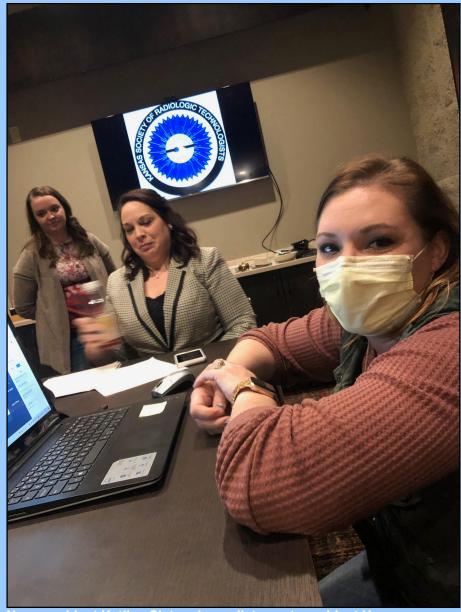


The Rotating Anode SPRING 2021



New president Katilyn Slaton, immediate past president Harmony Ibarra, and outgoing education chair Megan Rucker were part of the board of directors in Lawrence to facilitate the virtual convention.

Board of Directors 2
Committees 2
President Letter 3
Executive Committee
Minutes 3
vMinutes
3-6
Competition Results 6
Radiation and Its
Effects 7-9
Scholarship
Application 9-10
KSRT Application 11

KSRT BOARD OF DIRECTORS

Chair of the Board Ronda Sunnenberg, RT(R) rsunnenberg@nemvch.org

President Katilyn Slaton, BS, RT(R)(MR)(CT) slatonk8@gmail.com

Past President Harmony Ibarra, RT(R)(CT) hiradct@gmail.com

President-Elect Gale Brown, EdS, RT(R)(CT) galeb@labette.edu

Vice President Alexa Ritter, RT(R)(CT) ajritter@mail.fhsu.edu **Secretary-Treasurer** Jason Elliott, MHA, CRA, RT(R)(CT) jason.elliott@cleveland.edu

Director at Large Lisa Eddy, RT(R) Imeddy04@yahoo.com

Education Co-Chairs Harmony Ibarra, RT(R)(CT) hiradct@gmail.com Becky Dodge, MET, BA, RT(R)(T) becky.dodge@washburn.edu

Professional Development Chair Tara Rohn, BS, RT(R)(CT)(MR) tkrohn@fhsu.edu ASRT Senior Delegate Denise Orth, MS, RT(R)(M) ksrt.exsec@gmail.com

Area Representative, West Kelly Denton, RT(R)(M) dentonkellyann@gmail.com

Area Representative, East Ronda Sunnenberg, RT(R) rsunnenberg@nemvch.org

Area Representative, Central Kyle Ibarra, RT(R)(MR) ibarrakb@gmail.com

Student Representative Vacant

KSRT COMMITTEE CHAIRS AND APPOINTMENTS

Bylaws

Harmony Ibarra, RT(R)(CT) hiradct@gmail.com

Fellows Denise Orth, MS, RT(R)(M) ksrt.exsec@gmail.com

Legislative Toni Caldwell, BA, RT(R) mmcaldwell@aol.com

Membership Alexa Ritter ajritter@mail.fhsu.edu

Profess. Development Vice Chair Katilyn Slaton, BS, RT (R)(MR)(CT) slatonk8@gmail.com **Social Media Coordinator** Susan Dumler, MS, RT(R)(M)(CT) (MR) skdumler@gmail.com

Social Media Co-Coordinator Toni Caldwell, BA, RT(R) mmcaldwell@aol.com

Nominations Vacant

Scholarship Melinda Chiroy, RT(R)(T)(CT) melindachiroy@yahoo.com

Historian Kyle Ibarra, RT(R)(MR) ibarrakb@gmail.com Editor, *The Rotating Anode* Jen Smith, BSJ, BS, RT(R)(M)(CT) jen.smith.rtr@gmail.com

Executive Secretary Denise Orth, MS, RT(R)(M) ksrt.exsec@gmail.com

Student Interns Vacant

Editor: Jen Smith BSJ, BS, RT(R)(M)(CT) Interested in contributing to the *Anode*? Contact: Jen Smith Email: jen.smith.rtr@gmail.com (Please put *Anode* in the subject line)

