisciplinary focus whenever possible. We are considering topics along a tract of interest and spectrum of experience from novice to expert. Topics of great interest include the following:

- Interventional Oncology
- Technology:
  - Electronic Health Record
  - Balancing use of technology when caring for patients
  - Successes
  - Challenges
  - Rollouts
  - Stabilization
  - Upgrades
  - Lessons Learned
- Use of social media in supporting communication and networking in professional education
- Pharmacotherapeutics:
  - Anticoagulants
  - Glucose Management Agents and methods of delivery
  - Subcutaneous Insulins and Oral Agents
  - Pens, Pumps and IV Insulin Protocols
  - Cardiac Medications
  - Suboxone
  - Medical Marijuana
  - High-dose Opioids
  - Antibiotics
- Advanced Practice Roles: Nursing Leadership, Management, Clinical Nurse Specialist, Nurse Practitioner, Educator
- Clinical Considerations for Transgender Patients
- Multiple Modality Imaging
- Pediatrics: Scanning and Sedation Issues
- Radiology management topics
- Quality measures
- Assessment of patients needing access for dialysis, level of urgency and device choice issues
- Cath lab/IR/OR hybrid lab conversions
- Clinical trials in radiology and nursing research in Imaging
- Case studies in any modality of Imaging
- Throughput in Radiology including staffing issues and room turnaround
- Scanning of pacemaker patients in MRI, how did your organization roll out the new MR conditional Pacemakers
- Comprehensive stroke center, cases, experiences
- Tracking quality indicators in Radiology
- Team building
- Special situations for the outpatient imaging nurse, how do you bridge the issues?
- Capnography
- Evidence-based practice in Radiology
- Patient education in Radiology
- Managing complications
- Anatomy of cases, unusual cases
- Medication management
- Safety considerations related to:
  - Radiation
  - Patient handling
  - Transport
  - Chemoembolizations
  - Needles, etc.
- Issues in fluoroscopy department
- Leadership topics
- Multi-disciplinary projects with a team presentation
- New technologies/treatments in imaging
- Nursing competencies and orientation elements
- Patient positioning
- Patient satisfaction projects in radiology
- New Pet CT considerations
- Risk management in radiology or risk abatement
- Nursing quality indicators in Radiology
- Magnet considerations for Radiology
- Unit based councils in Radiology
- Moderate sedation case studies
- Contrast issues, reactions, infiltration vs extravasation

We are also considering smaller workshop style presentations with these topics in mind:

- How to develop a poster presentation
- How to do a podium presentation
- Hands on work with ultrasound, vascular access, IO, etc.
- Simulation of code situations

See the ARIN web site for further information on abstract submission.
**IMAGING REVIEW COURSE**

ARIN Imaging Review Course  
Bruce Boulter  
ARIN Executive Director

Have you ever asked yourself, “How can I continue to advance my career, and enhance my ability to provide the best patient care?” If the answer is yes, then I would encourage you to take a good look at the ARIN Imaging Nurse Review Course.

The ARIN Imaging Nurse Review Course is a 2-day course designed to provide an overview of the knowledge required for the nurses working in the imaging, interventional, and therapeutic environments. This course is intended as a refresher course on imaging. It is also helpful for hospital staff nurses receiving radiology patients transferred to their units. Attendees will earn 15 CE credits for the two-day course while 17.5 CE credits are available for technologists.

In addition, this course can be used to prepare for the Certified Radiologic Nurse (CRN) exam. It is a useful resource when used in conjunction with other study materials. We currently have scheduled five review courses. For the first time in recent history they can be found all over the country approximately at the same time. Please look at the following courses and decide which one makes the most sense for you.

