NORTHERN ONTARIO SCHOOL OF MEDICINE

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LOCAL INSPIRATION LEADS TO GLOBAL ASPIRATIONS

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THIRD SEASON OF HARD ROCK MEDICAL



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NORTHERN PASSAGES

Newsletter of the Northern Ontario School of Medicine



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FEEDBACK

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Cover Photo: Dr. Tricia Larose is a Postdoctoral Fellow with the International Agency for Research on Cancer and the Norwegian University of Science and Technology. Photo Credit: Hege Gabrielsen Førsvoll

LOCAL INSPIRATION LEADS TO GLOBAL ASPIRATIONS

Born and raised in Sudbury, many of Dr. Tricia Larose's fondest childhood memories are from living on Bessie Street in the Donovan. She attended St. David's School and Marymount College (now Marymount Academy) before pursuing her post-secondary education at Laurentian University. Having grown up in Northern Ontario, Larose says her perception of the world was very small.

As an undergraduate student, Larose was part of Laurentian University's work-study program: a program designed to create parttime on-campus jobs, while helping students meet the cost of their studies. Larose secured a position at the Health and Wellness Centre and was mentored in health promotion and disease prevention activities by Nurse Practitioner and Manager, Lyne Rivet. "My first interview was 11 years ago," says Larose, "and I still remember what I was wearing and where I was sitting when she offered me the job! I walked away thinking, 'Oh my gosh, this is my first job in my field. Oh my gosh, I have a field!""

Not long after, Larose came across a job ad in *The Sudbury Star* for Research Intern positions at the Northern Ontario School of Medicine (NOSM). Larose says she didn't think she had enough experience to work in a research laboratory. "I was interviewed by Dr. Marion Maar and Dr. Kristen Jacklin and was thoroughly inspired by their expertise in medical anthropology, and their participatory approach to rural health and Indigenous community health research," says Larose. "It was an absolute blessing to be hired as their Research Intern. Looking back, I realize now that my work-study experience positively influenced my success at NOSM."

After several months as a Research Intern, Larose was promoted to Research Assistant, and finally to Research Coordinator. Larose moved to London, England a few years later to complete her Masters of Science in Demography and Health from the London School of Hygiene and Tropical Medicine, followed by yet another move to Norway, where she completed her PhD in Medicine at the Norwegian University of Science and Technology.

While still a research intern with NOSM, Larose says she would stand on the sidewalk under the Bridge of Nations on Paris Street in Sudbury and look up to the flags blowing in the wind. "I would imagine that I was standing at the front door of the World Health Organization. It seemed like an impossible dream at the time, but the more education I earned and the more experience I gained, I realized that my dream could become a reality," says Larose.

And it has. Larose is now a postdoctoral scientist with the International Agency for Research on Cancer—the specialized cancer agency of the World Health Organization—and the Norwegian University of Science and Technology. She will be working in Lyon, France for the first two years of a threeyear postdoctoral fellowship, with the final year of research taking place in Norway. Larose will be part of a research group conducting one of the largest genetic epidemiology lung cancer studies in the world.

"What's so exciting about this project is that we have genetic data from 22 different countries and from 55,000 people. It's a case control study, which means we have an equal number of individuals with lung cancer and an equal number of controls who are matched for age, sex, ethnicity, and smoking status. We have people in the study who smoke, and people who don't," Larose explains. "A big part of the study is looking at the lifestyle factors of these people, including nutrition. Because we have such a large sample with data from so many countries, we have some certainty about cause and effect. And there's a reduced bias in this sample, which will enable us to be more certain about our study results." "Sudbury, and all of Northern Ontario, is part of my identity and I miss home dearly. But I began to see the world as a much bigger place—full of different cultures, languages, and experiences. I want my research to make a difference, not just locally or regionally, but nationally and internationally as well," says Larose.

Larose hopes that by sharing her story, she can inspire youth in Northern Ontario to stay in school, work hard, take chances, and to not be afraid to fail. "I recognize that for many youth in Northern Ontario, the answer is not so simple," says Larose. "Early on in my research career, I was fortunate to be mentored by three strong, capable, inspiring—and patient—female leaders."