Official Publication of the Kansas Society of Radiologic Technologists Denise Orth, Executive Secretary 1702 Mermis Ct. Hays, KS 67601

LETTER FROM THE PRESIDENT

Dear KSRT members,

First, I would like to say thank you to those of you that joined us for the first virtual annual meeting and convention March 26-27. It was a mission for KSRT to provide continuing education opportunities for you after having to adapt to the pandemic. Your feedback will help us know what went well and what we can improve on in the future. I am honored to be the KSRT president for 2021-22, and during the next year I hope to try to connect and bring us together more often, whether that is in a virtual or in-person capacity. Depending on gathering restrictions during the next year, KSRT hopes to do A Day on the Hill in Topeka to speak with representatives about our profession, as well as an in-person convention in the spring. More details on both

of these events will be announced later. As a reminder, KSRT is always looking for active members to volunteer to be on committees to help plan our events. If you are interested in joining a committee you can contact me at slatonk8@ gmail.com.

Sincerely,

Katilyn Slaton, RT(R)(MR)(CT) KSRT president

EXECUTIVE COMMITTEE MINUTES

10 a.m. Jan 9 Via Zoom

Members present: Toni Caldwell, chair of the board; Ronda Sunnenberg, immediate past president; Harmony Ibarra, president; Denise Orth, executive secretary.

Call to order: The meeting was called to order at 10:04 a.m. **Quorum:** Denise confirmed a quorum was present.

Approval of minutes: Ronda moved to accept the minutes as published. Harmony seconded the motion. Motion passed.

Financial report: Denise presented the financial report through Jan. 3. The report showed income of \$10,331.78 and expenses of \$9,601.51. The net worth report showed a checking account balance of \$12,272.14 and certificates of deposit worth \$44,563.11 for a total net worth of \$56,835.25. Harmony moved to accept the financial report as presented. Ronda seconded the motion. Motion passed.

Old business:

Legislative update: The updated language in the licensure bill will take out the grandfather clause, put in limited scope x-ray and registered radiologist assistant, and update the temporary permit. The Kansas Legislature is focused on COVID-19 this session, and other things are farther down on the list of priorities. 1861 Consulting is monitoring legislation for the society. The current monitoring contract has expired and Toni asked if she could get a new contract. Physical therapists are encroaching on the radiology licensure bill because they want to order exams. They want to expand their responsibilities to order, interpret, etc. She discussed this in her report.

New business:

Proposed budget: The 2021-22 proposed budget was discussed; it will be presented in at the full board meeting. **Announcements:** None.

Adjournment: Harmony moved to adjourn the meeting and Ronda seconded the motion. Motion passed. Meeting adjourned at 10:28 a.m.

BOARD OF DIRECTORS MEETING MINUTES

10 a.m. Jan 9 Via Zoom

Voting members present: Harmony Ibarra, president; Toni Caldwell, chair of the board and legislative chair; Ronda Sunnenberg, immediate past president; Katilyn Slaton, president-elect and professional develoment chair; Jen Smith, secretary-treasurer and editor of *The Rotating Anode*; Megan Rucker, education chair; Denise Orth, ASRT senior delegate and executive secretary; Kelly Denton, western area representative; Lauren Whittington, student representative.

Non-voting members present: Susan Dumler, professional development vice chair; Melinda Chiroy, scholarship chair; Kyle Ibarra, nominations co-chair.

Call to order: Harmony called the meeting to order at 10:31 a.m.

Quorum: Denise established a quorum.

Approval of minutes: Megan moved to accept the minutes as published, Toni seconded the motion. Minutes approved without changes.

Consent agenda: Toni moved to accept the consent agenda as published, Katilyn seconded the motion. Motion passed.

Items on the consent agenda:

President: Harmony signed the ASRT Affiliate Development Program agreement addendum and returned it. She also has submitted Affiliate

Continued on Page 4

Continued from Page 3

Delegate information for the ASRT House of Delegates.

President-elect: Katilyn was chosen as the president-elect during the virtual annual meeting in October. She filled out the ASRT Alternate Delegate form and submitted supporting documents.

Immediate past president: Ronda sent the final report for the ASRT Affiliate Development Program. She will start reviewing vendors for the annual conference after the January board meeting.

Secretary-treasurer: Jen kept the minutes from the annual business meeting in October as well as the board meeting immediately after. She prepared the consent agenda and meeting agenda for the January meeting, and she submitted information as an alternate affiliate delegate for ASRT House of Delegates.

