

Tammy Rayner:

Dedicated Research Technologist



Tammy Rayner received her certification to practice radiation technology and magnetic resonance imaging in Canada and the in the United States. She graduated from Confederation College and Red River College with honours in 1998 and, after completing the CAMRT exam, she has been employed at The Hospital for Sick Children.

Starting as a new technologist I worked various shifts on two newly installed GE 1.5T scanners. As technology was growing, so was the complexity and patient load. I had the opportunity to scan fetal, musculoskeletal, neurological, abdominal cases and with emerging cardiac technologies. While participating in my regular duties I started to explore, volunteering to assist and scan for research purposes. I spent my first few years as a Technologist II, and was later promoted to Clinical Coordinator Resource Technologist III because I was seeking a greater knowledge base and responsibilities. I completed additional training and became a master trainer in the new (but now old) technology of PACS, and I became certified in intravenous insertion through the CAMRT, as well as continuing additional studies pertaining to MRI. While developing

the curriculum as clinical coordinator and liaising with schools to promote the paediatric experience, I also managed the flow and patient throughput within the department. This experience and position allowed me to enhance my knowledge base of other departments and disciplines within the hospital, as well as organize educational activities.

Since I am employed at The Hospital for Sick Children, the dominant population exposure is paediatrics. Children have the ability to go above and beyond and perform their best to hold still for MR scans. Our expectations are not high for this young population, but they can deliver, which I find amazing. The most difficult aspect of working with children is accepting that they are sick—seeing their newly diagnosed disease and having the news shared with the families. With diagnostic imaging, you can literally see disease progression as well as regression. Some patients we get to know very well and others we see only once. I have seen many developments within MR, and one aspect that has been very helpful for paediatrics is an audiovisual system where children can watch a movie or listen to music. Prior to having this distraction, I recall a time a mom painted her daughter's toes to keep her happy and still.

In 2004, I shifted the dynamic of my career and pioneered the Research Technologist role when a newly dedicated research scanner was installed. As the department was new within the hospital, all policies and procedures, workflow etc., needed to be created and, with the experience I had previously gained, the department steadily grew. I currently maintain this role and “wear many hats”—from safety, to administration, to giving presentations, to scanning. The department continues to grow, as does the technology used.

Working in research I scan biopsied specimens, cadavers, dedicated excised anatomical body parts, blood vials

and so much more. I have also had the opportunity to scan multi-nuclear spectroscopy (MNS), such as phosphorus (which we apply to musculature), and xenon for lung imaging. I have worked with commercially available devices as well as “homemade” fMRI (functional MR) equipment for activation tasks such as a “gusto-meter,” which has the participant taste different tastes while scanning.

As a research technologist, you have to be creative, as well as follow specific instructions. An important aspect about research is consistency and reproducibility. You may be approached to develop a new technique with minimal information or follow every minor detail for international studies. Every research study is different and the role of the MRT can vary widely. At times, we are required for the consenting process prior to imaging, and we are always responsible (as any MRT is) for ensuring the safety and MR compatibility of the participant. We assist in estimated timing for Research Ethics Board (REB) approvals, help develop imaging protocols, test new pulse sequences/parameters for optimal imaging and for analysis, as well as perform quality assurance scans for various purposes, as requested. At our site, we ensure the data are archived and sent to the appropriate location; however, we perform minimal analysis since most Principal Investigators do their analysis with non-MR vendor software.

I have thoroughly enjoyed my career and I am excited to see where the technology will lead next, and what new things I will be able to learn.