Dr. Tricia Larose (right), originally from Northern Ontario, says: "It's important for all of us to push ourselves beyond our self-perceived limitations." Photo Credit: Hege Gabrielsen Førsvoll

NO "PROXY DENIED" FOR US: NOSM'S HEALTH SCIENCE LIBRARY CONTRIBUTES TO HEALTH CARE IN THE NORTH

by: Dr. Roger Strasser, NOSM Dean



Last year, in June, I participated in the Training for Health Equity network (THEnet) Evidence Group meeting in Sault Ste. Marie, Ontario. During the meeting, one of the speakers— Dr. Paul Grand'Maison from the Université de Sherbrooke referred to an article in the journal Academic Medicine. Interested in learning more, I

quickly hopped on the internet, accessed the Northern Ontario School of Medicine's Health Sciences Library, found, and downloaded the article. All of this took a few short minutes.

Sitting next to me was a friend and long-standing colleague from James Cook University (JCU) in Australia. Also interested in reading the article, she too tried to access it online, but with different results: "proxy denied." After a few frustrating and failed attempts, she reverted to Google Scholar, where she was able to access only the 250-word abstract.

Now, imagine yourself as a rural doctor (in fact, some of you reading this may very well be rural doctors), teaching a student or resident in your clinic. You and the learner see a patient with some unusual symptoms. You suspect the patient has a rare condition. In a big city, you might refer this patient to a specialist, but in this case, you know the closest one is hundreds of kilometres away. To be sure of the course of treatment, you consult your Faculty of Medicine's library to search for the best clinical practice guidelines for this illness. A relatively emergent case, your patient awaits you in the examination room, needing answers and treatment before they leave your office.

If you were this doctor (or the patient, for that matter), I bet you'd be hoping for the outcome I had in Sault Ste. Marie—the ability to seamlessly access the required resources. To me, this is one of the unsung ways that NOSM is contributing to the health of Northern Ontarians. Not only is the School training health professionals that stay and practice in the North, NOSM is also providing the ability for faculty members to retrieve up-to-date information and resources at the moment they need them—a fact that has a direct impact on patient care and teaching. Thanks to the School's digital library service, patients in Northern Ontario are likely to be receiving the same evidence-informed care as patients in urban university health networks.

It's not just the electronic access that sets NOSM's library apart, but also its service. Many university librarians believe that they should never perform literature searches for their clients library users must learn this skill for themselves. Of course, this is an important skill, but in Northern Ontario we also work under different circumstances.

With 1,400 clinical faculty in more than 90 communities across Northern Ontario (and with patient caseloads much higher than their urban counterparts), our faculty have great demands on their time. The staff in NOSM's Health Sciences Library complete literature searches for faculty and researchers, and provide them with an expedited landing page to find all the resources they need. NOSM faculty members are able to quickly locate high quality research information, as well as the right types of services and support, depending on their needs.

Over the last few years, increasing operational costs and static governmental funding have caused rising financial pressure at the School. Because of the outstanding work of the Health Sciences Library, two very generous donors have committed to contributing a total of \$50,000 in matching donations to ensure that the Health Sciences Library continues to support outstanding patient care, health research, and education in the North.

Dr. Roger Strasser is the Dean of the Northern Ontario School of Medicine. His Dean's Columns are featured in each issue of the Northern Ontario Medical Journal, a quarterly publication of Northern Ontario Business.

NOSM medical students at the School's Health Sciences Library in Sudbury.

For every dollar donated to NOSM's Health Sciences Library, your dollar will be matched by our committed donors to double the impact of your investment. If you'd like to support high-quality health care, research, and education throughout the North, contact NOSM's Advancement Office at **advancement@nosm.ca** or **1-800-461-8777**. I myself have recently made a personal financial commitment to our much-loved library, which has never failed to support me in my research and writing. — Dr. Roger Strasser

> Kathy Needham 705-662-7154

Katie Biasiol 807-766-7424

NOSM MAKES ITS 'MARK' IN NORWAY

The Northern Ontario School of Medicine has a rapidly growing alternative name: No Ordinary School of Medicine. What is it about NOSM that makes it so unique?