Director at large: Nothing to report.

Professional development: Katilyn mailed out 2021 competition deadlines to schools and currently is looking for another person or two to take over Professional Development once she becomes president in March. Professional Development Vice Chair Susan Dumler also would like to step down from that role.

West area representative: On Oct. 14, Kelly had a Zoom meeting with Pioneer Health that included many radiology managers in western Kansas. There was a presentation by SMS Shared Mobile MRI about the western Kansas route and efficiency. Dr. Irani Neville of HQUIP gave a presentation about services being offered to rural hospitals. Other discussions included new services and equipment at area facilities, staffing challenges, COVID updates, and state and Joint Commission inspections. Kelly also gave an update from the KSRT annual meeting. In December, Kelly emailed the new radiology manager at Stanton County Hospital to introduce herself and invite her to the western area Zoom meeting on Jan. 20.

Legislative: Since the last meeting,

MEMORIAL DONATION

Kelly Denton informed the board of directors that Roger Lynch, husband of longtime KSRT member and board of directors member Judy Lynch, died Jan. 21. Denise Orth said it would be appropriate for the society to make send a memorial in his honor.

Megan Rucker moved that the board make a contribution of \$50 to the Hugoton High School FFA in his memory, Katilyn Slaton seconded. The motion passed unanimously in an email vote.

Toni has worked on items for the silent auction at the annual convention, monitored the atmosphere in Kansas Legislature, met with 1861 Consulting about legislative issues, worked with ASRT on statute changes, corresponded with the CRTA for regional updates, kept Facebook up to date, and attended two virtual meetings with KSBHA on updates. She soon will contact the ARRT about the legislative changes we are proposing.

Bylaws: Because of COVID there were no bylaw changes.

Rotating Anode editor: The fall issue was published online and 30 hard copies were mailed out in November. Deadline for the next issue of the Anode will be Jan. 31 to ensure it gets published ahead of the annual conference in March.

Other reports:

ASRT senior delegate: Denise has sent in all documentation for the 2021 ASRT House of Delegates. *(Editor's note: The 2021 House of Delegates Meeting since has been converted to a virtual meeting.)*

Education/social media: Megan has maintained the society social media, updated the convention rules, and opened up hotel registration information. Feb. 25 was the deadline to book a room under the convention room block.

Financial report: Denise presented the financial report through Jan. 3. The report showed income of \$10,331.78 and expenses of \$9,601.51. The net worth report showed a checking account balance of \$12,272.14 and certificates of deposit worth \$44,563.11 for a total net worth of \$56,835.25. Toni moved to accept the financial report. Jen seconded the motion. Motion passed.

Old business

Affiliate Development Program: Member/volunteer recruitment

drive: Harmony discussed the program and information which was sent from ASRT. Katilyn, Jen and Harmony will work on a membership flyer. Potential items on the flyer include reasons to be a member, benefits, information about the profession, etc. Megan talked with people who were upset about the state's enforcement of continuing education requirements during the last licensure renewal period and that the society is not supporting technologists. We need to explain how we are representing all technologists in Kansas.

Marketing/social media: Harmony set up a committee including Toni, Lauren, Jen, Susan and Harmony. The society needs to have a brand that is intentional and portrays our image. The brand should show respect for the profession, history facts, and put our logo on images posted to social media. There should be one person who will approve information that committees want posted on social media. There is potential for social media coordinator to be a voting board member (currently it is not). The society needs to develop procedures so the brand is always used correctly. Discussion at the next board meeting will include potentially putting social media coordinator duties under the editor of The Rotating Anode.

Web conferencing: The society is looking at collaborating with other societies to provide continuing education offerings. Denise will follow up and report back.

Hardware/software purchasing:

Denise will contact other societies to see what they are using. Harmony and Denise will work on the financial assistance application to send to the ASRT.

Leadership Academy modules: Harmony will talk with Paul Marino at ASRT. Board members who plan to take the modules include Harmony, Toni and Denise.

Website: The board discussed the website proposal from QueenBee. Harmony has reached out to Solutio, who the Nebraska Society of Radiologic Technologists is using. Harmony thought we could have someone build it and then a society person maintain the site. Susan thought we could stay within the \$5,000 with that type of process. Megan mentioned having someone work with Weebly to update the site and then have us maintain the site. Katilyn will reach out to someone she knows. All will report back at next board meeting.

