
CARDINAL RAYS

Newsletter of the Ohio Society of Radiologic Technologists

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Gabbing with Gary

Hello to all of you,

Fall is here! It's time for bonfires, sweaters and cool crisp days. While we enjoy autumn and what it has to bring, let's not forget that the OSRT is here for you and we want to help.

The COVID-19 pandemic has everyone's life in turmoil and we long for having normal lives again. We can stay strong and get through the times and days ahead. I have faith that as technologists, we are always resilient and strong in the face of the most daunting challenges. We will overcome these challenges! I have faith in each and every one of you, that we will become stronger due to this time of crisis.

I also want to ask if you are willing to assist in our first face-to-face meeting in a few years. The 2022 Annual Meeting will be the first face-to-face meeting since 2019. I am in need of people that can help with the Annual Meeting in performing various tasks. I can connect you with the people that will help you volunteer your time and service. I thank you in advance for considering assisting the OSRT.

Gabbing with Gary (continued)

Don't forget we have the fall OSRT Board of Director's meeting on Friday September 24, 2021. If you wish to attend, please contact the Executive Secretary of the OSRT by email at OSRT@OSRT.org.

As I close this fall message, remember that we have strength in numbers. Our voice is strong, but can be stronger with more members. Please encourage other technologists at your workplace to join. We have the power to increase our message and make sure that our voice is heard over the entire great state of Ohio.

I love my chats with you. The reason I chose to run for president is to help bring your needs to the forefront. I am your servant and I can work better with your direction. Together, we are strong!

Thank you,

Gary

"Our voice is strong, but can be stronger with more members. Please encourage other technologists at your workplace to join."

Gary Greathouse
OSRT PRESIDENT



MEET THE BOARD

Andrea Tschirner

Please meet Andrea Tschirner, M.S.,R.T.(R)(BD)(CT). She is a staff CT technologist at The Ohio State Wexner Medical Center. Andrea is currently serving as an OSRT Board Director at-Large, the 2022 OSRT Annual Meeting (AM) Chair, and a member of the Membership committee. She recently served as the 2021 OSRT Annual Meeting Vice Chair.

How did you first get involved with the OSRT?

I was first involved when I participated in the 2004 OSRT Quiz Bowl with The Ohio State University Radiologic Sciences team as a senior, with Terri Bruckner as our instructor and coach, and we won first place that year.

Tell us a little bit about your journey with the OSRT.

Since then, I have attended most Annual Meetings as a technologist for CE, have been a moderator for past Annual Meetings, as well as been on past AM committees. I was nominated to run for the Board of Directors (BoD) in 2015 and was elected by the membership. I have been more involved since then, attending board meetings, Chairing the Membership Committee for a few consecutive years, served on the Advocacy Committee, participating in strategic planning, etc. and after my first 3-year BOD term, I filled an opening that was needed at the time for another 2 years.

What are you looking forward to while serving as an OSRT board member?

2020 was, as we know, a challenging year for all of us in many ways, and we as a professional society were able to persevere. Although we had to cancel the AM in 2020, we were able to hold the 2021 AM virtually, and the plan is for an in-person AM in 2022, and I am really looking forward to seeing everyone again.

What do you hope to achieve as an OSRT board member?

I hope to help in continuing to make the best decisions I can along with the other board members and the Executive Board to continue to serve the Ohio imaging technologists professional interests, help to provide educational opportunities, and work to bring in more members, as we are stronger in numbers! There is so much to the background of how the society runs and functions and it is an honor to be a part of it, and to work with all those involved.

Any personal notes want to mention?

The OSRT has given me the opportunity to meet and work with some of the most amazing people in this field, not only from a profession standpoint, but on a personal level. We really have a lot of fun and laughter! I am grateful for each experience I have had and encourage those technologists, educators and students who are not members to join the society. For those who are members, and are not as involved as they'd like, to please reach out to us any time if you have any questions on how to get more involved!



Student Spot!



Student Cardinal Rays



GOODBYE SUMMER, HELLO FALL!