**Virginia Commonwealth**  
Univ. Hospital  
Richmond, VA  
August 6-7, 2016

**Aurora Health Care**  
Milwaukee, WI  
September 10-11, 2016

**St. Cloud Hospital**  
St. Cloud, MN  
September 26-27, 2016

**Tampa/St Petersburg**  
FL Area  
September 17-18, 2016

**UPCOMING WEBINARS**

Cathy Brown, BSCN, RN, CRN  
Webinar Committee Chairman

There has never been a better time to participate in a webinar. Upcoming webinars include a two-part series on “Pediatric Sedation in Radiology” and a webinar on “Lung Cancer Screening with Low Dose CT”. The time and dates will be announced shortly, so please watch your email.

Two new webinar recordings have been added to the course catalog on the ARIN website for you to access at your convenience. “Therapeutic Treatment Options for Oncologic Patients Utilizing Radiopharmaceuticals” was presented on May 5, 2016. June 15, 2016 saw the first of a series of webinars on “Evidence Based Nursing”. This lecture introduced how to create a culture of evidence based nursing in the radiology/imaging setting.

A benefit of your ARIN membership is free access to live and recorded webinars with easy contact hour tracking. The CEUs for the webinars are provided through the Alabama Nurses’ Association and once you earn them, they stay on your ARIN membership profile for 5 years. This keeps them organized for you to review and print off for use in your license requirements. It is important to remember; webinars have CEUs that are available for up to two years after the first presentation. These webinars are then archived so they can be viewed at your convenience. As time progresses and the CEUs expire, the recordings remain available for viewing.

If you have an idea for a webinar or you are interested in presenting a webinar, please reach out to Cathy Brown, ARIN Webinar Committee Chair. I look forward to meeting you.

**ATTENTION HISTORY BUFFS**

Sharon Lehmann, MS, APRN, CNS  
Past Vision Editor

In this 35th year of our history, ARIN is trying to update some of our records. We are missing some of the following items. If you have any of the items below, we would appreciate a copy. Please contact Liz Boulter, Lizboulter@arinursing.org at the National Office to make arrangements for her to receive these items.

**The National Office is trying to collect missing issues of Vision**

Vol 10, No 3, Fall 2005  
Vol 15, No 3, Fall 2010  
Vol 15, No 4, Winter 2010  
Vol 16, No 1, Spring 2011  
Vol 16, No 2, Summer 2011  
Vol 16, No 3, Fall 2011  
Vol 16, No 4, Winter 2011

**Did you win poster of the year?**

We are missing the first, second, and third place winner’s names from the years 2011 and 2014.

**Did you win Radiology Nurse of the Year in 2011?**

Unfortunately, you are missing from our records. Can you let us know who you are?

**Do you have a copy of the Historical Notes from the years?**

2001-2002  
2010-2011  
2011-2012

I know we should really keep better records, but if you could help us out, then… we would have great records. We appreciate your help in preserving our history!
The title of Radiologic and Imaging Nurse only hints at the multitasking required to perform duties in the imaging environment. These include providing and monitoring patient medication, tableside physician assistance, and patient vital sign monitoring; all while remembering to protect yourself from radiation exposure.

As an experienced Radiologic Technologist with many years of radiation protection product management and sales experience, it was a pleasure to provide a Lunch and Learn session on radiation protection at the ARIN Annual Meeting in Vancouver. My goal is to provide a basic understanding of radiation and radiation protection in order to empower you to be your own radiation safety advocate!

With the potential for protracted fluoroscopy use during an interventional procedure, all staff in the suite are at risk for radiation exposure. However, because of the minimal distance between a physician and the patient, the physician’s unintended dose is the highest (Chida, Kaga, Haga, Kumasaka, Meguro, & Zuquchi, 2013; Efstatopoulos, Pantos, Andreou, Gkatzis, Carinou, Koukorava, Kelekis, & Brountzos, 2011; Kim, Miller, Balter, Kleinerman, Linet, & Simon, 2008; Klein, Miller, Balter, Laskey, Haines, Norbash, Mauro, Goldstein, & Joint Inter-Society Task Force on Occupational Hazards in the Interventional Laboratory, 2009). Nurses are second closest to the source of scatter radiation and receive the next highest dose, and radiologic technologists receive the third highest unintended dose (Kim, Miller, Balter, Kleinerman, Linet, & Simon, 2008; Klein, Miller, Balter, Laskey, Haines, Norbash, Mauro, Goldstein, & Joint Inter-Society Task Force on Occupational Hazards in the Interventional Laboratory, 2009). However, with an understanding of radiation, radiation protection, and radiation safety practices, everyone can minimize radiation exposure.