2021 Convention: Lawrence is limiting group size to 10 people at this time. Kyle mentioned have a live board meeting, have speakers live stream continuing education talks, and send out CE certificates afterward. ASRT is suggesting using Zoom for this type of setup. Megan discussed having people fill a survey after convention as proof of attendance at the lectures. Katilyn looked at the Nebraska Society of Radiologic Technologists for scientific exhibits and they had electronic submissions. The business meeting will be 7 p.m. March 25 with a free CEU following. Voting during the meeting will utilize the Zoom poll feature.

Hotel contract: The society is obligated to spend \$1,000 for food and beverage. But with the limitation on gathering size, Megan will talk with the hotel representative to discuss how we can meet or change the contract.

Registration fees: Denise moved that the society set convention registration fees for technologists at \$50 and students at \$25. Megan seconded the motion. Motion passed. The convention will be held virtually because of the Douglas County ordinance for restricting the size of group meetings.

Service project: The option for the service project this year is a monetary donation or to send a donation through an Amazon link for the Lawrence Humane Society. The board will give a goodie basket to Lawrence Memorial Hospital Imaging Department to show our support for their efforts. Toni moved that the service project support the Lawrence Humane Society and LMH Imaging Department. Denise seconded the motion. Motion passed.

Board recommendations: None except the proposed budget.

Nominations: There is a technologist who is interested in being active on the board and Kyle will follow up with them. Positions to fill are president-elect, vice president, director at large, and secretary-treasurer along with committee chairs.

New business

Legislative report: Toni sent the proposed changes on the licensure bill to the board. The ASRT is willing to provide money to assist the KSRT in updating the licensure bill. Toni and Denise attended the Board of Healing Arts meetings via Zoom. They are not making changes to the temporary permit and if we wanted to make changes for students we would have to pay for it. CRTA Region 4 suggestions were given to Toni and Denise to increase KSRT input with the board of healing arts.

1861 lobbying contract: Toni moved to continue the monitoring contract at a monthly fee of \$600 and expenses not to exceed \$500 from Dec. 1, 2020, through May 31, 2021. Kelly seconded the motion. Motion passed.

Proposed budget: Toni moved that the board approve the proposed budget for 2021-20. Megan seconded the motion. Motion passed.

Announcements: Megan is resigning from her positions on the board effective at the end of convention in March.

Deadline for the next issue of *The Rotating Anode* was Jan. 31.

The preconvention board meet-

ing will be at 7 p.m. March 24 via Zoom.

Adjournment: Toni moved to adjourn the meeting, Katilyn seconded the motion. Meeting adjourned at 2:47 p.m.

7 p.m. Feb. 2 Via Zoom

Call to order: President Harmony Ibarra called the meeting to order at 7:09 p.m.

Quorum: Jen Smith established a quorum.

Voting members present: Harmony Ibarra, president; Ronda Sunnenberg, immediate past president; Toni Caldwell, chair of the board and legislative chair; Katilyn Slaton, president-elect and professional development chair; Jen Smith, secretary-treasurer and editor of *The Rotating Anode*; Megan Rucker, education chair; Denise Orth, ASRT senior delegate and executive secretary; Kelly Denton, western area representative; Lauren Whittington, student representative.

Non-voting members present: Kyle Ibarra, nominations co-chair.

Old business:

Website proposal: Katilyn presented a website design proposal from JByron Marketing. Monthly cost for hosting and maintenance would be \$145, and the cost for initial design and setup and branding would be \$5,000. The board discussed the specifics of the proposal, especially what services the monthly fee covers. Megan raised concerns about declining membership in the society and whether we would have the cash flow in a few years to cover the monthly fee. Katilyn will contact JByron Marketing for clarification on some points. Toni will reach out to someone she knows for another proposal. The board decided to table the discussion until the March pre-convention board meeting.

Adjournment: Ronda moved to adjourn the meeting, Megan seconded. The meeting was adjourned at 8:11 p.m.

