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How We Found Purpose, Passion, and Happiness in Our Profession

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Introduction

In 2017, the Vice President of Clinical Operations for the Joint Department of Medical Imaging (JDMI) published an article that described how changing organizational strategy can create a culture of academic practice for all medical imaging professionals [1]. She hypothesized that this culture shift would be rooted in a shared passion and purpose, and would bring about better care for patients, and improved career engagement and satisfaction for medical radiation technologists (MRTs).

In that March 2017 publication, Wang acknowledged that it was “early days” for the academic practice program and that the demand for efficiency and timely access to services is constant and unrelenting. Therefore, the aim of this commentary is to revisit the concepts presented within Wang, 2017, and to share our personal and professional experiences after a year of living the academic practice agenda. As two MRTs working in JDMI, our focus is to advance academic practice in our roles as a new research MRT(R) and an experienced MRT(R) (MR) manager.

Academic Practice through the Eyes of a New Research MRT

When I was 17 years old, I went to my family doctor for a routine checkup. My doctor was concerned with a lump he felt in my neck and sent me for blood tests, an ultrasound, and eventually a biopsy. I will never forget sitting in the specialist's office with my parents and being told that I had thyroid cancer. The first question that came to mind was, “Why me?” The doctors explained that the surgeon would perform a total thyroidectomy, after which I would receive radioactive iodine to treat any residual thyroid tissue and my lymph nodes. Having no idea what this all meant, I researched every bit of information I could and started pestering medical staff with

questions about my cancer and the treatment I was about to have. I was intrigued by thyroid anatomy and physiology, and the function of the hormone replacement therapy, but I was also scared as I learned about the risks of surgery and potential side effects of the radiation treatment. Little did I know that through this experience, I would discover a profound passion for medical science and health care.

Education and Self-Discovery

A year and a half later, I began my journey to become an MRT. Through my undergraduate education, I learned about the human body and had the opportunity to apply that knowledge in a clinical setting. Whether it was by performing a foot x-ray for a child who fell in the schoolyard, or a chest x-ray to rule out cancer metastases, I felt a sense of accomplishment from being able to offer quality imaging to those patients. However, as time went on, daily tasks seemed less challenging and I became discouraged as I felt that my skills were being underused and opportunities for creativity were sparse. To remedy that situation, I decided to nurture my intellectual curiosity by going back to school, this time as a graduate student. My neuroscience master's degree reignited my curiosity for learning and discovery, and I realized that it was this “questioning mindset” that had been missing from my MRT practice.

When my master's degree was coming to an end, I felt like I was at a crossroads. Although the “benchside” neuroscience research was interesting and stimulating, I often caught myself reminiscing about my time spent in the hospital and how rewarding it was to interact with patients. I was pondering whether to continue pursuing graduate research or to go back to work as a technologist. When discussing this difficult decision with my professor, he suggested finding a career where I could do both, but I doubtfully said to him that I did not think a career like that existed. A couple of months later, on the last day of my studies, I woke up to an email notification describing an opportunity being offered at JDMI for a “Research Medical Radiation Technologist”. I was overwhelmed with excitement to learn that a career that

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combined my passions for research and working as a technologist existed after all.

A Unique Career Path

Just as Wang's article was being published in early 2017, a rewarding career as an MRT/researcher was born. This position has not only allowed me to use the skills I developed as a technologist but has given me the opportunity to ask questions and make new discoveries that have the potential to impact future patient care. Now I can help image and treat today's patients in the clinical setting but I am also a part of an impactful neurovascular research team that focuses on improving the diagnosis and treatment of patients with aneurysms and strokes.

Specifically, I work alongside neuroradiologists and engineers in research groups from around the world, hoping to improve risk assessment accuracy and better inform treatment decisions for future patients diagnosed with small brain aneurysms. The main focus of our research is to better understand the relationship between aneurysm growth and rupture risk. In particular, we look at various hemodynamic parameters, such as wall shear stress or turbulence, and compare those parameters to vessel wall thickness in patients whose aneurysms are prone to rupture during surgery [2]. As an MRT, my role in this project involves scanning patients using a unique CT scan and creating precise geometries from these scans that are used in computer simulations to measure the hemodynamics. If successful, this project may change medical practice by improving risk assessment accuracy and better informing treatment.

Our team is also working to develop stroke imaging technology in the angiography suite. For every minute delay in treating a stroke, a patient loses 1.9 million brain cells [3]. It is therefore important that patients receive endovascular treatment to remove the blood clot as soon as possible. Our team's objective is to design and optimize various applications and protocols to improve the quality of imaging in the treatment suite so that we can skip the traditional CT and acquire CT-like images in the treatment room, which will decrease time to treatment, and save more brain cells to improve outcomes [4]. From my perspective as an MRT, I contribute to this project by providing valuable insight on clinical workflow feasibility, recommending protocol modifications to improve image quality, and training the neurovascular team of technologists, nurses, and fellows on imaging and specific application use.

How Academic Practice Enriches the MRT Profession

Research can be an intimidating word, but I have come to learn that the essence of research is simply the process of asking a question and letting your curiosity and passion propel you to the answer. MRTs have the power to drive discovery in their field for the benefit of patients. Have you ever noticed a clinical process that could be improved, or thought of a modification to an imaging examination that could improve diagnostic quality? Have you ever asked yourself,

"Hmm, I wonder why...?" By asking these questions and thinking of ways to answer them, you have just taken the first steps to starting a research project and discovering something new that could one day help improve care for patients. Helping patients using practice inquiry techniques not only provides better access to state-of-the-art care, but it also adds a meaningful connection to "the bigger purpose", which is a key factor in engagement and professional satisfaction [5].

Using my MRT skill set to contribute to aneurysm/stroke research has been extremely rewarding. Not only am I able to help treat today's patients in the clinical environment using state-of-the-art best practices, but also I am fulfilled knowing that this work may help improve future patient outcomes on a global scale. While working on these projects, I have had the pleasure of collaborating with international interdisciplinary teams, including MRTs, engineers, physicists, neurosurgeons, and interventional radiologists. This multidisciplinary approach has brought a valuable skill set to the table and, through this teamwork, we have been able to ask detailed questions and use a variety of techniques and methods that extend well beyond an MRT's traditional scope of practice. This role has presented me with opportunities to attend conferences, deliver talks, and write journal manuscripts. It has allowed me to learn more about leading-edge research and has given me the opportunity to share our findings with others. It is through this collaboration and knowledge dissemination that I have been able to grow as an MRT, a researcher, and as a person. Giving technologists the opportunities to ask questions, shape the field of medical imaging through new discovery, and help patients on a larger scale has the synergistic potential to help them feel a sense of purpose, have passion, and bring happiness to everyday work lives.

I feel privileged to have joined the JDAMI team during this academic practice culture transformation because this position has allowed me to make improvements to my practice and the field of medical imaging. By integrating research, education, advanced practice, and leadership in the roles of all imaging professionals, the academic practice strategy has the potential to bring an element of deep fulfillment to the MRT profession.

Academic Practice Through the Eyes of an Experienced MRT Manager

Gaining and Regaining the Feeling of Value

My first role as an MRT in MRI was unique. In 1989, I was hired to be part of a new medical imaging team at Toronto Western Hospital responsible for research and clinical care using a recently developed imaging modality that was new to the hospital [6–8]. As a junior MRI technologist, it was an exciting time in my career, and I developed skills and insights that continue to shape my attitudes about professional practice and allow me to grow. During this role, I worked closely with radiologists, researchers, and fellow MRTs, in an inspiring team whose inclusive and dynamic

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