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THE TECHNIGRAM

JOURNAL OF THE CALIFORNIA SOCIETY OF RADIOLOGIC TECHNOLOGISTS

Essentials for skull & facial bone positioning

What is the Big Fuss about Quality Improvement in Radiology?

Academic Integrity in the Digital World

PLUS: President's Message: Being A Mentor

AND: Legislative Update: Fluoroscopy Exemptions on the Horizon

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Cover Photo: CSRT 2018 Spring Seminar at CSU Northridge.
Photo Credit: Jennifer Little, MSRS, RT(R)(CT)(MR)

President's Message: Being A Mentor

By Doris Abrishami, MA, CRT(R)(M), ARRT

My Fellow Radiologic Technologists:

I am so happy to report that another annual CSRT spring seminar took place at Northridge Hospital on March 10th. This year, we were so fortunate to have over 65 attendees who came to network, learn, earn Continuing Education, and spend their Saturday with us. I was thrilled to see so many students from Pasadena City College and Santa Barbara City College attending the seminar. Their attendance in part was to support their classmates' presentations because for the first time in the history of our spring seminars, RT students presented topics such as Radiation protection and history of radiation accidents. When students were presenting, I had the chance to glance at their program directors who were sitting in the back of the room and I could tell they were feeling anxious and proud while looking at their students' presentations. All students did a professional job of presenting and relaying their information to the audience.

After a few hours of reflection after the seminar, I realized how important it is to be a program director in the radiography schools. They may be called program directors or leaders of their program, but they are more than those titles. Peter Northouse (2007, p. 3) defines leadership as "a process whereby an individual influences a group of individuals to achieve a common goal". I believe the program directors do far more than just leading because they have to become role models and mentors to their students as well as teaching and leading them to a successful path. Most program directors wear several hats in one day and accept many important program responsibilities such as teaching, advising, enforcing policies, mentoring, etc…

In his book, "On being a Mentor", W. Brad Johnson provides meaningful and specific methods and guidelines on how to become a mentor and what they can do for students. Johnson provides a great analogy where a student is looking through a one-way mirror into a boardroom where all of his mentors and role models are sitting down and discussing his achievements. Some of the mentoring attributions are as follows (Johnson, 2007):

- Building a rapport
- Empathy
- Respect
- Genuineness
- Ability to offer unbiased constructive criticism, guidance and feedback
- Good listener
- Ability to question, interpret and explain
- Willingness' to assist with problems
- Enthusiastic and interested

If you are a program director, you possess many if not all of these attributions. If you are a student, think about the time when you look through that one-way imaginary boardroom, who do you see sitting at the head of the table cheering for you and bragging about your accomplishments? If you know who that person is, thank them for their efforts because without having a caring mentor, none of us could have accomplished our milestones. •

All the best,

Doris Abrishami

Call for Presenters

The CSRT is seeking presenters for our upcoming **face-to-face seminars**, **live webinars**, and/or **pre-recorded online education**. Share your knowledge with members of The California Society of Radiologic Technologists on topics such as:

- Digital Radiography
- Radiation Therapy
- Fluoroscopy
- Mammography
- Education
- CT

For more information contact the CSRT President Doris Abrishami at doris.abrishami@csun.edu or the CSRT Office at (415)278-0441 or email@csrt.org.

Upcoming Events

■ ASRT Educational Symposium and Annual Governance and House of Delegates Meeting

Thursday, June 21 - Sunday, June 24, 2018
Red Rock Casino, Resort & Spa
Las Vegas, NV

Visit asrt.org for details and to register

■ Radiologic Technology Certification Committee (RTCC) Meeting

October 2018 (TBD)
Northern California

Location and date to be determined.
Check the CA Radiologic Health Branch website at CDPH.CA.GOV for updates.

■ SAVE THE DATE: CSRT Fall Seminar

Saturday, November 3, 2018
Northern California

Details will be posted to csrt.org as they become available

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Get Your Head Straight: Essentials for skull and facial bone positioning

By Rich Lehrer, MSRS, BS Ed., RT(R), ARRT, CRT

In my experience, it is a rare technologist who welcomes the challenge of any skull and/or facial bones exam. One possible explanation for this avoidance is the availability and superior imaging capabilities of CT scan. CT has become the gold standard for skull based on its ability to quickly demonstrate pathology in the brain tissue as well as the cranium. CT also demonstrates facial bone fractures and soft tissue injury well with the optional benefit of 3D or other reformation. For these reasons plain film technologists do not have many opportunities to image the skull any more and as we have all heard, if you don't use it you lose it. On those infrequent occasions when a plain film skull exam is required an immediate announcement goes out to all radiologic technology students in the area. For these exams, students are highly sought!