2021 KSRT Competition Results

Essays

First place: Radiation and Its Effects from Conception to Adulthood by Audrey Fortner, Washburn Second place: Thoracic Dual-Energy Subtraction Radiography by Shelby Mitchell, Washburn Third place: Radiation Discoveries Leading to Changes in Radiation Protection Standards by Kate Strahm, Washburn

Scientific Exhibits

First place: Appendicitis: CT vs Ultrasound, Shannon Zeller, Washburn

Second place: Salter-Harris Fracture Classification System, Rachel Bloom, Washburn

Third place: Coronavirus in a Chest X-Ray, Rayme Butts, Washburn

Scaphoid View Wrist Radiograph First place: Sydney Koirth, Fort Hays Second place: Makayla Kuhlman, Washburn Third place: Quillen Griffin, Washburn

Lateral Forearm Radiograph First place: Sydney Wright, Fort Hays Second place: Sydney Koirth, Fort Hays Third place: Magdalena Bott, Washburn

Cross-Table Lateral Hip Radiograph First place: Rachel Bloom, Washburn Second place: Sydney Wright, Fort Hays Third place: Sydney Koirth, Fort Hays

Contrast Lateral Esophagus Radiograph First place: Sara Teeter, Fort Hays Second place: Sydney Koirth, Fort Hays

Most Interesting Case Radiograph Winging Scapula, Maria Payne, Labette

Continued from Page 5

7 p.m. Feb. 16 Via Zoom

Call to order: Harmony Ibarra called the meeting to order at 7:01 p.m.

Quorum: Jen Smith established a quorum.

Voting members present: Harmony Ibarra, president; Toni Caldwell, chair of the board and legislative chair; Katilyn Slaton, president-elect and professional development chair; Jen Smith, secretary-treasurer and editor of *The Rotating Anode*; Megan Rucker, education chair and social media coordinator; Denise Orth, ASRT senior delegate and executive secretary; Lauren Whittington, student representative.

Non-voting members present: Joe Oller, MoSRT webmaster; Kyle Ibarra, nominations co-chair.

Old business:

Website: Joe Oller of the Missouri Society of Radiologic Technologists discussed that society's website. They use Squarespace, which costs \$192 per year for site hosting. They also use Member Planet for membership services, and Member Planet might offer website hosting in the future. If they do, MoSRT might switch to that service. He demonstrated some of the capabilities of both Squarespace and Member Planet and showed off the back end of the MoSRT's website. After he left the Zoom call, the board discussed some options Weebly offers that we just haven't utilized. The board will work on scheduling a Member Planet demonstration.

Virtual CEU presentations: Megan presented information about using Zoom for virtual CEUs. Per the ASRT, registration for the CEUs must be done in advance, the society must monitor participant attendance during the presentation, and a survey must be administered afterward to receive credit.

Adjournment: Denise moved to adjourn the meeting, Toni seconded. Meeting adjourned at 8:46 p.m.

RADIATION AND ITS EFFECTS FROM CONCEPTION TO ADULTHOOD

By Audrey Fortner, Washburn University First-place essay

Abstract

In this research paper I covered radiation along with the varying types of radiation and how it affected people at differing ages and differing body habitus. I found out through my research and previous knowledge that radiation has a much larger effect on younger people than it does older people. Following safety precautions at all times is extremely important not only to lower patient dose but also to protect the patient from potential early or late effects of radiation. Radiation is all around us, so there is no way to fully protect ourselves from it, but there are definitely ways to reduce the overall dose to the body no matter what age or size you are.

Radiation affects all people differently depending on where they are in their lifespan, as well as what type of body habitus they have. Lifespan development begins at conception and goes all the way through adulthood. There are eight main periods of development, but the majority of the time these eight periods get condensed down into five main stages: prenatal, infant and toddler, early and middle childhood, adolescence, and early, middle and late adulthood. This paper will give in-depth explanations of different types of radiation and how radiation affects people of all ages and varying sizes.

People come in different shapes and sizes, which make up their body habitus. Age can play a huge factor in a patient's body habitus, but it does not define it. There are four different types of body habitus which includes asthenic, sthenic, hyposthenic and hypersthenic. An asthenic patient's body build is frail, sthenic is average, hyposthenic is in between asthenic and sthenic and, lastly, hypersthenic is massive. These varying body habituses help the technologist decide what techniques need to be set when obtaining radiographs. A technologist would not use the same factors for both an infant and a 400-pound patient. The infant

would receive an excessive amount of radiation as well as an unacceptable image, resulting in overexposure and then a repeat exposure.