I hope you are all enjoying these last few weeks of summer (although it has either been insanely hot or torrential down pours where I live)! Here's my little personal update. This summer I had one of the hardest semesters of my college career. From taking an extra elective math class, my radiology courses, and being 4 days at the hospital for clinical, I would say my summer has been pretty busy. The first week of August was one of the most stressful weeks this summer. I was preparing for my first-year final exam which tests me over all of the information that I have learned so far in my X-ray program at Kent Salem. This test determines whether you get to stay in the program or get dismissed. Surprisingly, I was very calm leading up to the exam. Thankfully I did well and passed! Passing that exam alleviated so much weight off my shoulders.

From a student standpoint, I am sure you all know what fall means...back to school. First year students at this point might have just finished their first summer semester of their Radiology programs and are preparing for more information in the fall. I think it is important that program directors and professors educate their students on the benefits of the OSRT, and all the great opportunities student memberships have to offer.

One of the easiest ways for students to start getting involved once they become members is for them to interact with the OSRT social media accounts. This should be a fairly easy task for students to do since we live in an age where most content and information found is on many social media platforms. The OSRT has a Facebook, Twitter, and Instagram for people to interact with. Links to these platforms can be found on the last page of Cardinal Rays. As a member of the social media committee, we are really looking forward to what we have planned for National Radiologic Technology Week (NRTW) in November. Our plan involves chances to win prizes, interact with other members, and simply a chance to voice opinions on daily questions throughout the week. Student membership applications should be increasing around this time of year and not just when the time gets closer to Quiz Bowl in the Spring.

I look forward to this upcoming fall semester and I hope to see a lot of you at our upcoming in person Board meeting in September! As always, if you have any questions for me regarding the OSRT, our social media accounts, or even NRTW, please feel free to message me!

Yours Truly,

Marissa

Marissa Yourstowsky
Student Director
student@osrt.org

Rapid Review: Stochastic versus Deterministic Radiation Effects

By Christine Smith, M.S.Ed, R.T.(R)(CT)

Chair, Radiologic Technology and Computed Tomography, Owens Community College

The OSRT will be providing a series in Cardinal Rays to assist you in reviewing and updating your knowledge as a radiographer. This first article is a review of stochastic versus deterministic effects.

Review of Terms;

Signal

- Amount of radiation exposure, light, or electrons used to create a digital image. At the digital detector, this signal is radiation.

Detective quantum efficiency (DQE)

- Measurement of x-ray absorption efficiency.

Direct conversion

- X-rays are converted by the system to an electronic signal.

Indirect conversion

- X-rays are converted by the system to light and then to an electronic signal. When x-rays strike the system, light is emitted. This light then activates another phosphor to emit an electrical signal.

Threshold

- The amount of radiation needed to produce an effect.

Desquamation

- Ulceration or denudation of skin.

Erythema

- Skin reddening.

Epilation

- Hair loss as a result of radiation exposure

SED₅₀

- Skin erythema dose. Threshold dose where 50% of patients will develop skin reddening.

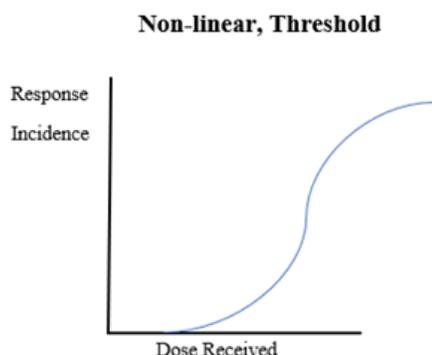
Hematologic Effects

- Depression of the number of blood cells in the body.

As radiographers we learned the acronym, ALARA, to remind us to keep the radiation doses to our patients as low as reasonably achievable. Thanks to digital imaging equipment with higher DQE's, the dose exposures to our patients have decreased significantly (Bushong, p. 216). Modern x-ray equipment with indirect conversion digital detectors can efficiently create an image with lower doses. When a digital detector uses indirect conversion, the detector will emit light when x-rays interact with the phosphor. Light then strikes another phosphor which frees electrons to move in a circuit creating an electrical signal. This electrical signal is used by the computer to create an image (Bushong, p. 205). Each time a conversion occurs, the signal gets stronger, so less x-rays are needed to produce the final image. This is how an indirect conversion digital detector is able to receive less x-rays and still produce an image that is of diagnostic quality for the radiologist to read. This lowers the patient dose and lowers the patient risk of radiation effects.