Skull and facial bone positioning is not all that difficult if the technologist and student keeps in mind a few constants. There are only about 15 skull and facial bones positioning procedures. Many exams use the same procedures with some modification so every individual exam does not have it's own set of unique projections. Although the skull is round, there are specific positioning landmarks that we can employ to make the skull appear straight on our images. The use of smaller positioning sponges have great utility in skull and facial bone positioning, indeed just a few degrees can make or break any of these radiographic images. This article will demonstrate two other resources you already have in your department that can be used for skull and facial bones radiography.

At the beginning of every skull and facial bones exam you should sanitize the table or upright bucky with the disinfecting wipes that your facility supplies for this purpose. Patients will be putting their face, nose, mouth and eyes very close to where countess other patients have been positioned, and

the possibility to spread infection is very real. If you can do this while they are watching you interviewing them and gathering a history of their present injury or illness, so much the better.

There are several landmarks that are useful for positioning the skull and facial bones. The mid-sagittal plane is one of the most important. Extending north and south, the mid-sagittal plane divides the face into left and right halves. When we critically evaluate the face, we can clearly see the center of the face and can imagine a line bisecting along its longitudinal axis. Positioning the skull so that the mid-sagittal plane is exactly 90° perpendicular from the surface of the upright bucky as in figure 1 will assure that no rotation is present on the finished AP or PA radiograph. Be aware that the nose is not always in the center of the face and that the eyes may also be somewhat asymmetric in relationship to one another.

The two eyes are another useful potential line for us to use. An imaginary interpupillary line extends between

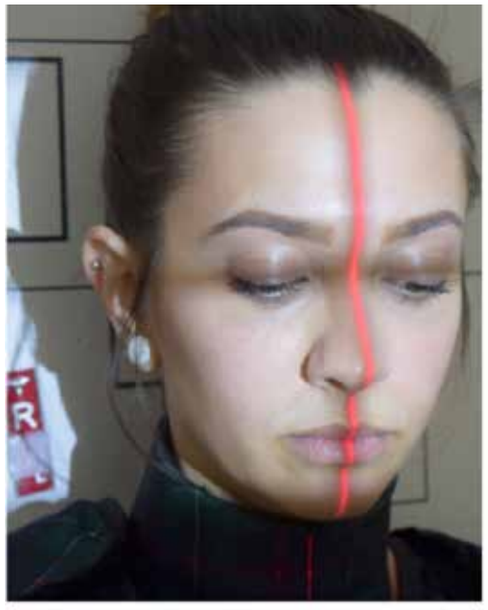

Figure 1 – The midsagittal plane (red laser line) and the interpupillary line between the eyes.

the globes of the orbits and is parallel to the floor. In the upright patient the horizontal interpupillary line can assure us that our image will not be tilted on the finished radiograph. Since we already have the collimator light on, we can use its characteristics to ensure these positioning lines are straight. Figure 1 shows us the shadows projected from the collimator light making the interpupillary line obvious and now easily confirmed as horizontal. The red laser line confirms the midsagittal plane. In this case, the midsagittal plane will ensure no rotation and the interpupillary line will insure no tilt on the finished radiographic image.

In addition to the lines just described, there are several important anatomic landmarks that are useful for skull and facial bone radiography. Starting anteriorly, the glabella is that flat area between the eyes. Just below it is the nasion commonly called the bridge of the nose. Each eye has an inner (medial) and outer (lateral) canthus that corresponds with the corners of the eyes. Just below the eyes are the prominent infraorbital margins formed from ridges in the superior aspects of the zygomatic and maxillary bones. The acanthion is between the tip of your nose and upper lip. For those of us who have a moustache, it is located on the acanthion. Most inferiorly is the mental point also referred to as the mentum of the chin.

Laterally, there are two landmarks of importance. The external acoustic or auditory meatus (EAM) is that opening on the outside of the ear canal. Of note is that the EAM is not right in the center of the cartilaginous ear structure, the EAM is in the lower third of that structure. Finally is the gonion, also known as the angle of the mandible identifying the point where the body and the ramus of the mandible meet.

To line up and superimpose skull and facial bone structures we need to have some sense of straight, and that is accomplished by identifying certain positioning lines named for the landmarks just identified and then flexing or extending the neck to bring a specific positioning line parallel to the floor or to the central ray. There are 7 commonly identified positioning lines total, 6 of which are horizontal lines and one a coronal line. Only four are identified in this article as the ones most common.