Each facility should train staff who operate x-ray producing equipment or who are routinely exposed to radiation equipment. Training should be initially provided prior to utilization of the equipment and annually thereafter. The training should be performed by a qualified individual and should be commensurate with risk to staff and to the patient. It should include:

**The risks from exposure to ionizing radiation**

- **Regulatory requirements**
- **Facility requirements**
- **Proper operation of the specific equipment to be used**
- **Methods to maintain staff radiation to As Low As Reasonably Achievable (ALARA)**
- **Guidance for protection the patient, embryo, or fetus** (International Commission on Radiological Protection (ICRP), 2009)

Occupational dose is the amount of radiation that you receive when you are working. This does not include either natural sources of radiation or exposure received when you are a patient. In the United States, the normal occupational limit is 50 mSv/year. Other limits apply in other countries. Workers at the dose limit are still considered to be in a safe-occupation.

A small fraction of nurses actually exceeds an occupational exposure of 2 mSv per year. A busy interventional radiologist who takes all appropriate radiation safety precautions is unlikely to reach 10 mSv per 5 years.

The current US limit is 150 mSv for the lens of the eye and 500 mSv for the skin, hands, and feet (Efstatopoulos, Pantos, Andreou, Gkatzis, Carinou, Koukorava, Kelekis, & Brountzos, 2011; Kim, Miller, Balter, Kleinerman, Linet, & Simon, 2008; Klein, Miller, Balter, Laskey, Haines, Norbash, Mauro, Goldstein, & Joint Inter-Society Task Force on Occupational Hazards in the Interventional Laboratory, 2009; International Commission on Radiological Protection (ICRP), 2009).

Fluoroscopy-guided diagnostic procedures have become lengthier and more complex, requiring the use of additional radiation, and frequently require the use of imaging views that are unfavorable for the operator with regard to occupational exposure (International Commission on Radiological Protection (ICRP), 2009; Durán, Hian, Miller, Le Heron, Padovani, & Vañó, 2013; Hill & U.S. Environmental Protection Agency, 2014). Unfavorable imaging views result when the fluoroscopy tube angles away from the typical vertical position and generates scatter from the patient directing it toward workers (Chida, Kaga, Haga, Kumasaka, Meguro, & Zuquchi, 2013). Procedures that might result in high exposure to workers include anything that lasts a substantial amount of time such as embolization, thrombolysis, and angioplasty (Chida, Kaga, Haga, Kumasaka, Meguro, & Zuquchi, 2013).

In order to understand how to protect yourself, you need to know the differences in between primary and scatter radiation. Primary radiation comes from the x-ray tube and is used to image the patient. Primary radiation is generated when the physician steps on the fluoroscopy pedal. Radiation stops immediately when the pedal is released. It does not continue; it does not bounce around the room. Patient dose is mainly due to primary radiation. The amount depends on factors, such as the interventionalist’s knowledge, skill, and experience; the type of procedure; the location of the lesion; the complexity of the procedure; and the indication for the procedure (Vañó, Gonzalez, Fernandez, Prieto, & Guibelalde, 2006).

Radiation dose management requires a comprehensive program including preprocedural planning, fluoroscopic set-up and configuration, intraprocedural management, and post-procedural care (Balter, 2010). Patient dose data shall be recorded in the patient’s medical record at the conclusion of each procedure.

A small fraction of the primary radiation is scattered out of the patient. In a fluoroscopically guided interventional or cardiac catheterization procedure, the highest source of scatter radiation is the patient!