Electromagnetic radiation is all around us, and it includes different types of waves that are part of the electromagnetic spectrum. From lowest energy to highest, these waves are radio waves, microwaves, infrared, visible light, ultraviolet, x-rays, and gamma rays. Infrared radiation can be felt and visible light can be seen, but the other waves on the spectrum pass right through the body, such as x-rays.

Radiation can affect the body either by somatic effects or genetic effects. Somatic effects can be either early or late effects of the organ system and tissues. Early effects can appear within minutes, hours, days or weeks. An extremely high amount of radiation would be needed to cause such a fast reaction. A technologist taking x-rays would not cause an early reaction; something such as a nuclear bomb would be a cause of an early reaction. Some effects of high doses of radiation include nausea, fatique, blood disorders, temporary or permanent sterility in males or females, and loss of hair. Late effects of radiation can appear months or years after exposure. Continuous radiation exposure over time can cause these effects. Cataract formation, fibrosis, organ atrophy, loss of parenchymal cells, and sterility are some examples of late effects. Sources of this kind of radiation exposure include getting x-rays, background radiation, and employment-related exposures in medicine (Statkiewicz-Sherer, 2018, pg.163).

There are two sources in which one may come in contact with radiation – external exposure or internal exposure. External exposure is what people are usually most familiar with. It means receiving radiation from radioactive materials found in the ground, suspended in the air, attached to clothes, or on the surface of the body (External Exposure and Skin, 2018, pg.25). This also would include having x-rays taken. Internal exposure is caused by ingesting radioactive material by eating or drinking, inhaling a radioactive material, absorption into the skin, through a wound, and also by radiopharmaceuticals administered for medical treatment.

The first stage in the lifespan of development is the prenatal stage, which is from conception to birth. Pregnant women need to take extra caution when it comes to their environment to ensure they are protecting their fetus from harm. Doses to the fetus tend to be lower because of the mother's surrounding tissue as well as added protection from the uterus. The most common ways pregnant women are exposed to radiation is by a diagnostic medical exam or by an occupational exposure that is within normal limits. "The human embryo and fetus are sensitive to ionizing radiation at doses greater than 0.1 gray (Gy). Depending on the stage of fetal development, the health consequences of exposure at doses greater than 0.5 Gy can be severe, even if such a dose is too low to cause an immediate effect for the mother. The health consequences can include growth restriction, malformations, impaired brain function, and cancer (Radiation and Pregnancy, 2020)."

When looking at the embryo or fetus, it is important to use ultrasound instead of x-rays because x-rays uses ionizing radiation while ultrasound does not. Ultrasound uses high frequency sound waves to visualize soft tissue structures within the body and is harmless to the mother and baby. X-rays uses ionizing radiation which penetrates through the body and can be absorbed. This method can be harmful to the embryo or fetus if too much is used. The first week after conception has occurred is the preimplantation period. During this period, it is especially important to be careful of radiation because this is when there are very few

Continued from Page 7

cells and damage to one could cause the death of the embryo. By this death occurring, it could cause the blastocyst to not implant into the uterus (Radiation and Pregnancy, 2020).

The second stage is the infant and toddler stage, which is from birth to 3 years of age. When infants get x-rays taken, which is from birth to 12 months, technologist must use extra caution and be sure to follow ALARA more closely. ALARA stands for as low as reasonably achievable, and it is used in radiology to be sure patients are not getting more radiation than is needed for an adequate image. X-rays are most often used with infants because of how small their bodies are. CT or fluoroscopy would be a last resort choice of imaging because of the higher amounts of radiation. An infant has a really small body, a low bone density which can cause more absorption of radiation in the body, as well as overexposure, if the technical factors are not set properly. Although the effects of radiation usually do not show up right away because of how small the doses usually are, the effects of the radiation received may show up later in the infant's life and may results in cancer.

Toddlers, defined as ages 1 to 3, are very similar to an infant in how a technologist would care for them. The technologist still would utilize ALARA and be sure the factors are low enough to be safe but also still produce adequate images. From ages 1 to 3 the child is growing quite rapidly. Cells are dividing much faster, which can be life threatening if too much radiation is used.

The third stage is early and middle childhood, with early childhood being from ages 3 to 5 and middle childhood being from ages 6 to 11. Children are at much greater risk for developing cancer than adults. Because children grow much faster, their cells multiply very quickly. If they have been exposed to harmful radiation, those mutated cells will multiply and continue to spread throughout the body, possibly causing cancer.