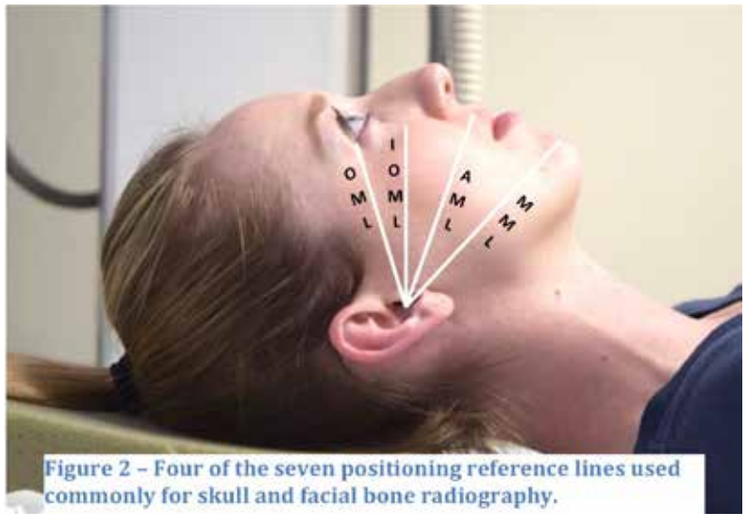

Figure 2 – Four of the seven positioning reference lines used commonly for skull and facial bone radiography.

Please refer to figure 2.

1. The glabello-meatal line (GML); extends from the glabella to the external auditory meatus.

2. The orbital-meatal line (OML pictured); extends from the outer canthus of the eye to the external auditory meatus.

3. The infraorbital-meatal line (IOML pictured); extends from the level of the infraorbital margins to the external auditory meatus.

4. The acanthio-meatal line (AML pictured); extends from the acanthion to the external auditory meatus.

5. The lips-meatal line (LML); you guessed it from the lips to the external auditory meatus.

6. The mento-meatal line (MML pictured); extends from the mental point to the external auditory meatus.

7. The glabello-alveolar line (GAL); extends coronally from the glabella to the alveolar process of the acanthion or the mentum of the chin.

OK, now let's line up the skull. By virtue of your education as a radiologic technologist, you already know which positioning line you use, where the CR enters or exits and whether you need any CR angulation or not. That discussion is beyond the scope of this article. The technologist is encouraged to refer to the Merrill's Atlas or other reputable positioning reference.

ROTATION: Use the mid-sagittal plane parallel to the upright bucky to identify whether your patient is rotated


Figure 3 – Calipers can be used to determine the relationship of the interpupillary line and the upright bucky. Note placement of the positioning sponge that has corrected the "tilt" error.

on the lateral projections. I suggest you evaluate the midsagittal plane critically and move back about 6 feet away from your patient. The midsagittal plane and the interpupillary line are much easier to see from further away.

TILT: A reliable tool to determine tilt is the measurement calipers in your department. By placing the calipers with one side along the upright bucky you will convincingly validate a 90° reference that will confirm the interpupillary line is horizontal to the floor as is demonstrated in Figure 3. Notice the placement of a small positioning sponge.

FLEXION & EXTENSION: The positioning lines identified above in Figure 2 can be employed to place the skull in the correct degree of flexion or extension for various


Figure 4 – using measurement calipers to confirm the mento-meatal line is parallel to the central ray.

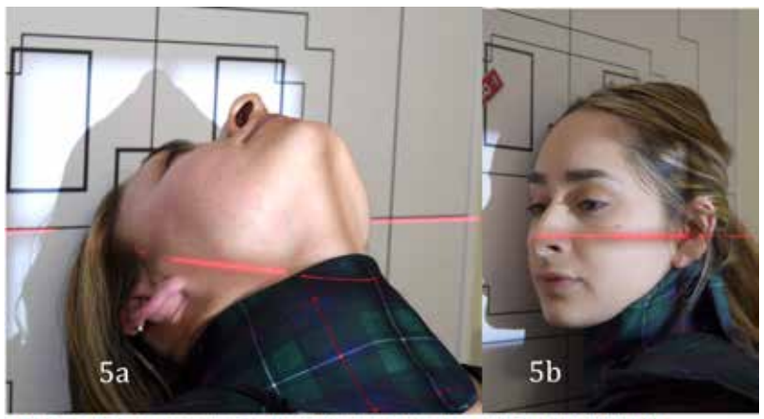

Figure 5 demonstrating how we can use the collimator light to achieve the positioning lines necessary. 5a the midsagittal plane and CR ¾" above the EAM. 5b the IOML now parallel to the floor.

radiographic exams. Once again the positioning calipers or the collimator light can confirm whether we have achieved correct or incorrect flexion or extension. Consider Figure 4 where the calipers reliably demonstrate the mento-meatal line in preparation for a PA Waters projection.