Most fluoroscopically guided interventional (FGI) procedures cannot be conducted without exposing the participating staff members to a radiation field. Each staff member’s radiation is strongly influenced by the individual’s actions during a procedure. Appropriate use of radiation reduction techniques and protective equipment can have a marked effect on occupational dose (Kim, Miller, Balter, Kleinerman, Linet, & Simon, 2008). Appropriate education has been shown to improve compliance with occupational dose-monitoring requirements.
among trainees (Kim, Miller, Balter, Kleinerman, Linet, & Simon, 2008; Vaño, Gonzalez, Fernandez, Prieto, & Guibelalde, 2006). Proper management and awareness of radiation use is the key to safety. Before initiating exposure, the interventionalist should make sure all assisting personnel are properly protected and facing the patient, if wraparound-style radiation protective aprons are not worn. When several staff members are present in the procedure room, a verbal warning to everyone is recommended (Vaño, Gonzalez, Fernandez, Prieto, & Guibelalde, 2006).

As a Radiologic and Imaging Nurse, you should be familiar with the acronym ALARA "As Low As Reasonably Achievable" as the overall guideline for radiation safety in medical imaging. This is achieved by consistently monitoring your DISTANCE, TIME, and SHIELDING. I have always remembered it by an acronym DTS: Defend Thy Self! DISTANCE – consistently monitoring your DISTANCE, TIME, and SHIELDING. I have a guideline for radiation safety in medical imaging. This is achieved by an acronym (Fernandez, Prieto, & Guibelalde, 2006).

When several staff members are present in the procedure room, proper management and awareness of radiation use is the key to safety. Assisting personnel should leave the procedure room whenever their presence is not required (Balter, 2010).

Large transparent mobile shields are useful for ancillary personnel who do not need to be next to the patient but are required to remain within the procedure room. They are also useful for interventionalists and other staff to step behind during high-dose-rate digital image-acquisition series (Balter, 2010).

The use of bilateral table-mounted shields provides further scatter radiation protection.

Equipment-mounted shielding includes the protective drapes mounted onto the imaging table to protect the lower extremities and decrease the scatter radiation to the physician and table side staff.

Employers are responsible for ensuring that radiation protective equipment is available to each staff member, who is occupationally exposed to radiation. All personnel present in an FGI-procedure room should wear a radiation protective garment when the x-ray beam is activated. Additional radiation protective equipment (e.g., protective gloves, protective glasses) is provided as appropriate, in order to ensure that their occupational radiation exposure is consistent with the ALARA principle (Balter, 2010).

Standard personal protection equipment (PPE) includes aprons and thyroid collars. Proper fit is required to ensure the apron provides the necessary protection with minimum ergonomic hazard. All individuals who routinely participate in interventional procedures should be provided with custom-fitted protective garments. This is essential for those staff members who are routinely within 1 m of the patient, where scattered radiation levels are highest. The apron should fit snugly around the arms and not fall too low at the neckline. This is especially important for female staff members, for protection of breast tissue. Proper apron sizing is also critical if the apron design includes two layers that are overlapped to meet the lead-equivalent thickness specification (Balter, 2010).

When leaded eyewear use is required (based on individual dose measurements), the facility should provide individually fitted eyewear that is sized and adjusted to the individual’s face, has the correct optical prescription for the individual, provides appropriate radiation protection, and is comfortable to use. Leaded eyewear should fit snugly against your maxillary sinus and zygomatic arch. They should fit your facial profile and include lateral radiation shields (Balter, 2010).

Two personal dosimeters, one worn under the protective apron and a second worn at neck level above protective garments, are preferred and should be used in the FGI-procedure environment. A single personal dosimeter worn at neck level above protective garments may be used in the FGI-procedure environment. A single personal dosimeter worn under the protective apron shall not be used in the FGI-procedure environment (Balter, 2010).