One of the reasons is that NOSM's model is specifically designed to increase recruitment and retention and address priority health concerns in Northern Ontario. This is what is called a Distributed Community-Engaged Learning (DCEL) model, for which NOSM is famed around the world. Although NOSM is unique, the challenges that Northern Ontario is facing in terms of health care are common in rural, remote, and isolated parts of the world.

Over recent years, a growing number of health professional schools have developed distributed, community-engaged models around the world. One of those schools is Universitetet i Tromsø, known in English as UiT: The Arctic University of Norway. Members of the UiT leadership have begun to build curriculum based on NOSM's model. Like Northern Ontario, the county of Finnmark, where UiT is based, is the northernmost county of Norway with a dispersed and aging population. With only two regional hospitals, much of the health care in Finnmark is provided by general practitioners, of whom there are not enough.

In response to these community issues, UiT is undergoing a comprehensive curriculum revision to replicate many features of NOSM's model—early contact with patients, clinical learning, interprofessional learning, and distributed community learning.

"In proposing the Finnmark Model, faculty at UiT are planning to implement a NOSM DCEL-type model in the underserved region of northern Norway," says John Hogenbirk, Senior Research Associate, Centre for Rural and Northern Health Research (CRaNHR) at Laurentian University. "Their plan is to host fifth- and sixth-year medical students in communities in the county, including at least one community with a sizable percentage of the Sami Indigenous people. While there is currently some medical student placements in Finnmark, the new model would greatly increase the number and duration."

Research conducted by NOSM's Dean, Dr. Roger Strasser, shows that several countries with similar rural and remote areas to Northern Ontario and Finnmark have benefitted from decentralized medical education. The revisions to UiT's six-year medical program are designed to educate doctors with the necessary skills to serve rural areas.

With these substantial changes to their medical education program, the staff and faculty at UiT are eager to see if the changes are making a difference. To this end, UiT is collaborating with NOSM and CRaNHR staff—chief among them are Dr. Roger Strasser, Dr. David Musson, and John Hogenbirk—to evaluate UiT's new NOSM-inspired model and see how it may increase local economic activity, improve recruitment and retention in the area and, ultimately, improve patient outcomes in the region.

"NOSM and CRaNHR have engaged in and continue to engage in international research collaborations, the Finnmark-NOSM-CRaNHR investigation being the most recent research collaboration," says Hogenbirk. "These collaborative research programs benefit from our work on the NOSM Tracking and Socio-Economic Impact Studies and, equally important, help us to improve how we conduct our studies as well as how we understand, use, and share our findings. These collaborative international studies challenge our thinking, enhance our studies and provide more value for the people of Northern Ontario."

Back row (left to right): Dr. Peder Halvorsen, family physician and UiT Professor; Dr. Arnfinn Sundsfjord, UiT Dean; John Hogenbirk, Senior Research Associate CRaNHR and NOSM faculty member. Front row (left to right): Dr. Roger Strasser, NOSM Dean; Dr. Torben Wisborg (anaestiologist and UiT Professor; Dr. Ingrid Petrikke Olsen, gynaecologist and UiT Associate Professor and Finnmark Model Lead).

NEWLY-ACCREDITED NOSM PROGRAM CONTRIBUTES TO CANCER CARE IN THE NORTH

In early January, NOSM announced another in a long list of collaborations with the Thunder Bay Regional Health Sciences Centre (TBRHSC) in Thunder Bay and Health Sciences North (HSN) in Sudbury. The academic health sciences centres have partnered with NOSM to establish an accredited Medical Physics Residency Education Program to train medical physicists in the North, for the North.