Who's afraid of an SMV? The positioning light can quickly tell us if the midsagittal plane is parallel with the central ray, perpendicular to the image receptor and if the CR is 3/4" anterior to the EAM as in figure 5a. Similarly, remembering that you need the infraorbital-meatal line parallel to the floor for lateral skull is easily verified by using the positioning light as in Figure 5b to achieve proper flexion and extension and then moving the CR up into it's final position 2" above the EAM.

In conclusion, let me leave you with 2 parting thoughts. First, use calipers and the collimator light as shown in this article to confirm the lines you know that you should be using are straight. These visual aids will confirm your positioning so that you can predictably achieve quality results quickly. Secondly, you can see skull positioning more clearly from 6 feet away rather than at arms length so move back.

Finally, if you cannot remember how to position a particular skull exam because you haven't done it in a year or more, there is always a copy of Merrill's or other positioning atlas somewhere in the department. •

The author is indebted to senior radiologic technology students Nancy, Katie, and Rachel whose assistance in preparing this manuscript was invaluable. All three are student members of the California Society of Radiologic Technologists, all three are members of Lambda Nu, the national honors society for the radiologic and imaging sciences, and all three will graduate in the summer of 2018.

Legislative Update: Fluoroscopy Exemptions on the Horizon

By Lorenza Clausen, CRT, RT(R)(CT)(MR), ARRT

Fluoroscopy has been a popular subject over the past several years. Leading up to the 2015 RTCC meetings, there had been numerous presentations, motions and discussions related to the use of fluoroscopy, the personnel who could operate the equipment and those who would supervise. CSRT reported on these meetings with announcements and articles summarizing the various discussions, motions voted on and their outcome.

The RTCC discussed fluoroscopy and possible circumstances for exemptions to the regulations. This occurred 3-4 years ago with many individuals or groups advocating for or against possible changes to California's Radiation Safety regulations. Motions were presented, revised and voted on. The final recommendation was voted on at the October 2015 meeting. It was a 5-part motion incorporating four parts from the spring April 2015 meeting and the revised 5th part from the October 2015 meeting.

Part 1: Motion

Only a qualified person (permitted individual) may initially establish or re- establish spatial relationships (i.e., where the patient is in relation to the radiation source), determine exposure factors, and/or expose a patient to X-rays in a fluoroscopy mode. A licentiate may use fluoroscopy equipment independently, provided he/she holds either a Radiology Supervisor and Operator Certificate or a Fluoroscopy Supervisor and Operator Permit. The physician assistant and the radiologic technologist holding the appropriate fluoroscopy permit must be under the supervision of a permitted licentiate.

Part 2: Motion

During the period of time that the fluoroscopy machine is energized, a non- permitted individual may not move the patient or the equipment, except as provided in item 5.

Part 3: Motion

An individual under the direct and immediate supervision of the S&O may move the patient or fluoroscopy equipment, as instructed by the S&O, when fluoroscopy equipment is not actuated or energized. Movement of the patient or equipment may change the spatial relationship between the patient and the fluoroscopic equipment. When there is a change in the spatial relationship between the patient and the equipment, an individual with a fluoroscopy permit must reassess the exposure technique and radiation safety consequences prior to any subsequent patient radiation exposure.

Part 4: Motion

Pursuant to Title 17, California Code of Regulations (17 CCR), Section 30450(b), a certified therapeutic radiologic technologist performing fluoroscopy for therapeutic treatment planning is not required to hold a radiologic technologist fluoroscopy permit. This exception may not be construed to allow a certified therapeutic radiologic technologist to use fluoroscopy for diagnostic purposes.

Part 5: Motion (as it was voted originally)

An individual under the direct and immediate supervision of the supervisor and operator may assist the supervisor and operator in the real-time movement of the patient or equipment under fluoroscopy for purposes of re-centering to the area of clinical interest or for manipulating the patient for medical purposes necessitated by the procedure, provided a certified diagnostic radiologic technologist is present in the room, and is managing the radiation exposure and x-ray equipment, that the assistant shall have documented radiation safety training required to be established by the facility.

The previous 5 motions listed above were voted on and passed by the RTCC unanimously. When the RTCC reconvened for its spring April 2016 meeting, more discussion ensued after clarification of part 5 was requested. One area of concern was the education required of the non-permitted personnel. The last statement was modified to add specific training on the manipulation of the equipment and for personal radiation safety. Committee members approved the added language to the motion, passing the revised part 5 unanimously.