Finally, please consult the isodose maps provided by the imaging equipment manufacturer, which are usually supplied in the user manual supplied with the equipment. This is a requirement of IEC Standards (International Electrotechnical Commission, 2010; International Electrotechnical Commission, 2008; International Electrotechnical Commission, 2007; International Electrotechnical Commission, 2004; International Electrotechnical Commission, 2000) and should provide you with a diagram that illustrates the scatter radiation isodose curves. Understanding where the highest exposure levels are during a procedure will enable you to step back, take a stand and Defend Thy Self!

References


Inadequate monitoring places post-operative patients at risk for opioid-induced respiratory depression

News Medical Life Sciences and Medicine, May 28, 2016

According to University at Buffalo nursing researcher Carla Jungquist, 75 percent of hospitalized patients receiving opioids for pain management are not monitored according to hospital guidelines. Her study, “Avoiding Adverse Events Secondary to Opioid-Induced Respiratory Depression,” highlights the majority of post-operative patients given opioid medications through intravenous infusions are not monitored effectively to detect respiratory depression.

“Post-operative patients are at highest risk for respiratory depression during the first 48 hours of recovery due to the combined effect of anesthesia and opioid medication”, says Jungquist. “No one should go into a hospital and leave dead because we were aggressive with their pain management yet didn’t provide safety measures”.

The researchers analyzed more than 4,000 patient records at eight hospitals around the nation. Jungquist attributes the poor compliance to excessive workloads for nursing staff and to hospitals lacking policies that enforce guideline compliance.

Intravenous catheter blood control valves: Beware when treating tension pneumothorax

Dr. David K. Tan, May 16, 2016
http://www.ems1.com/

In July 2011, the U.S. Patent Office received an application for an intravenous catheter with a valve to limit backflow of blood in cannulated veins. These catheters were designed to reduce exposure to blood borne pathogens. Recently, major manufacturers of intravenous catheters have introduced variations of IV catheters with backflow preventing valves. While these devices may be useful in achieving the stated goals, it also prevents air from escaping if the device is used to decompress a tension pneumothorax.

Most providers know that a large bore needle is best for chest decompression. However, most vascular access needles are too short to be used for this task. A needle of at least 3.25 inches in length is needed to successfully decompress a tension pneumothorax. The standard 1.5-inch vascular access needle will not work. In the event that you find yourself in a situation an emergent situation, but all you have is one of these safety needles for a chest decompression, the valves can be opened by attaching a syringe and removing the syringe's plunger.

Changes to Medicare Continue to Drive Growth in U.S. Catheter Securement Devices Market

iData Research, May 05, 2016

According to a new series of reports on the vascular access device and accessories market in the U.S., the catheter securement market is expected to grow. Currently, the catheter securement market is dominated by tape and dressings, though manufactured catheter securement devices (MCSDs) and sutures make up a smaller portion of this market.

Tapes and dressings have traditionally been the dominant segments in this market, this is due to their cheap price and their utility across different medical applications. However, sutures and catheter securement devices (CSD) do still have applications in a clinical setting. The growth of CSDs is due to the fact that catheter-related infections in the U.S. are no longer reimbursed by Medicare. The infection rate after securing catheters with CSDs is much lower than other devices. The use is also in line with 2016 INS standards.

“Nurses and doctors strongly support the use of devices that will reduce catheter complications,” explains Dr. Kamran Zamanian, CEO of iData, “Despite their high price; the market will increasingly adopt safer catheter securement devices over the forecast period.”

THE AMT BEAR IS HERE!

Greg Laukhuf ND, RN, CRN, RN-BC, NE-BC
VISION Editor

I wear many hats in the department that I work in daily. One of my hats is that of education instructor for the radiology nurses. Our department serves a fifty-fifty mix of in patients and outpatients with a segment of the population pediatric. One of the largest procedures in this group is G-Tube placement. I was very excited to obtain this cuddly bear from my local representative. It has proven a valuable teaching aid for our younger population receiving these tubes.
ARIN Visits George Washington University Hospital Radiology Department

Mary Sousa RN, BSN
ARIN Immediate Past President

ARIN will end its 35th anniversary celebration in historical Washington, D.C. Mary F. Sousa, ARIN Immediate Past President, and De Ann McNamara, Director of Education, travelled to Washington, D.C. to review the upcoming convention site. The group meet with our colleagues from AVIR and SIR to plan the educational program and soiree for next year.