There are two types of radiation effects that can be a risk to our patients from x-rays. These effects are called stochastic effects and deterministic effects. Deterministic effects occur within a short period of time after an individual is exposed to high doses of radiation. Deterministic effects require a threshold dose to be manifest. The higher the dose above this threshold, the more severe the effect will be. Because radiation exposures are so low in diagnostic x-ray deterministic effects rarely occur. The radiation exposure would have to be higher than the threshold dose for a deterministic effect. For example, patients do not experience erythema after a chest x-ray because radiation exposures for this exam are below the SED50 dose of 5 Cyt (Bushong, p.451). Other deterministic effects that can occur if doses are high enough include desquamation, epilation, and hematologic effects.

A graph to compare the radiation effect to amount of radiation exposure for a deterministic effect will be nonlinear, threshold. The graph is threshold because a specific exposure is needed to produce an effect. The graph is nonlinear because the graph will be a curved shape, not a line.



Stochastic effects usually manifest after low doses over long periods of time. They are sometimes called long term effects or later effects that may manifest years later. Radiation doses can be cumulative which means each exposure can add to the effect of a previous exposure. While deterministic effects will occur if the patient is exposed to a high enough dose, stochastic effects are more random. They may or may not occur. This is referred to as a non-threshold dose which means at any dose a stochastic effect may occur. However, the higher dose and the more exposures that a patient receives, the greater the risk of stochastic effects occurring. Stochastic effects can be manifested as cancers or genetic effects (Bushong, p. 461). For example, if a patient has one chest x-ray in their lifetime there is a very small risk that a cancer will occur. If a patient has 100 chest x-rays their risk of developing cancer increases, but there still is no certainty that cancer will occur. While the risk is very low, stochastic effects can occur in diagnostic x-ray. According to Bushong, “the overall attributable risk for induction of malignancy is approximately 8 cases/100 persons/Sv”. (Bushong, p.470) To reduce the risk of stochastic effects, the number of images taken and the exposure needs to remain as low as possible. Stochastic effects appear on a graph as linear, nonthreshold. Nonthreshold because they can occur at any exposure and linear because the higher the exposure the higher the risk.

While the risk is very low, stochastic effects can occur in diagnostic x-ray. According to Bushong, “the overall attributable risk for induction of malignancy is approximately 8 cases/100 persons/Sv”. (Bushong, p.470) To reduce the risk of stochastic effects, the number of images taken and the exposure needs to remain as low as possible. Stochastic effects appear on a graph as linear, nonthreshold. Nonthreshold because they can occur at any exposure and linear because the higher the exposure the higher the risk.

Linear, Non-threshold



Because the doses utilized in x-rays are very low and below most deterministic threshold doses, deterministic effects rarely occur. Unfortunately, in fluoroscopy, deterministic effects have been seen due to higher exposure times in interventional and cardiac catheterization examinations. (Bushong, 462). While these occurrences have been rare, care must be taken to keep the exposures as low as possible by tracking and reducing the amount of exposure time and increasing the distance between the fluoroscopic tube and the patient. Because x-rays are low exposures and patients may receive multiple exams over their lifetime, stochastic effects can occur. To avoid the risk of deterministic and stochastic effects, keep your technical factors low and minimize the number of exposures taken.

Bushong, S.C. (2021). Radiologic science for technologists: physics, biology, and protection (12th ed). St. Louis, Mo: Mosby/Elsevier



Christine Smith is a Professor and Chair of the Radiologic Technology program at Owens Community College in Perrysburg, Ohio. She holds a Master's degree in education from Capella University. Christine has taught lecture, laboratory, and clinical courses for the past 27 years. She also worked as a staff technologist for 20 years. She is a past recipient of the NISOD excellence in teaching award. She has taught a variety of lectures, but especially enjoys teaching radiologic physics and sectional anatomy. She is credentialed in both Radiography and Computed Tomography. She also serves as a Quality Matters Peer Reviewer for online courses.

Words of Wisdom: Advice for New Technologists

By Lauren Huffman, M.A.Ed., R.T.(R)(CT)
Cardinal Rays Editor

I recently asked the educators in Ohio to provide me with some advice to pass along to new graduates who are now beginning their journey as technologists. This is the second installment of "Words of Wisdom". Please enjoy!



