NORTHERN ONTARIO SCHOOL OF MEDICINE

JANUARY 2016

NORTHERN HEALTH RESEARCH

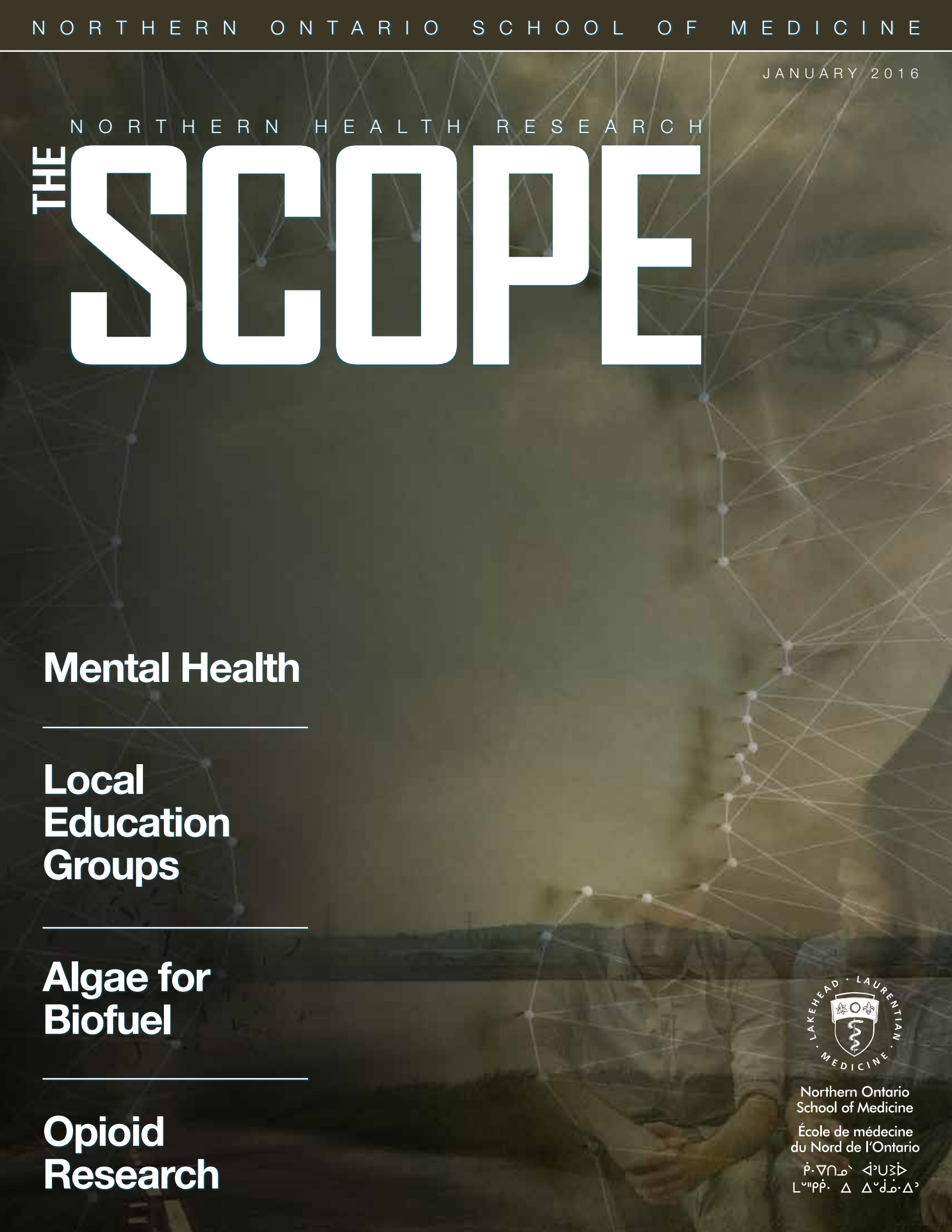
THE SCOPE

Mental Health

Local Education Groups

Algae for Biofuel

Opioid Research



Northern Ontario School of Medicine

École de médecine du Nord de l'Ontario

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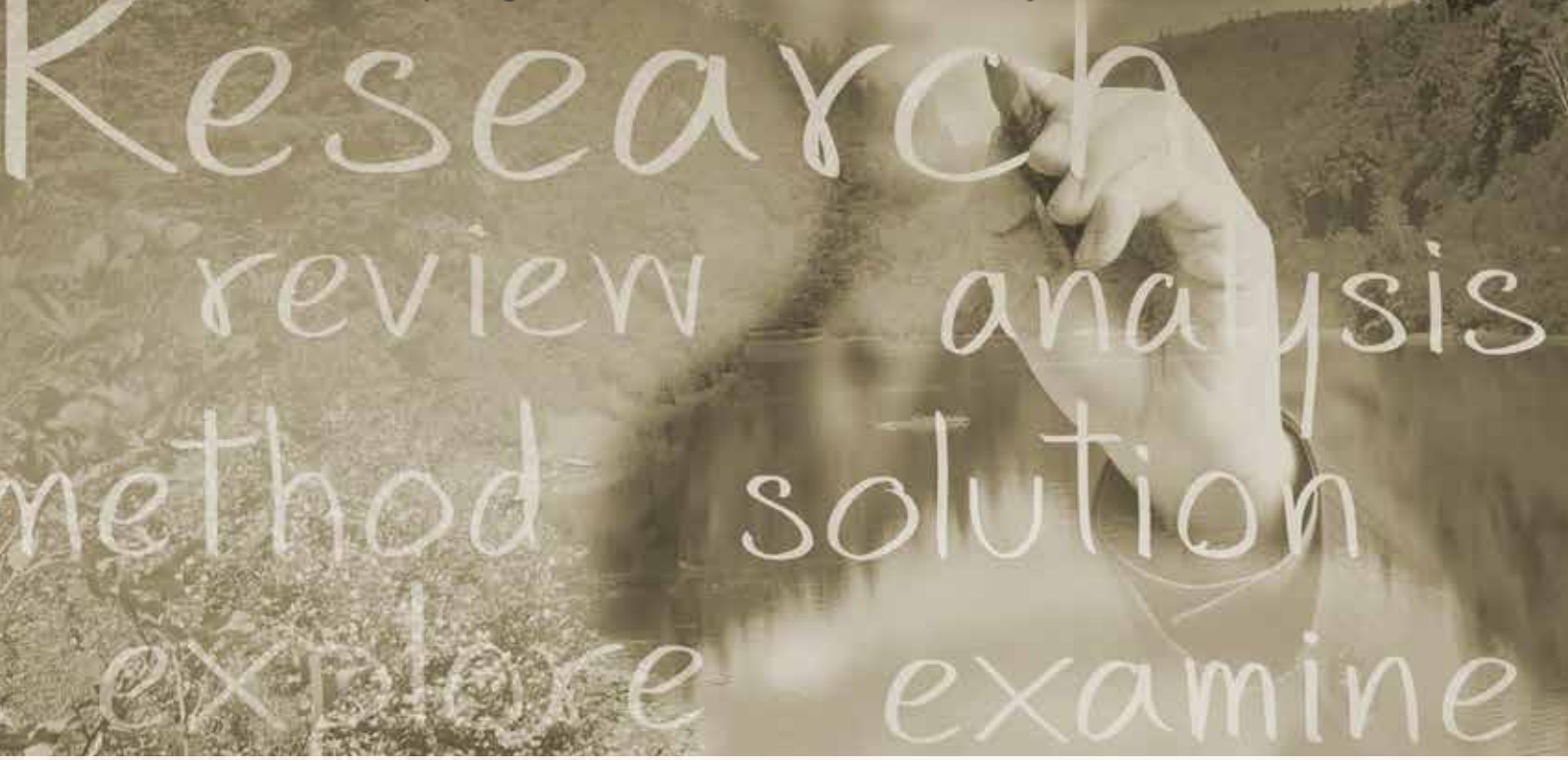
WELCOME TO *THE SCOPE*

Scope can be defined as: the range of one's perceptions, thoughts, or actions; the geographical or perceived area covered by a given activity; or, a viewing instrument such as a microscope or telescope. In most modern usages of the word scope, there is a unifying theme of examination or investigation.

In this case, ***Scope*** includes all of these ideas. Research at the Northern Ontario School of Medicine (NOSM) is reflective of the School's mandate to be socially accountable to the diversity of Northern Ontario. As such, studies are being undertaken in a range of subjects including culturally appropriate care for Aboriginal peoples, new drug technologies, cancer screening methods, patient rehabilitation, lakewater quality, and so much more. Subjects being studied are as varied as the geographic area of NOSM's wider campus of Northern Ontario and as diverse as the researchers themselves: faculty members in the School's Human, Medical, and Clinical Sciences Divisions, residents, medical students, a broad range of health-professional learners, and collaborators.

Although this publication cannot provide the full scope of exciting research happening across Northern Ontario, we hope it provides a glimpse into some of the work being done with a view of improving the health of Northern Ontarians and beyond.



The Scope Research Newsletter of the Northern Ontario School of Medicine

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Feedback

We welcome feedback and suggestions about *The Scope*. NOSM is your medical school. What stories would you like to read about? Send ideas to **communications@nosm.ca**.

The Scope is published bi-annually.

WELCOME TO *THE SCOPE*

A Message from Dr. Penny Moody-Corbett Associate Dean of Research


Dr. Penny Moody-Corbett

As you may have heard, one of the five strategic goals at the heart of the Northern Ontario School of Medicine's new Strategic Plan is to strengthen our capacity to perform outstanding research that aligns with the health needs of Northern Ontario.