During the site visit, Mary and De Ann had the opportunity to tour the Radiology Department at George Washington Hospital (GWUH). The GWUH is a multidisciplinary, academic, tertiary care hospital capable of providing advanced and innovative quality care to a diverse population group from local residents to visiting dignitaries and world leaders. Additionally, as an academic teaching facility, GWUH provides clinical rotation for multidisciplinary health professions.

Lead by IR Radiologist Dr. Albert Chung, the Arin team toured their technologically advanced procedure area. During the tour, the ARIN team was introduced to Radiology nurses, Nurse Practitioners, Technologists and the Nurse Manager. All were warm and welcoming and expressed interest in ARIN’s resources, educational materials, web-based education podcasts and webinars. They were particularly interested in the ARIN Imaging Review Course and radiology nursing certification.

The tour ended with a personal invitation from Mary to attend the ARIN 2017 annual convention located in Washington, D.C. DeAnn encouraged the staff at GWUH to consider submitting abstracts for podium and poster presentations. Arin would like to thank our colleagues at George Washington University Hospital for hosting a tour of their facility.

If you would like us to visit your hospital when we are in the area, please send us an email at Liz.boulter@arinursing.org.
The New England Chapter of ARIN (NEC-ARIN) would like to share the success of our vision. NEC-ARIN is the regional chapter for five of our six New England states (Massachusetts, New Hampshire, Connecticut, Rhode Island, and Vermont). We have a very active and involved group of members, as well a cohesive Board of Directors. Our purpose and objectives are aligned with that of our national organization; ARIN. One method of sustaining our commitment to the pursuit of our common mission is through our dedication to education. Our chapter successfully provides biannual opportunities for education in our region. NEC-ARIN educational initiatives not only provide contact hours for nurses, but also provide the same opportunity for contact hours at selected programs for team members in other disciplines including technologists, EMTs, paramedics, and physicians.

In response to a request from our chapter members, our most recent achievement was hosting the ARIN Imaging Review Course (IRC) at Lowell General Hospital on 4/30, 5/1. We had 40 attendees from across the country, as far south as Texas and as far west as California. As is true of any ARIN event, the education was of superior quality and pertinent to our practice. Although education and preparation are the primary goals, the other outcome of these events is always the development of these networks fostering growth and collaboration. Networking provides Radiology Nurses with the resources that ultimately provide our patients with care that is based on best practice; a practice that is rooted in evidence and supported through education. We were fortunate to have very active participants, helping to make the event a collaboration of learning from a broad range of perspectives and experience.

NEC-ARIN is already looking forward to the presentation of our Autumn Conference on October 22, 2016. Our chapter has planned a comprehensive day of education on Hepatocellular Carcinoma (HCC). Topics of interest to our members have been defined, and presently include a multidisciplinary approach to diagnosis of HCC, the various options for treatment in Interventional Radiology, Radiation Safety, and Pathophysiology. There will be more to come as our planning moves forward.
Why did you become a nurse?

After graduating from high school, I began my studies at the college where my dad was employed. My strengths were in science and math and not sure where that would bring me, I began a degree in medical research. With little opportunity for employment in that field at that time, my dad suggested I pursue a degree in nursing. After transferring to a community college, I realized this is where I belonged and my dream was fulfilled. As I continued my studies I worked at a rest home 32 hours a week as a nurse’s aide which solidified my decision.

What about nursing makes you happy?

I enjoy many aspects of the nursing field. I enjoy caring and comforting patients and their families. Educating the public and promoting community health allows me to use my skills to give people a more stable and healthy environment. I reinforce with them that laughter is the best medicine when you are sick. Making a difference in patients/people’s lives is a fulfilling feeling for me.

What has been the most amazing experience you have had as a radiology nurse?