Part 5: Motion (revised)

An individual under the direct and immediate supervision of the supervisor and operator may assist the supervisor

and operator in the real-time movement of the patient or equipment under fluoroscopy for purposes of re-centering to the area of clinical interest or for manipulating the patient for medical purposes necessitated by the procedure, provided a certified diagnostic radiologic technologist is present in the room and is managing the radiation exposure and x-ray equipment, and that the assistant shall have documented radiation safety training that includes training on the manipulation of the specific equipment and personal radiation protection required to be established by the facility.

The revision has been now going through the internal review process for the past two years. However, requests for exemptions have begun to be reported. The RHB has not yet announced any changes to the regulations, nor adopted anything official to the state's regulations, but it has come to the attention of CSRT that some facilities have begun to request exemptions for non-permitted personnel, based on the recommendations discussed and passed at RTCC meetings.

Recommendations from the RTCC are not regulation and all, some or none of the passed motions could be adopted by the RHB as regulation. Exemption request letters are sent to the RHB with responses from the department stating the requirements to be followed. Missing from the requests are the conditions of hardship that make the exemption request necessary.

If and when the RHB adopts some or all of the recommendations from the RTCC, this could mean changes to personnel allowed to operate the equipment. Education requirements mentioned in the recommendations are still somewhat vague and left up to the facility to determine. It is not yet clear what education would be required of non-permitted personnel. Radiation safety subject matter is one item however, that is specified in part 5 of the motion passed by the RTCC.

"Some facilities have begun to request exemptions for non-permitted personnel, based on the recommendations discussed and passed at RTCC meetings."

In conclusion, it is interesting to note that no official change has yet been adopted by the RHB. However, facilities can request the exemption now legally. It is also speculation if this will only be a temporary period of exemptions or permanent. It is expected that official news will be forthcoming in the coming year and announcements will be distributed to all relevant facilities and persons. •

A Year in the Life

By Megan Donaghy, BSRS, RT(R)(MR) (ARRT)

A year ago, I graduated from the BSRS program at California State University, Northridge. After graduation, I pursued a full-time job as an MRI Technologist. As a student, I feel like I was not fully able to appreciate the amount of information and experiences being handed to me. Our primary focus was simply to survive the program and find a job by graduation. Now that I have had ample time to reflect on what I learned and how it applies to my day-to-day job, I found that each experience provided me with at least one valuable lesson.

In the BSRS program, our clinical schedule was very active. We were given three to five weeks at each rotation, which includes advanced modality rotations through MRI, CT, Cath Lab, and Angio. In addition, we rotated through fourteen clinical sites. My first rotation as a student was in portables. We spent several weeks perfecting portable technique, positioning, and safety. At the time, it felt redundant; but, I later realized it showed me how to physically handle patients and position them carefully, but effectively. As technologists in every modality, we are faced with very sick, immobile patients with challenging body habitus. After many weeks in a portable rotation, I forced myself to practice positioning these challenging patients safely, for both myself and the patient. In MRI, patient body habitus can be especially restricting and perhaps, prevent a patient from undergoing an exam. Additionally, the patient could be immobile and incoherent, which requires extra careful maneuvering of the patient to complete the exam. As a technologist, I valued those weeks in portable rotations because it provided me with a vital introduction to proper patient handling.

My next rotation was in OR/Surgery. I vividly remember standing for several hours, waiting and hoping the surgeon would yell "x-ray", which cued us to position the C-arm and take the x-ray. Although those days were long and sometimes boring, I felt like they trained me to stay alert at all times and pay attention to my surroundings. Not only did we have to be on standby, waiting for the surgeon to cue us in (sometimes silently), but we also had to pay attention to the sterile fields around us. We also had to ensure all personnel in the room were wearing lead aprons upon entry, and be aware of any pregnant personnel. In other modalities, it is just as important to stay alert and ready to react in the event of a contrast reaction or any other unexpected event. These skills I acquired in the OR did not get left behind.

A few of my favorite rotations as a student were my fluoroscopy rotations. At the same time, they were my least favorite as well. No matter which rotation, whether it be cath lab, angio, or GI/GU, they all taught me to always be three steps ahead. Whether setting up for procedures, circulating the room, grabbing supplies, or preparing for the next case, we should always be thinking ahead. I recall struggling to remember all of the little supplies needed for each case. After being challenged to figure it out quickly as a student, I now feel prepared for the procedures and complex studies I see every day as a tech. I am comfortable setting up for MR-guided breast biopsies and anesthesia cases, or ICU patients that need extra supplies for nurses to monitor them. These are all situations where I needed to be three steps ahead. As a tech, I was ready.