Choose your mentors and role-models wisely. Pick those that provide excellent patient care and imaging while still upholding professional ethics and standards. Also, say yes! When you're given opportunities for new experiences or responsibilities, say yes when possible, and when you say yes honor your commitment. You'll likely get more than you give and it may be just what you need to move forward.

- **Tracy Herrmann, PhD, RT(R), FAEIRS**
Associate Dean of Academic Affairs,
University of Cincinnati Blue Ash College

1. Customers are the first order of business – generally our patients!
Make patient satisfaction your #1 goal.
2. The health and safety of all workers is a major priority –“You have to take care, to give great care!”
3. Strive to get 6-8 hours of sleep each night before you work.
4. Be a kind and understanding co-worker.
5. Each day, compliment a colleague outside of your department.
6. Arrive to work early!
7. Ask clarifying questions –especially to the supervising Radiologist.
8. Be a quality improvement ambassador!
9. Volunteer for any projects or hospital committees that are offered.
10. [last but not least] Prioritize your own continuing education.



- **Kevin D. Evans, PhD, RT(R) (M) (BD), RDMS, RVS, FSDMS, FAIUM**
Professor
Division Director, Radiologic Sciences & Respiratory Therapy



Put your patient first. Let your actions during a procedure reflect care, compassion and safety for the patient. Do what is right, know what is wrong, accept what is different. Be confident in your skills so that you are not afraid to try something new.

- **Judy Miller, BRIT, R.T.(R)(CT)**
Clinical Coordinator, Kent State University Salem Campus

Words of Wisdom: Advice for New Technologists



Be open to change, whether it be working in a new environment, working with those who are different from you, accepting an alternate shift, or pursuing a different modality, any of which will lead to new experiences that will enrich your life and professional career.

Radiology is a small community so as they say, "Don't burn your bridges". Speak kind words about previous places you have worked and the people you have worked with. Take the high road. When confronted with a situation, always take the path that elevates you to the person you strive to be. Better to be thought of as a kind person who does the right thing.

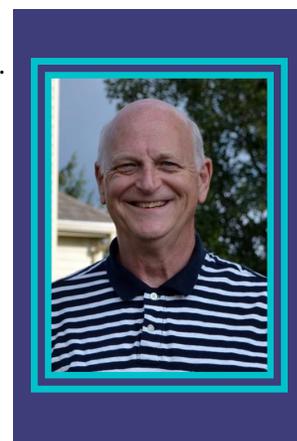
- Jan Gibson, M.Ed., R.T.(R)

Senior Program Director, Radiology Programs
Kent State University Salem Campus

Congratulations on successfully closing another chapter in "Your Story Book". As the next chapter begins, be assured that it too will be full of emotional & physical victories & challenges to be enjoyed and conquered. Some characters will change and fade from the story. While others will continue for awhile longer. As the "main character", keep developing by continuing to seek wisdom by adding breath and depth of knowledge to your foundation as you serve the human race with love, dignity and respect. Utilize the technology skills you have obtained in this latest chapter to fulfill this mission. Enjoy this "new chapter" of undetermined length by enjoying each day and maximizing each opportunity for character development as it comes.

-Ken Ollish MS, RT (R)

Program Director, Central Ohio Technical College



I want to congratulate all the new Radiology Technologists that are ready to take that walk across the stage. This journey you are about to embark upon will be a journey of thrills and discovery. You will learn the different diseases, fractures and complications that show up on the x-rays. Always remember to ask questions and to keep learning. Knowledge is the best thing in life the more you learn the more you will grow as a person, as a technologist and as a team member. Radiology is changing all the time. I've seen the different phases of Radiology from dipping the film in the chemicals to digital. It is fascinating to see the difference. I look forward to seeing the next phase in radiology. To all of the students try to learn from the older technologists, they may seem like they are behind the times but they still can teach you a trick or two. You will have a patient that will be hard to get that one view to finish your exam this is were the older techs can show you how to get that view by thinking out of the box. Never ignore the advice remember someday you will be the older tech. Now go out into the world and make your mark, learn, and teach whenever possible. Best of luck to all of you in Radiology and in life.