Medical physicists are health-care professionals who have an honours degree in physics and complete specialized training in the medical applications of physics. Their work often involves the use of x-rays, ultrasounds, magnetic and electric fields, infrared and ultraviolet light, and heat and lasers in diagnosis and therapy. Most medical physicists work in hospital diagnostic imaging departments, cancer treatment facilities, or hospital-based research establishments.

"A lot of medical radiation is really customizing treatment to each individual patient. As physicists, we calculate the accurate measurement of the radiation output from radiation sources employed in cancer therapy," says Dr. Peter McGhee, Program Director of NOSM's Medical Physics Residency Education Program and Head of Medical Physics at TBRHSC.

With the support of Cancer Care Ontario, Thunder Bay and Sudbury have had medical physics training programs in place for nearly 20 years. "Although they evolved independently, there were many commonalities between the programs in existence at the Thunder Bay Regional Health Sciences Centre and Health Sciences North in Sudbury, so establishing a consolidated accredited program under the auspices of NOSM was a rather natural next step in advancing the standard of education for medical physicists," says McGhee.

"The objective of this Northern-based program is to provide practical training and experience in the clinical application of medical physics within the specialty of radiation oncology," says Dr. Michael Oliver, Associate Program Director and Medical Physicist at HSN. "The primary goal of the program is to provide, in a safe and professional environment, comprehensive clinical training in radiation oncology physics through the consolidation of clinical teaching faculty, staff, and educational resources of the Northern Ontario School of Medicine and the two Northern Ontario cancer centres."

During the course of the program, residents (one in Thunder Bay and one in Sudbury) are formal full-time employees of the academic health sciences centres. They are expected to enhance their learning experience with contributions to clinical work in a manner corresponding to the progression of their level of training.

Pictured (left to right): Muhammad Hafeez, Physics Assistant; Bans Arjune, Senior Physicist; and, Dr. Peter McGhee, Head of Medical Physics at the Thunder Bay Regional Health Sciences Centre.

THIRD SEASON OF HARD ROCK MEDICAL PREMIERES ON TVO

Hard Rock Medical is a 30-minute "dramedy" that was inspired by and mostly follows—the School's curriculum. The series follows a diverse group of students as they navigate their way through a unique, Northern, hands-on medical school. After two exciting years of watching the students get their bearings with rural medicine, the third season of *Hard Rock Medical*, which premiered January 8, 2017 on TVO, puts the students through new and demanding medical and personal challenges.

"Our collaboration with NOSM has been exciting because the curriculum basically gives us a story," says Derek Diorio, Director/ Producer of *Hard Rock Medical.* "When we are creating the show, we take real-life experiences from students and staff and we hang stories around them."

The third season was filmed entirely in North Bay and surrounding area, including scenes in Nipissing First Nation. As in the past, this season also features local actors and musicians for the soundtrack. Working closely with Canadore College's Digital Cinematography program, much of the show was staged out of Canadore College, which also housed the wardrobe and offices for the show.

"I think the show tackles the realities of becoming a doctor," says Jamie Spilchuk, originally from North Bay, who plays Cameron Cahill in the show. "It's a heightened, super-dramatized look at the experience of students going through this unconventional medical school where they take candidates and throw them in the deep end. And the North creates this amazing background to tell the stories that we wanted to get across in the Northern landscape."

Just as third-year NOSM medical students undertake their Comprehensive Community Clerkships in various communities across Northern Ontario—including North Bay—so too will the students in the third season of *Hard Rock Medical*. The third season focuses on taking the students out of the classroom and into diverse settings where the curriculum walks through the door.

"When we're shooting, we needed extras, and there were a few NOSM medical students at the North Bay Regional Health Sciences Centre doing their third year clerkship," says Diorio. "They came by to watch us set up the scene and ended up being on camera. Not only that, but they became medical consultants for the day. It was great to have them there—they showed us medical techniques, how much blood to put on the operating gowns in the OR, and how students would act in specific emergency situations."

There's still more excitement to be experienced with *Hard Rock Medical!* As the team films the fourth and final season in North Bay, be sure to tune in to TVO and catch the third season as it unfolds.