My CT rotations contained some of my most memorable learning experiences--and not always the easiest. My biggest takeaway from CT was how to react and move quickly. CT is a high-paced modality, but in my experience, it also required quick responses to patient adverse events. Iodinated contrast agents used in CT have a fairly common side effect of nausea. When patients experience this side effect, it comes on fast and strong. As techs, we have to be ready to react with a bin or basin in case the patient vomits. There is also a high demand for CT in emergency departments and trauma situations. In these environments, the technologist must be able to clear the scanner and scan an emergent patient in a timely manner. All of these situations prepared me for the days of falling behind schedule and handling adverse events, code situations, or contrast reactions, effectively.

MRI was by far my favorite modality. I was confident this would be the modality I chose to pursue after graduation. After my first MRI rotation, I knew the most applicable lesson I would learn is how to connect with patients. MRI exams tend to run longer than other modalities, as many patients are claustrophobic and anxious to be in the magnet for an extended period of time. During

> ***"Whether setting up for procedures, circulating the room, grabbing supplies, or preparing for the next case, we should always be thinking ahead."***

these exams, we must prepare the patient and coach them through their anxiety enough to tolerate the exam. Though the frequency of these situations is somewhat unique with MRI, I found it useful in any healthcare situation where we are presented with an anxious or emotional patient. Ultimately, patients will be much more compliant if we go the extra mile to talk to them and explain each step before beginning the exam.

Out of all the things I learned in my x-ray rotations, the one that resonated with me the most was how to think "outside the box" and create solutions to imperfect situations. In x-ray, we see patients that are non-ambulatory, paralyzed, geriatric, noncompliant, unable to hear or see, too young to understand instructions, or in shock from a recent trauma. In all of these unique situations, positioning a patient for a very precise projection becomes much more difficult. We learn how to use immobilizers, tape, cushions, sponges, or whatever else we can find in the department to get the patient in the position we want. These skills really stuck with me throughout my other rotations as I was able to see different ways of accomplishing a single task. If a patient cannot lie a certain way so long, I can find tools to create a similar position that would provide the same result. Needless to say, I frequently utilize my experiences in x-ray and apply it to challenges I encounter in an advanced modality.

In each individual clinical rotation there were other experiences that taught me valuable skills and molded me into a well-rounded technologist. For example, three to four week rotations taught me how to learn and absorb as much information I could in a short amount of time. Rotating through various clinical sites taught me how to adapt to new locations, people, and equipment. This has helped me complete an accelerated two-year program, and taught me how to recall information that was given to me several months, perhaps years ago. Looking back on my first year as a radiologic technologist, I can proudly say my years as a student have provided me more than enough to succeed and pass along my experiences to prospective students and technologists. •

What is the Big Fuss about Quality Improvement in Radiology?

By David Poon, CRT, RT (R), ARRT

What does the word, "Quality" summon? According the Merriam-Webster, it is the "degree of excellence." Many students and techs alike are not familiar with quality improvement. Many think it is a term used when surveyors like, Joint Commission and/or the Radiologic Health Branch (RHB) of California. However, there is much more to quality improvement. In fact, in today's very competitive economic environment, the stress and pressure on health care organizations to reduce cost and improve on quality has increased.

Let's break it down.

Before we begin, we need to differentiate the difference with the following terms: Quality Control, Quality Assurance and Quality Improvement. What are they? Let's discuss:

• **Quality Control (QC)**: This is where ranges of acceptability are established. QC encompasses regular technical testing of equipment and/or the evaluation of image quality to warrant conformity to state and national rules and guidelines. Only when numbers fall outside these numbers are action taken. Think of it as a reactive process to evaluate quality. In other words, it is product oriented.

• **Quality Assurance (QA)**: Quality assurance is a process to provide confidence or reassurance that the system will continue to perform according to the established requirements. This is a proactive process to ensure quality. QA includes all aspects of diagnostic medical imaging technology. For example, workflow design of the room, the selection of the radiology equipment, etc.

• **Quality Improvement (QI)**: Quality improvement is about building and executing a quality program. QI defines the process and helps builds a system. An important area that falls under QI is having an understanding of what the problems area are, and have those represented in a useful format. Creating a dashboard to show trends, numbers and errors so that solid decisions can be made about safety and patient care.

Why is all this important? The focus is to improve and increase the performance and processes related to safety and outcomes. According to the Institute of Medicine, "the majority of medical errors result from faulty systems and processes, and not individuals." Further, if hospitals and healthcare institutions are trapped with out-of-date concepts with no further developments, it will miscarry in producing results. Which is not ideal for optimizing patient care.