When it comes to a child getting radiation for medical reasons, provid-

ing them with shielding is extremely important. Because children are more sensitive to radiation and can show effects later in life, the technologist also must be sure to use the correct factors for the child's area of interest. This can avoid unnecessary repeats and will lower the radiation dose. Children should get medical radiation only when it is absolutely needed.

Getting a standard chest x-ray is equal to the amount of background environmental radiation received in 2 to 3 days. A computed tomography (CT) scan of the chest equals hundreds of times the dose of a chest x-ray, and it is roughly equal to the amount of environmental radiation a person normally would get in a couple of years. This is why x-rays always should come first with children instead of a CT scan because of the higher dose (Radiation Exposure, 2020).

To measure the amount of radiation the child receives, the caregiver should keep track of every exam the child receives. Each type of exam – x-ray, fluoroscopy or CT – has a different level of radiation exposure. Those amounts could be totaled and an estimate given. Small amounts of radiation repeated over a long period of time are much safer than getting a single large exposure. Once the radiation is given, there is no way for it to be treated unless cancer develops. Then a patient could get treated solely for the cancer.

The fourth stage is the adolescence stage, which includes ages 12 to 18. When it comes to adolescence and radiation, several studies have been conducted. Teens tend to use cellular devices frequently and the radiation utilized is radiofrequency radiation. This radiation falls between radio waves and microwaves on the electromagnetic spectrum and is non-ionizing. Studies were done to adolescents to see the relationship between radiofrequency and its effects on memory, and they showed that during the course of a year cellular devices had a negative effect on the brain, specifically the right half of the brain where memory is located. The closer the cellular device is to body tissue, the more absorption of that energy. The duration of time spent

Page 8

on the cellular device also plays a role in how much energy is absorbed within the body tissue (Cellular (Cell) Phones, 2020).

The last stage includes, early, middle and late adulthood. Early adulthood is from ages 20 to 40, middle adulthood from ages 40 to 65, and late adulthood is age 65 and older. "As adults age, radiation exposure becomes less of a concern. The body tissues of older patients are less sensitive to the effects of radiation. Diagnostic exams like Computed Tomography (CT) can be important in the diagnosis and treatment of older patients (Does Radiation, 2020)." This is because the cells are not dividing as rapidly as in children, which allows more radiation to be used with less harm done. Adults in late adulthood don't necessarily need shielding from radiation unless they want it. Radiation affects the body a lot less. People in the adulthood stages still run the risk of cancer, tissue reactions, and effects on the organ system. There is just less likelihood of the occurrence as the patient ages.

If a patient has any known additive diseases within the body, then the technologist would need to increase the exposure factors to ensure enough radiation gets through the patient. By raising the exposure factors, the patient now has a higher dose to the body, but this is necessary to get a high-quality image. If the patient has any known destructive diseases within the body then the technologist needs to lower the exposure factors, which then lowers the dose. Additive diseases add matter to the body while destructive diseases take away matter.

Radiation affects younger ages more so than older ages. It has a higher effect on the young because their cells are still rapidly dividing as they grow, and they have smaller bodies. Varying types of electromagnetic radiation have different effects on the body, with radio waves being less harmful and gamma rays being more harmful. All technologists need to follow ALARA principles to ensure patients are not receiving more radiation than necessary for a diagnostic image. Shielding is also a form of protection used when the patient is 65 or younger, or if requested. Radiation is all around us and can become harmful depending on the dosage. Following all of the safety precautions as a patient and following all of the safety precautions as a technologist can further help keep everyone as safe as possible from radiation effects.

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KANSAS SOCIETY OF RADIOLOGIC TECHNOLOGISTS

Scholarship Application Checklist

- Kansas Society of Radiologic Technologists member
 - Scholarship application
 - Essay.
- Students: Official transcript in a sealed envelope and letter of recommendation from clinical instructor or other supervising technologist.
 - Technologist: Copy of ARRT card and letter of recommendation from a radiology technology colleague.
 - All materials should be in one envelope and postmarked by Feb. 1. Mail to: Denise Orth, RT(R)(M), FKSRT KSRT Executive Secretary 1702 Mermis Ct.
 - Hays, KS 67601

Winners will be notified and must attend the Kansas Society of Radiologic Technologists Spring Convention to receive the scholarship.



