



### Scope of Practice

The practice of Medical Radiation Technology and Sonography is the use of prescribed forms of energy such as ionizing radiation, electromagnetism, and high-frequency soundwaves for the purposes of diagnostic and therapeutic procedures. The Technologists are responsible for evaluating images and data relating to the procedures and assessing an individual before, during, and after the procedure.

Cardiology Technology involves the non-invasive testing and monitoring of the functioning of the human heart under various conditions, the provision of basic patient care during these procedures, and the assessment and programming of implantable cardiac devices.

All Technologists are committed to providing a safe environment to deliver quality patient and family-centered care, engage in interprofessional collaboration and live life-long learning to ensure optimal patient outcomes.

EMG electromyography, (Registered EMG technologist). Under the guidance of a Neurologist, provides nerve conduction studies to support the diagnosis of neurological and neuromuscular diseases. EEG technician-provides care and services to demonstrate brain wave activity for diagnosis of seizures, traumatic brain injuries and neurological disorders.

# Diagnostic Services

Professional Practice Leader (Charlton, King, West 5th):

**JACKIE EVANS**

Number of Members of Discipline:

SITE	FTE	PTE	POSITION
Charlton/ King/W5	17	15	Registered Medical Radiation Technologist
Charlton	15	5	Registered CT & IR Technologist
Charlton	9	1	Registered Nuclear Medicine/PET Technologist
Charlton / W5	15	8	Registered Magnetic Resonance Imaging Technologist
Charlton / King/ W5	17	7	Registered Ultrasound Technologist
King / W5	5	3	Registered Mammography Technologist
Charlton / W5	8	8	Cardiac Ultrasound Technologist & Vascular Technologist

## Major Achievements

### CARING

#### Clinical Practice:

- Ultrasound guided transperineal prostate biopsies have begun in our Ultrasound department. This exam utilizes specialized equipment to better allow the Radiologist proper visualization of potential prostate lesions. The Radiologist is then able to complete multiple biopsies, in multiple planes to help provide a more accurate diagnosis for these patients. By completing the exams with a transperineal approach versus a transrectal approach, the patients tend to have less post-operative complications.
- Medical Imaging Assistants were added to the staff complement in Diagnostic Services this year in MRI and General Radiography. This vital role utilizes individuals with a background in Medical Laboratory Assistant to assist Medical Radiation Technologists to improve patient care and workflow challenges. We are hoping to expand this role to allow the individuals to work more to their full capacity by helping with IV insertions and specimen collections. We believe this role will expand further as we grow and we are hoping to be able to utilize these individuals in other modalities in the future.
- Magnetic Resonance Imaging (MRI) has started to scan patients with MR compatible pacemakers. This is a very involved process, requiring careful evaluation of the patient's medical history to ensure that they are able to be placed in the scanning environment safely.

## CARING Clinical Practice continued...

- The Computed Tomography (CT) department has begun performing cryo-ablation cases for the treatment of renal tumours. The Radiologist will utilize CT or ultrasound guidance to allow them to place needles into renal tumours. The needle placement is then verified by CT. Once verified, the tumour is then injected with compressed argon gas, at a temperature of -140 degrees Celsius. The tumour is frozen and thawed twice which causes tumour necrosis. This procedure allows patients with large tumours to undergo a procedure which can help to prevent a partial nephrectomy. It also allows for less sedation for the patients which makes it safer for the patients. Previously patients would require radiofrequency ablation, which required higher sedation levels.
- Being able to move away from radioactive seeds to a safer alternative has been a huge change in the mammography department. The department has been able to transition from the placement of radioactive seeds in breast cancer patients, to being able to utilize a cutting-edge Canadian development called a MOLLI marker. This magnetic marker is easy to use, easy to visualize, easy to mark and easy to retrieve. Patients are able to have these markers implanted into their breast tumours to allow the surgeon to precisely remove the lesion utilizing a magnetic locating wand. This can help provide patients a more targeted tumour removal which can result in cleaner margins and less tissue removed.
- Upgrading our equipment can provide patients greater access to care and utilization of cutting-edge technologies. The new MRI scanner is currently being installed to be used clinically in April 2023. The additional 3 magnets have all undergone software upgrades. Ultrasound has been able to start utilizing their new machines. As well as new equipment will be purchased and installed in CT, Interventional Radiology, Fluoroscopy and General Radiology. All of these new pieces of equipment will have the latest technology to allow our patients the best care possible.

## LEARNING

### Education:

#### Clinical Education

- General Radiography accepts 5 students both in their 2<sup>nd</sup> year and 4<sup>th</sup> year of schooling. These students are part of the joint Mohawk/McMaster program. These students will shadow technologists and complete rotations through all campuses and all shifts. Their placement also includes a 3-week clinical component in Computed Tomography (CT) as well as observational opportunities in Magnetic Resonance Imaging (MRI), mammography, bone mineral densitometry (BMD) and angiography.
- Ultrasound accepts 2 students from the Mohawk/McMaster program. These students can be in any year of their placement. They provide clinical rotations in general ultrasound in the main department at Charlton and they also have clinical rotations through Obstetrics and Gynecology in the Fontbonne building at Charlton.
- Magnetic Resonance Imaging (MRI) accepts one student per 4-month semester. These students come from a wide variety of educational institution such as Mohawk College, The Michener Institute, Cambrian College and the Northern Alberta Institute of Technology. These students will participate in all types of MRI examinations and have the possibility of shadowing for a short period of time with our research team at the IRC.

## LEARNING continued...

- Our Nuclear Medicine and Positron Emission Tomography (PET) teams will welcome one student per year from the Michener Institute that is in their 3<sup>rd</sup> year of schooling. The student will be involved in thyroid imaging and PET imaging.
- The team in Cardiology will help students through their 1<sup>st</sup> and 2<sup>nd</sup> placements in Diagnostic Cardiac Ultrasound and Cardiovascular Technology. There are 4 students in Diagnostic Cardiac Ultrasound and 2 students in Cardiovascular Technology.
- High school co-op students have been welcomed back. These students work primarily out of the General Radiography area but are able to shadow in the other modalities if they should choose to. The hope is to see some of these high school students pursue careers in healthcare.

## BUILDING

### Staff:

- We have had the opportunity to partner with Mohawk College and Ontario Health to allow for 2 of our current technologists to take part in an MRI Accelerated Training Program. With this program, the technologists will take an intensive, accelerated program which includes a 16-week clinical rotation. At the completion of the program, the technologists will be able to write the Canadian Association of Medical Radiation Technologists MRI national certification exam.

### Professional Practice Development:

- Medical Radiation and Imaging Technologist week in November saw a number of presentations to staff to enhance their knowledge. Staff were able to take part in education sessions to increase their knowledge of advancements in contrast media, Interventional Radiology and Nuclear Medicine.
- Staff are continuing to learn about advancements when they were able to participate in additional education sessions throughout the year. The most recent was regarding new contrast media injector technology. The staff members were able to immerse themselves in a virtual reality environment and be able to picture themselves utilizing the new technology.