Quality Improvement also has tremendous benefits. These include:

• Fewer errors will take place, and with fewer errors, it means better patient outcomes. This will provide measurable performance improvement and improve patient experience.

• Higher Staff Morale: Businesses with high staff morale are more productive, more positive, and more loyal. Having a high staff morale means, staff is less likely to leave the institution and quit. They will tend to work hard on their goals, this helps businesses improve their bottom line.

• Developing a quality improvement program will allow and improve the processes within their department. This will likely show greater efficiency. Therefore, workers won't be blamed for inadequate inefficiencies when things don't work. Also, it is an opportunity for staff to gain a significant understanding and financial benefits to the organization for improving operational efficiency.

Many professions in the healthcare spectrum implements Quality Improvement in their line of work. In 2016, the American Nurses Association (www.nursingworld.org) recently committed to raising awareness to patient safety. More specifically, they focused and utilized a different theme each month. Many nursing programs have specialty certifications in Quality Management. By gaining this type of

certification, it helps nurses become healthcare experts who combine their applied knowledge of risk, safety and quality management in order to help satisfy patient care engagement and patient safety.

Physicians are also required to participate in quality improvement projects. For instance, radiologists must actively participate in a Practice Quality Improvement project approved by the American Board of Radiology to meet ongoing Maintenance of Certification requirements. According to the Accreditation Council for Graduate Medical Education (ACGME) is the body responsible for accrediting the majority of graduate medical training programs for physicians in the United States, requires that residents enrolled in diagnostic radiology residencies participate in quality improvement projects as part of their training in systems-based practice.

Radiologic Technologists can also earn an advance certification in Quality Management (QM). However, According to the American Registry of Radiologic Technologists ™ (ARRT), they will stop issuing new QM credentials after July 1, 2018. The ARRT will end issuing QM credentials because many of those QM tasks are no longer being performed. The ARRT states, "...procedures primarily use digital equipment now, many previous QM tasks have become obsolete." Hopefully, the ARRT can update and/or create new type of quality certification that can focus on the ever-changing environment of radiologic sciences.

There are many aspects of quality improvement, and I only touched the bare surface! I challenge you to look at the QI Program at your hospital or facility. If you are a student radiologic technologist, inquire about the types of activities currently being developed and created in the radiology department you are currently training at. If you are a radiologic technologist, support this effort by engaging and learning about how QI can benefit your department and the patients you service. •

"In today's very competitive economic environment, the stress and pressure on health care organizations to reduce cost and improve on quality has increased."

About the Author: David Poon, CRT, RT (R), ARRT

David Poon is currently a principal radiologic technologist and supervisor at UCSF Medical Center, Parnassus campus where he also serves as an assistant clinical instructor. Mr. Poon serves on the California Society of Radiologic Technologists (CSRT) board of directors and is a past president.

Mr. Poon was one of three individuals in the country to be awarded the 2016 "I am Gold Standard Award", presented by the American Registry of Radiologic Technologists (ARRT). In November, 2017, Poon was appointed to serve on Task Group Committee on Imaging Protocol Management System Design with the American Association of Physicists in Medicine (AAPM). AAPM is a scientific and professional organization, founded in 1958, composed of more than 8000 scientists whose clinical practice is dedicated to ensuring accuracy, safety and quality in the use of radiation in medical procedures such as medical imaging and radiation therapy.

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Student Corner: The Benefits of Being Involved...

By Sara Palomba

As a student and soon to be graduate in your field of choice, it is necessary to have a well-established network which will assist you in your new and exciting career. It is highly recommended to begin this process early because it takes time and dedication to meet the right people. As students, it is essential to make use of the tools that are available to you and start building a resume early on in your career, in addition to creating a stable network.

Currently, many professional societies offer students the opportunity to join groups and committees dedicated to helping them in their field. Joining these organizations are a great way to start developing your networking skills and also gain leadership experience. Many professional societies also offer a variety of volunteer opportunities at events which gives the chance to meet people of different scopes of practices.

In today's world networking has become an essential part of our lives and has proven to be a valuable tool. For this reason, many professionals who are interested in advancing their careers or find themselves in a new city tend to rely on networking to get their foot in the door with a potential new employer. Others will also recognize that at some point in their lives they received career advice from someone they just met and this action helped them in their careers.