The School recently launched *A Roadmap to 2020: NOSM's Whole School Strategic Action Plan*—a plan developed to integrate activities across NOSM's wider campus of Northern Ontario in order to meet our five new strategic goals. The Action Plan calls for strengthened relationships with regional and community partners, including: the Northern Ontario Academic Medicine Association (NOAMA); Local Education Groups (LEGs); Local NOSM Groups (LNGs); Site Administrative Coordinators (SACs); Academic Health Sciences Centres (AHSCs); and, other teaching hospitals and health services.

We have the opportunity to work together and develop a collaborative, inclusive NOSM community of researchers across the North. In this issue of *The Scope*, several of the valuable collaborations now underway are highlighted, including: a NOSM faculty member investigating competencies of the rural physician; a NOSM resident using data from the Institute of Clinical and Evaluative Sciences to investigate access to psychiatry care; the important work being undertaken by LEGs across the North; and, so much more.

Together, I know we can strengthen our capacity to conduct research of significance across the North, while at the same time aligning with NOSM's social accountability mandate to improve the health of the people and communities across our region.

As we start the new year, I'd like to take this opportunity to remind you that my team and I are here to support your research. Whether it is a new research endeavour or an existing project, the Research Support Group can help. For more information, please contact researchsupport@nosm.ca.

THE *NORTHERN ONTARIO MEDICAL JOURNAL* TO INCLUDE A SECTION OF PEER REVIEWED RESEARCH!

Over the last decade, Northern Ontario has become an exciting place for the medical community. In light of the many innovative and stimulating health developments taking place across the North, the *Northern Ontario Medical Journal* was first established in 2007 to share information, innovations, successes, challenges and solutions to Northern Ontario's evolving health-care landscape.

Although the *Northern Ontario Medical Journal* continues to be an exciting place to share these stories, it also provides an opportunity to share scholarly work within the community of the North. In the near future, the *Northern Ontario Medical Journal* will begin to publish peer-reviewed scholarly work that is relevant to the medical community in Northern Ontario.

More information will be available in the coming months! To learn more, contact Dr. David MacLean, NOSM's Assistant Dean of Research at research@nosm.ca.

Consortium national de formation en santé
Volet Université Laurentienne

THE CONSORTIUM NATIONAL DE FORMATION EN SANTÉ

The Consortium National de Formation en Santé (CNFS) at Laurentian University is one of 11 national chapters of CNFS across the country. Funded by Health Canada, the Consortium was established to champion Francophone health care and research in 11 French-speaking post-secondary institutions across the country (outside of Québec) that offer health education programs in French. The Consortium strives to improve the French-language health services available in Francophone minority communities by training Francophone and bilingual health professionals and conducting complementary research related to this training and the needs of these communities.

When it comes to research, CNFS looks to fund two types of projects in particular: projects that examine various factors pertaining to French health-care services, and projects that seek to explore different dimensions pertaining to the determinants of health in Francophone minority communities.

Faculty members of NOSM—who hold joint faculty appointments with both Lakehead University and Laurentian University—are eligible to apply for CNFS funding. Typically to the tune of $100,000 per year to distribute to various projects, CNFS research dollars are awarded to collaborative research projects that investigate Francophone health in Northern Ontario. While the research must be conducted in French, CNFS invites all to get involved and to create partnerships that promote community-based, action-driven research.

To learn more, visit cnfslaurentienne.ca or contact Nicole Dubuc-Charbonneau at ndubuccharbonneau@laurentian.ca.

UNIQUE LEARNING OPPORTUNITY

NOSM MD Student Writes Case Report about Uncommon Hepatic Adenoma

During her training as a NOSM fourth-year medical student, Heather Anne Smith was working at Health Sciences North (HSN) in Sudbury in the surgical ward with NOSM Assistant Professor Dr. Jeffrey Shum. One day, a patient arrived with pain in her upper abdomen, reporting general malaise. Upon further investigation and diagnostic testing, Smith and Dr. Shum identified that the patient had a ruptured hepatic adenoma, an uncommon benign liver tumour that is often associated with oral contraceptive use. Interestingly, most adenomas are asymptomatic and discovered incidentally, however abdominal pain has been described as an important indicator of possible rupture.

During the investigation, Dr. Shum mentioned the rarity of the case to Smith, and encouraged her to conduct a literature review and write a case report about their experience—an activity that expanded Smith's medical knowledge in that area and better prepared her to care for the patient.

"When I did my literature review, the patient was still in the hospital," says Smith. "I was able to talk to her about the rarity of her case and why it was so important for other physicians to learn about it. We spoke about other common and uncommon features of hepatic adenomas, and the ways in which her presentation was similar to that of other patients reported."