Third-year NOSM medical student Rhea Galbraith (centre) was an extra in this scene from *Hard Rock Medical* featuring Rachelle Casseus as Fardia Farhisal (right). *Photo Credit: Michael Tien*

BEHIND THE SCENES PUTTING CLEAN ENERGY INTO HEALTH RESEARCH

In each issue of Northern Passages, individuals share a "behindthe-scenes" look at the Northern Ontario School of Medicine. This edition features Dr. Doug Boreham, NOSM's Division Head of Medical Sciences, and the NOSM and Bruce Power Research Chair in Radiation and Health, whose role is to support learners in studying medical sciences, and faculty and communities in investigating research relating to better human and environmental health.

Tell us about your role at NOSM.

Forty percent of my time at the School is spent as the Division Head of Medical Sciences, where I support NOSM's Medical Sciences faculty in teaching medical students in their various areas of expertise, such as anatomy, physiology, immunology, genetics, microbiology, and pharmacology. The other 60 percent of my time is spent as the NOSM and Bruce Power Chair in Radiation and Health, which means that I work with graduate students and faculty to conduct research regarding health, the environment, and radiation.

What types of research projects are you working on now?

I am very lucky to work with many graduate students—from Masters to postdoctoral level students—and numerous NOSM faculty on a wide variety of research projects that have a ranging impact on the health of the people in our communities.

For example, we're doing a number of projects in Elliot Lake that look at community health. We just did a project to investigate the number of patients that go from Elliot Lake to Sudbury for CT scans, and the number is staggering. We're hoping this research will help Elliot Lake get a new CT scanner to save both lives and resources. In addition, the World Health Organization has started an initiative to support age-friendly communities so we recently helped Elliot Lake with a study there to see if the community was friendly for people of all ages. In Sudbury, we are working with EMS to implement "PulsePoint" which is a mobile phone app that alerts CPR bystanders that a person nearby has had a sudden cardiac arrest.

Another big focus for our research is done in the SNOLAB— SNO stands for Sudbury Neutrino Observatory—just outside of Sudbury, located two kilometres underground in the Vale Creighton mine. We just brought down for a second year in a row more than 2,000 fish embryos to be grown down there during the winter to see what happens to an organism when they are shielded from cosmic and background radiation. We are also collaborating with two groups in the United States to grow cancer cells down there, to look at how lack of background radiation impacts cancer cell growth. We're purchasing a diagnostic x-ray machine to help us understand risks of being exposed to reduced background radiation and relate that to risks associated with medical radiation like mammograms, x-rays and CT scans. Interestingly, our research has shown that, contrary to what some people might think, low-dose medical radiation seems to have positive biological effects and increases life span and decreases cancer risk in our mouse model systems. Our current research is looking at how and why that might be.

What is your favourite part about your role at NOSM?

I really enjoy collaborating with faculty colleagues, and working with students to help them support research. Health research is important to me, and I find it rewarding to work with my colleagues to help people in our area live healthier lives, and inspire and support our students to conduct similar research that helps our communities.

Originally from Elliot Lake, Ontario, Dr. Doug Boreham is NOSM's Division Head of Medical Sciences and NOSM and Bruce Power Chair in Radiation and Health. Dr. Boreham was recently renewed as the Chair, along with an additional \$5 million research funding investment from Bruce Power, the donation of a clean energy electric car for research at NOSM, and a car charging station that will be open in the spring of 2017 and will be available for free to the public.



NOSM's Health Sciences Library. Pay it forward to those who follow.

The Northern Ontario School of Medicine's Health Sciences Library provides essential web-based access to educational resources. Whether practising in Sioux Lookout or Kapuskasing, the Health Sciences Library ensures health professionals have the information they need to serve the health needs of their community.

The resources in NOSM's Health Sciences Library are invaluable, but they do require funding. And they need your support.

Please consider investing in the resources that prepare health professionals to practise in the North.

nosm.ca/donate



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