For this reason, individuals must have well-vested relationships to increase the opportunities for what they are trying to accomplish. With this in mind, the best way to start building or expanding your network begins by building relationships with friends, classmates, colleagues, and acquaintances. For example, a great way to connect with people in your field is by attending meetings and social events hosted by your professional organization or as mentioned before joining student groups that share similar interest within these organizations.

It is essential to realize that adding more responsibilities may be daunting at first considering that most students already have a full class schedule and other obligations such as family and work. However, the time that you invest in these roles as members of these groups is minimal, and the benefits are numerous.

I have found that the most challenging part of starting a career is developing networking skills. By doing so, I have increased my awareness of the relationships that I have with people. Networking is not only useful when job hunting, but it is also a valuable tool that gives you the opportunity to ask people with more experience than you for advice on how to be a stronger candidate for the kind of job you want. Networking is also an excellent source of support for questions or concerns you might have within your work environment.

"A great way to connect with people in your field is by attending meetings and social events hosted by your professional organization or...joining student groups"

Given these points, I encourage all students to make good use of their time and begin building a quality network. Create long lasting relationships with those who will soon become your colleagues, support your professional affiliations by being involved, learn as you go, share your experience with others and above all enjoy every minute of it all. •

Academic Integrity in the Digital World

By Will Edmunds, M.Ed, RT(R)

Many reasons exist why students might feel the urge to cheat while in a medical radiography program. Pressure from family to succeed. The stress of students not having enough time to study because they need to work while in school. Feeling like they are not as good as others in their cohort. The internet is great for finding resources to help in learning; however, it can also be a temptation that leads to academic dishonesty by way of plagiarism or finding test questions online. Along the same lines, it is great to be able to provide students immediate feedback by taking online tests in class. The board exams they take are computer-based, so the technology in radiography programs should integrate computer-based testing as a part of the curriculum in preparation. This element also tempts students to look online for answers, or even message other students in class for help. This is where a closer look at what academic integrity means in the digital age to both professors and students.

Jay Haris spoke of Harvard students cheating on exams saying "the enabling role of technology is a big part of this picture. It's the ease of sharing. With that has come, I believe, a certain cavalier attitude" (as cited in Pérez-Peña and Bidgood, 2012, para. 8). This is not a new problem in the field of education. The days of crib sheets or writing on your hand has turned sophisticated in the digital age, which makes it harder to catch students.

So what can be done? Here are some general ideas: (1) Students have a blurred line to what cheating is and with so many resources online, there needs to be clear communication of what cheating is. Mitrano (2012) wrote that "we need everyone to be thinking hard about what academic integrity means in the digital age. Establishing clear rules and inculcating our students with this form right when they walk in the door" (as cited in Smith, para. 18). (2) If there is a way to lock down the online exams to prevent the in-class use of the internet during the exam, this will remove that temptation. (3) Home exams need to utilize proctoring by use of webcams, although there is still a chance students may share answers to others if there is enough time given to complete the take-home exam. (4) Use of space is still a key in exams. Even on computers, there can be a wandering eye, so if there is room to separate students that would help. (5) Using multiple scrambled versions of both online or paper-based exams can be a solution here as well. (6) Provide examples of questions to students to prevent the desires to search online for something they should not have access to, such as instructor test banks.

The pedagogy of how to test students in the digital age needs to be closely reviewed and professors need to be two steps ahead of what is out there. Having a solid process in place will allow professors to know that the students have gained the knowledge needed to pass boards and be the best patient care providers in the field of radiography possible.

"The internet is great for finding resources to help in learning; however, it can also be a temptation that leads to academic dishonesty"

The opportunity to cheat exists at campuses all over the world, so why is it important to have a good understanding of it for the students that will be future radiographers? Are they not cheating themselves and will struggle on the board exam after graduation for cheating their way thru radiography programs anyways? It has to do with ethics and being a future employee in the healthcare field. Would we select a primary care physician that cheated their way thru medical school? The ARRT Standards of Ethics (2017) outlines a code of ethics that include technical incompetence and failure to report errors (pp. 3-4). Future technologists must be held to these standards as well as the others in this document. Everything you do from the day you are licensed to be a radiographer has the potential to put that license in jeopardy. There may be a short step from cheating on an exam in school to not reporting an incident at work that would get you in

trouble on the job.

Students are expected to make mistakes while they are learning in school. Remaining ethical and upholding the academic integrity standards of the institution they attend means that there can be a trust of those graduates being great examples of who the educators want to send out into the workforce. In the digital age, professors need to keep a watchful eye on the students to ensure that we continue to promote ethical and competent individuals into the profession of radiography. Students need to learn early the role ethics plays in becoming a part of the healthcare community at large and holding the license you worked so hard to obtain. •

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