- Jo Ellen Johnson BS, R.T.(R)



Words of Wisdom: Advice for New Technologists

- An extremely important skill is good communication; not just verbal communication, but also written communication. Being able to communicate with all members of the healthcare team is essential to aid in patient diagnosis. In addition, the ability to communicate with the patient and their family and/or friends is equally important. Proper written documentation is also extremely important as the radiologists require a patient history that is accurate and detailed.
- You learned the Code of Ethics as a student, and you will live it each day as an imaging professional. Ethical behavior means that you are honest and have integrity, in and out of the workplace, and in every part of your medical institution. You are the face of every other imaging professional as you represent each of us.
- As a student you were challenged to think outside the box. Now is the time to use that knowledge and experience to obtain the best images for an accurate diagnosis of your patient. From routine diagnostic images, to patients who are physically challenging, it's up to you to step up and always deliver the highest quality images possible.
- Strike a balance between becoming independent and knowing when to ask for help. Everyone needs help sometimes, no matter how experienced. Realize that everyone makes mistakes at times, but it's how you learn from them that counts.
- Find a mentor that you admire and ask that person for advice. Don't feel that you should know everything as a new graduate. You'll continue to gain knowledge as you have more experience as a technologist. Also, you can be a mentor for other students, and don't ever forget what it's like to be a student.
- Become a valuable member of the healthcare team. Be the person who is relied on to be there, not just on time, but early. Offer to help others when you have free time. Remember that imaging is a small community and your personal reputation is important.
- Practice good body mechanics. We don't stay young forever, and proper body mechanics can help you avoid muscle fatigue and injuries. Even small injuries can catch up to you over time.
- Interpersonal skills go a step beyond patient care skills. You will be interacting with people who are often having one of the worst days of their lives. It's your job to make them feel comfortable and safe by projecting a calm and caring presence.
- And finally....enjoy your career! You have spent years getting to this point, so remember to smile and take joy in being a caregiver.

Faculty from Cleveland Clinic School of Diagnostic Imaging

Kevin McDermott, MEd, RT(R)

Kim Saghy, BA, RT(R)(MR)(CT)

Barb Fertig, BS, RT(R)

Gloria Albrecht, MS, RT(R)

Halley Majersky, BA, RT(R)(M)(CT)





Foundation Corner

Greetings from the OSRTERF board of directors!

As I write this section of our newsletter for the September/October edition, the sound of college game day is in the background. Football season is here and another busy autumn season is approaching quickly. As the days become shorter with dark coming earlier in the day, the OSRT's hard-working and dedicated volunteers are working hard and preparing for another great year. As mentioned in the last edition of Cardinal Rays, the OSRTERF board of directors met in August and had a very productive meeting. After much discussion and sincere thought, we have decided to suspend the poster and essay competitions for the 2021 Annual Meeting. We will still be accepting and awarding grants as well as revamping and presenting new and improved Case Study presentation guidelines. The board is meeting again in late October and plans to have the new guidelines posted on the OSRT website shortly after.

We ask our program directors and faculty to communicate these changes with your students and encourage them to apply. We are very excited about this new case study presentation opportunity for our students and really feel that it will be a great learning experience and opportunity. Stay tuned for more updates sent through the OSRT email and posted on our website!

Again, we always welcome suggestions from our programs on what we can do, as the OSRTERF, to better support our students. Please send any comments or suggestions you may have to myself at reese.2234@mail.cotc.edu Thank you in advance! Have a lovely start of this beautiful fall season!

A handwritten signature in black ink that reads 'Whitney Reese'.

OSRTERF Chairperson

OSRTERF Board of Directors

Whitney Reese, Chairperson
Deb O'Mellan, Vice-chairperson
Sheryl Bacon – Secretary
Terri Bruckner – Director
Faith Todd – Director
Ellen Johnson – Director
Jessica Bates – Director
Jay Ball – Director
Judy Miller – OSRT Board Liaison

Share your Expertise!



The OSRT Annual Meeting chairpersons are now accepting presentation proposals for the 2022 OSRT Annual Meeting, so please consider sharing your expertise with meeting attendees. At this time we are planning for an in-person event, April 7-9 at the DoubleTree Columbus-Worthington.

To submit a presentation proposal please email the following information to osrt@osrt.org by no later than October 1, 2021:

- name, academic credentials, and professional certification(s),
- email address,
- title of presentation,
- presentation outline, and
- four learning outcomes.