KANSAS SOCIETY OF RADIOLOGIC TECHNOLOGISTS **Scholarship Application Deadline is Feb. 1**

I. Applicant Certification

I certify that I am a U.S. citizen, U.S. national or U.S. permanent resident, that this application information provided is true and correct to the best of my knowledge. I understand that any false statements made herein will void this application, and I will be ineligible for support from the KSRT Scholarship Fund. I hereby authorize the release of all information contained in this application packet as may be required to determine my eligibility for a scholarship. I hereby waive my rights to review any documents pertaining to my scholarship application once submitted.

Signature of Applicant		Date			
II. KSRT Member I am a member. Years of membership	I am	I am sending in my membership now.			
III. Personal Information					
Mr. Ms. Name					
Last	First	MI			
Mailing Address					
Number/Street (Apt#)	City	State Zip			
E-mail					
Phone ()					
ARRT Certifications ARRT #:					
IV. Educational Information Radiologic Science Program					
Name of Instit	tution	City/State			
Email Address	Phone ()			
Anticipated Graduation date	/	GPA			
Month	Year				
Program Type	Area/Concentration				
• Certificate Program	 Medical Imaging 	 Radiation Therapy 			
• Associate degree program	 Nuclear Medicine 	 Sonography 			
 Bachelor's program 	○ Vascular	• Other			
V. Letter of recommendation					
Name: Position:					
Email address:					

VI. Essay

Please provide a one-page typed essay describing why you deserve this scholarship. For objectivity purposes, do not include any statements that would identify your school/instructors or yourself. The essay shall be 12 point font Arial with single spacing and 1-inch margins.

Applications will not be considered if not complete. Please submit application and transcript to: Denise Orth, KSRT Executive Secretary 1702 Mermis Ct., Hays, KS 67601

APPLICATION FOR MEMBERSHIP

THE KANSAS SOCIETY OF RADIOLOGIC TECHNOLOGISTS

By submitting this form, you are agreeing to abide by the Bylaws of the Kansas Society of Radiologic Technologists. You are also acknowledging the information submitted is correct and accurate. **Dues must accompany this application.**

FULL NAME					
First		Middle Initial	Last		Credentials
Street		City		State	Zip
DOB	Email				
Month Day	Year				_
Phone Number ()	I	Date of application		
Check membership cate	gory.				
Certified by ARI <u>MUST SUBMIT</u>	BER: DUES \$50.00/Ye RT and Member of ASE COPIES OF ARRT A	T and practicing in the <u>ND ASRT CARDS</u>	field of radiologic tech	nology.	
Certified by ARRT a	MEMBER: DUES \$5 nd practicing in the field of ra T CARD MUST BE SU	diologic technology.			
Persons practicing in	MEMBER: DUES \$5 the field of radiologic techno prested in promoting the purpo	logy not certified by the Ame			s and are not registry eligible; e A, Life, Senior or Student
Certified by ARRT a SEND COPIES STUDENT ME	BER: DUES \$25.00/Yo nd 65 years old or more. <i>OF ARRT CARD ANL</i> MBER: (<u>STATUS AP</u> yed school of radiography for	D BIRTH CERTIFICA PLIES TO PRIMARY			S \$25.00/Year
PRESENT EMPLOYME	NT or SCHOOL:				
STUDENTS ONLY: Dat	e of Enrollment		Anticipated Date of Gra	duation	
Continuous Renewal	New applicant	(PLEASE CHECK ONE)			
***Graduate Bridge	Program: Certificate mus Vo	t be returned with membe ulid for primary program		n and dues s	stated on certificate.
The KSRT va	lues our volunteers! V	Which of the following	would you be interest	ed in volur	iteering for?
Circle all that apply:	Committee	Offic	er	Spea	ker
	"The Rotating Ano	de" is available electro	nically for all new men	nbers.	
	ntribute to the Scholar <u>ES NOT</u> qualify as a cl				
		PLEASE RETUR	<u>N TO:</u>		
Pay with P	itive Secretary, KSRT ayPal or make checks 0 CHARGE FOR ALI	money orders payable	e to the KSRT. No par	rtial dues a	

ADDRESS SERVICE REQUESTED

KANSAS SOCIETY OF RADIOLOGIC TECHNOLOGISTS 1702 MERMIS CT. HAYS, KS 67601



Chair of the board Ronda Sunnenberg, outgoing chair of the board Toni Caldwell, and immediate past president Harmony Ibarra were honored with plaques at the spring board of directors meeting.



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