As a radiology nurse, developing the roles of the radiology nurse and then the Advanced Practice Registered Nurse were my most exciting experience. This was a challenge that many resisted, but 22 years later, the knowledge and assistance of this nursing role has been greatly accepted by our department. The coordination of care between all our staff makes our department more efficient and effective for the patients that we care for. This could only have been achieved through the great group of radiologists and technologist that I work with. A family come first has always been their motto, which was important to me as I have four children.

What are the challenges you encounter and how do you overcome them?

As a radiology nurse, my biggest challenge has been educating other professionals what goes on in our department. Without this education, nurses are unable to prepare patients for the examinations/procedures that they will be having. To promote the education piece for them, I have assisted in developing videos for Tiger TV which can be played for the patients before coming to radiology, developed and placed prep sheets on the intranet for hospital nursing reference, participated in developing monthly educational “hot topics” and have lectured at extended care facilities so that nurses can prepare their patients/families before coming into radiology. I have facilitated that nursing students have a clinical rotation in radiology so they will be more educated in caring for their patients having radiological examinations.

As a Nurse Practitioner one of my roles is to be the patient advocate to make the correct examination is done. I become frustrated when the wrong exam is ordered. This can be a case where the patient needs a breast biopsy and the wrong biopsy is ordered. The patient that requires access and a PICC line is ordered, but the patient is a dialysis patient. I spend a lot of time discussing patients with the attending to come to an agreement as to the correct exam.

Have you experienced anything extraordinary in your career?

I have been extremely fortunate to work with Radiologists that saw the need for a Radiology nurse and APRN in our department. They supported my endeavors by allowing me to further my education while paying my education and salary. A recent exciting achievement was the recognition by the International Association of Healthcare Professionals (INA) for my APRN work.

What has your nursing journey been like?

After graduating with an Associate Degree in nursing in 1979 for the first few years I looked for my niche in nursing. I worked on a medical floor, surgical floor and IV nursing team. It was while I was starting an IV for an ICU patient that coded, I realized I was totally ill prepared and decided to work as an ICU nurse to gain a better knowledge of the care of an ICU patient. In 1993, after working 12 years in the ICU environment, I started working for Radiology Associates as a registered nurse in radiology. While I was working, I was pursuing my Masters of Nursing Science in management and graduated in 2000 from the University of Hartford. When I returned to my employer rather than have me leave, they offered to send me to the University of Connecticut to pursue an Advanced Practice Degree which I received in 2003 and began to practice and develop this role. I am presently pursuing a Doctorate of Nursing Practice in Leadership to enhance my skills in my present employment, working with disciplines across the Hartford’s Health Care System and then to teach nursing students at the university.

At the end of a busy day, how do you find balance in your life?

I find balance at the end of the day or the beginning by exercising at the gym. I participate in 5K obstacle races, enjoy bike riding, and cross country skiing. I also find comfort with being with my family and friends and enjoying their company while socializing or participation in exercise activates. For down time I enjoy reading and quilting. I am presently pursuing a DNP program in leadership at Quinnipiac University which will consume a lot of my free time. I am very excited to be moving on to another chapter in my life, my goal is to teach nursing students in 4 to 5 years hopefully to make a difference in how they practice.

How has ARIN played a role in your career?

When I first became a radiology nurse, I was seeking standards by which to practice and was introduced to ARIN. Being the first nurse in the radiology department and having an Intensive Care background, I was not abreast of radiology nursing standards. ARIN provided me with these standards, of practice and networking with practices across the spectrum of radiology nursing. During my ARIN presidency, I developed some of the leadership skills that I presently use. Although this was a challenging position, I feel that I also learned from the people involved in ARIN.

“I Am a Radiology Nurse” features unique Radiology Nurses in everyday practice. To be featured in this column, contact Liz.boulter@arinursing.org.
### ARIN ON THE MOVE

**ARIN EXTENDS A WARM WELCOME TO OUR NEW MEMBERS!**

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