Last Call!

Notification of acceptance status will be emailed no later than October 15, 2021 once all proposals have been reviewed. Please feel free to share this announcement with your professional colleagues!



FREE CONTINUING EDUCATION CREDITS!



The CARES committee has released six **FREE** modules related to patient gonadal and fetal shielding in Radiology. The modules, which range from 15 to 25 minutes, are available to all medical imaging personnel and are approved for Category A CE.

For more information and to access the modules, go to the [CARES Modules webpage on the AEIRS website](#).

Leadership Academy

The OSRT will be hosting the next Leadership Academy in Spring 2022! More information about the Academy and the application process will be in the next issue of Cardinal Rays and posted to the [Leadership Academy page on the OSRT website](#). If you are interested and have questions please contact the OSRT Executive Secretary.

New email, phone, or address?

If your contact information has changed, especially your email address, please update your member profile. Simply log into your account and under the "Members Menu" select "Edit My Profile". Or send your new information to the OSRT Executive Secretary who can update your profile information for you.

Get ready for some fun during NRTW!

The Social Media committee has been busy preparing to celebrate National Radiologic Technology Week. NRTW 2021 is November 7-13 and will be here before we know it! This year, expect daily contests and fun, interactive posts to get you thinking about our profession. In the meantime, start working on those selfie faces!

Don't forget - anyone can participate, but to be eligible for prizes you must like/follow the OSRT on social media AND be an active or student member. Not a member yet? What are you waiting for? Go to www.osrt.org/membership and join today!



ASRT Officer and Chapter Delegates... Nominations Open

Do you know an ASRT member that would enjoy being involved. Maybe that someone is you? Nominations are now open until October 1 for the ASRT Board of Directors and ASRT Chapter Delegates. More information and eligibility requirements can be found on the [ASRT Election page](#).



Applications for the 2022 ASRT Student Leadership Development Program (SLDP) will be accepted from July 1 - September 30, 2021. The SLDP has recently undergone some changes and the deadline to submit an application is early than in previous years. Selected students will participate in the 3-year program and learn valuable leadership skills with the ASRT and OSRT, attend the ASRT Annual Governance and House of Delegates Meeting (June 23 - 26, 2022), and have great networking opportunities. More details from the OSRT will be emailed to educators and students soon.

To be eligible, students must:

- Be currently enrolled in an accredited medical imaging or radiation therapy program,
- Be a current ASRT student member,
- Be a current OSRT student member,
- Complete the application and essay,
- Include a signed letter of recommendation from your program director.

[Click here for more information on the SLDP.](#)

ARRT Call for Comments

The ARRT is seeking public comments for proposed changes to documents in Computed Tomography and Registered Radiologist Assistant. **Comments are due by October 1, 2021.**

[Computed Tomography proposed changes can be viewed here.](#)

[Registered Radiologist Assistant proposed changes can be viewed here.](#)

SAVE THE DATE

2022 OSRT Annual Meeting

April 7-9

DoubleTree Columbus Worthington

We can't wait to see you there!

Presentation proposals are now being accepted for the 2022 Annual Meeting. Presentations should represent material in one of the following areas:

- Student Preparation for the ARRT Exam
- Professional Advancement
- Advanced Imaging Modalities
- Patient Care and Communication
- Ethical and Legal Issues
- Pathology
- Human Diversity
- Technology Advancement
- Clinical Skill Enhancement
- Teaching and Learning
- Digital Imaging

Proposals should include session title, description, 3-5 goals/objectives.

Submit your proposal no later than October 1, 2021 to the [OSRT Executive Secretary](#).

GET SOCIAL!

Click on the icons for the OSRT social media pages



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OSRT VISION

The OSRT will be the voice of Ohio medical imaging and radiologic science professionals.

OSRT MISSION

The OSRT advocates for medical imaging and radiologic science professionals by advancing professional practice to enhance the quality of patient care.

Letter from the Editor

Thank you for taking the time to read this issue of Cardinal Rays! If there is something you want to read about please let me know.

If you would like to write a Rapid Review or another article please contact me. Let's get you featured as a writer!

Namaste,

Lauren Huffman

Cardinal Rays Editor

