



Conversation With...

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Medical Dosimetrist
Northwestern Medicine
9 years in field

What was your individual career path in terms of education/training, entry-level job, or other significant opportunity?

First, I job-shadowed in an x-ray department. Then, I went to school at Southern Illinois University, Carbondale, for their radiologic science program. My first year was mostly general education courses, with an introductory class to health sciences/radiologic science. Then I spent my sophomore and junior years splitting semesters on-campus for didactic work, and off-campus for clinicals/remote didactic courses. During my junior year clinicals, I had the opportunity to shadow different modalities of radiologic science: CT/MRI, ultrasound, and radiation therapy.

When I was in my radiation therapy rotation, I saw an emergent case from start to finish. This gave me the opportunity to shadow the medical dosimetrist. From that point on, I was sold that I would choose radiation therapy for my modality, and go on to specialize in medical dosimetry. After my junior year, I sat for my radiologic science boards from the American Registry of Radiologic Technologists. During my senior year, I focused on radiation therapy classes and clinicals. Meanwhile, I applied for medical dosimetry school. It was a very quick turn-around timeframe! In my last semester of radiation therapy school, I went from clinicals in one part of the state, went to board review at SIUC, took radiation therapy boards, and moved to St. Louis to start medical dosimetry school.

I went to Southern Illinois University, Carbondale's medical dosimetry program. I would spend some mornings in the clinic, then the afternoon on a video call with the professor to complete the didactic portion of school. Other days, I would be in the clinic for the whole day with different radiation oncology professionals. During my clinicals, I had to complete competencies by completing medical dosimetry tasks. I would have rotations in different facets of medical dosimetry, and at different clinical sites within the greater St. Louis area. A portion of the time was spent on 3D-planning, while other rotations were focused on intensity modulated radiation therapy (IMRT). Besides the medical dosimetry rotations, I would spend time learning from the medical physicists, shadowing special procedures and modalities like protons. The program was a year long, and after completing the program, I was board-eligible for

the Medical Dosimetrists Certification Board exam. At the time, the exam was only offered two times a year, so I took it about 5 months after graduation.

My first job was working as a research medical dosimetrist for Washington University in St. Louis. Then I moved to a photon, single-room center. Finally, I progressed into working with protons at Northwestern Medicine Proton Center. I've been working with protons since 2016. This differs from traditional photon treatment, since we are utilizing particles to treat. There are a lot of nuances involved with onboarding someone new to protons.

What are the most important skills and/or qualities for someone in your profession?

Someone who works in medical dosimetry has to have a lot of initiative. Medical dosimetrists may work on a plan independently during calculation/optimization time. However, medical dosimetrists must be skilled in communication and collaboration to work with other members of the radiation oncology team, especially the radiation oncologist and the medical physicist. A medical dosimetrist also has to have high integrity to make sure they are always acting in the best interest of the patient. Finally, attention to detail is so important as a medical dosimetrist. For example, medical dosimetrists have to make sure the numbers input into a treatment plan match the radiation oncologist's prescription for the patient.

As far as schooling, students who enjoy science including anatomy, biology, some physics and math may enjoy this field. After a CT is obtained of the patient, a medical dosimetrist spends time delineating normal body organs that surround the area of disease. This is done to track how much of a dose is given to the normal body tissues. This information is also used during the planning process to input values into a treatment planning system to decrease the dose to the organs at risk while maintaining the coverage to the disease site.

What do you wish you had known going into this profession?

Be open to feedback and ready to adapt to change or unforeseen circumstances. If a mentor or medical physicist finds fault with a plan, a lot of times it's actually an easy fix. Sometimes as a new Medical Dosimetrist, it can be challenging to hear that something has to be changed or adjusted in the treatment plan. However, the checks and balances are there for a reason. Instead, focus on the "why" of what needs to be adjusted to learn for future plans. Being aware of those clinically specific nuances will help make someone a stronger medical dosimetrist in the field.

Are there many job opportunities in your profession? In what specific areas?

There is a medical dosimetrist shortage, according to the American Association of Medical Dosimetrists' MedDos Infinity Task Group report. In fact, the report shows that many medical dosimetrists will be retiring between the years of 2025-2030. This will create further demand for more medical dosimetrists.

How do you see your profession changing in the next five years, how will technology shift, and what skills will be required?

The field is very fast-paced due to the use of software systems being updated all the time. Additionally, there can be protocols or trials that patients participate in that may lead to new treatment techniques. Right now, there's a lot of discussion regarding artificial intelligence (AI) and adaptive treatments. With AI, medical dosimetrists may not be manually delineating con-

tours. Instead, medical dosimetrists will check what the program did, and delete and adjust as necessary. Adaptive treatments could change how medical dosimetrists adjust treatment plans based on a patient's anatomy. So, if someone's stomach or bowel falls in a different position compared to the original CT scan, the treatment may be adapted to spare the bowel that's falling closer to the disease site.

What do you enjoy most about your job? What do you enjoy least about your job?

I enjoy the fact that I'm helping people by being in the medical field. However, I also enjoy that I am more behind the scenes. I am working mostly with the CT of the patient. For reference, I almost passed out during my surgical x-ray rotation, so if you want to help people and are not cut out for more hands-on medical roles—this could be a good fit! I still get to see patients periodically if the radiation therapists need input on a patient's setup/simulation appointment.

My least favorite part of the job would be anytime there are time delays. The workflow is to complete certain tasks within a certain amount of time. The medical dosimetrist has to wait for the radiation oncologist to complete the delineation of the disease before starting the treatment plan. Once the plan is finished, it has to be approved by the radiation oncologist. Alternatively, if a case is complicated, there can be a waiting game to get more time with the radiation oncologist to discuss the best path forward for the patient. Radiation oncologists see patients in the clinic for weekly checks and consults. Even though medical dosimetrists are taking care of patients, they're not physically present. Therefore, medical dosimetrists may have to practice some patience before being able to collaborate and move onto the next step in the treatment planning process.

Can you suggest a valuable “try this” for students considering a career in your profession?

Shadowing in a radiation therapy department would be extremely helpful. Understanding how the department functions and sitting with a medical dosimetrist is insightful. When I shadowed with a medical dosimetrist, I was able to see the work that they do on computers, the software used to create the treatment plans, the documentation that has to be completed, and all the collaboration between the different departments.

I would also advise exploring more about the profession through the American Association of Medical Dosimetrists' website. It has educational resources for those interested in the field and those that are studying/in the field already.