Not only did this experience support Smith's clinical education and her interaction with the patient, but it also allowed her to practice an important skill that she would require as a future physician: writing a case report.

"As a physician, when you have an atypical case, you want your colleagues to know about it," says Smith. "Case reports capture information that wouldn't be captured in a large, randomized control trial, but that certainly benefit from being reported. I'm really glad I had the opportunity to practice writing a case report under the supervision of Dr. Shum, so that, by the time I'm an independent clinician, I'll know how to write a case report in an efficient way that benefits my colleagues."

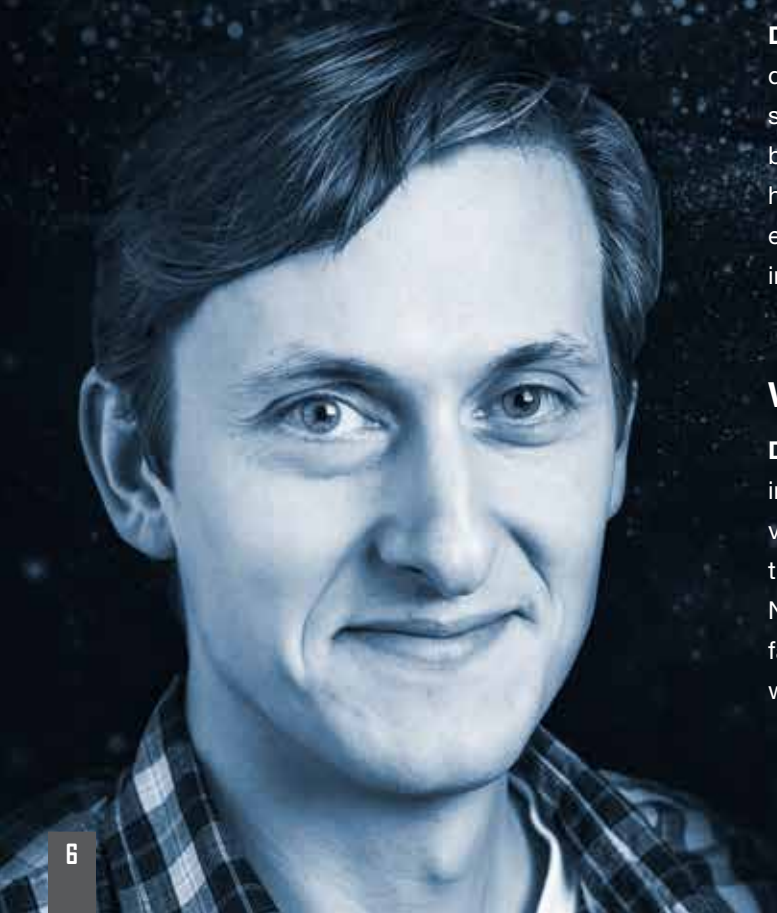
Heather Anne Smith, NOSM Fourth-Year Medical Student

IN FOCUS

DR. DAVID MARSH, NOSM DEPUTY DEAN AND DR. JOE EIBL, POSTDOCTORAL FELLOW

Dr. David Marsh joined NOSM in 2010 and is currently the Deputy Dean and Associate Dean of Community Engagement. Prior to joining the NOSM Executive Group, Dr. Marsh held leadership roles at the Addiction Research Foundation and the Centre for Addiction and Mental Health in Toronto, and has spent the last 20 years researching withdrawal management and harm-reduction interventions.

Research continues to be a focus for Dr. Marsh, who is currently researching opioid dependence with Dr. Joe Eibl, a postdoctoral fellow and Research Lead in the Postgraduate Education office at NOSM. Originally conducting lab research, Dr. Eibl's doctoral work focused on how the brain signals pain, and the ways in which that pain signaling can be inhibited. Since his dissertation, Dr. Eibl's work has now evolved to involve health utilization data, specifically in the area of mental health.



Here, we put Drs. Marsh and Eibl 'in focus' to learn more about their research project investigating an important topic in the North—mental health.

Tell us about your research.

Dr. David Marsh (DM): This project, partially funded by the Northern Ontario Academic Medical Association (NOAMA), looks at the impact of opioid dependence on the people of Northern Ontario, and treatment effectiveness. The approach is to analyze large health data sets, mostly through the Institute of Clinical and Evaluative Sciences and a large number of formal Electronic Medical Records (EMR). In total, this project accesses full EMRs on about 17,000 patients who have received treatment in the province. Through data from the Institute of Clinical and Evaluative Sciences, this project looks at the effectiveness of treatment for patients receiving treatment in Ontario.

Dr. Joe Eibl (JE): This project is really about using big data to assess how care is delivered in Ontario. As a socially accountable medical school in a region that has been historically underserved, it's important to consider how to use data from Ontario's health systems to look at effectiveness of care, especially for vulnerable populations in the North.

What has your research found so far?

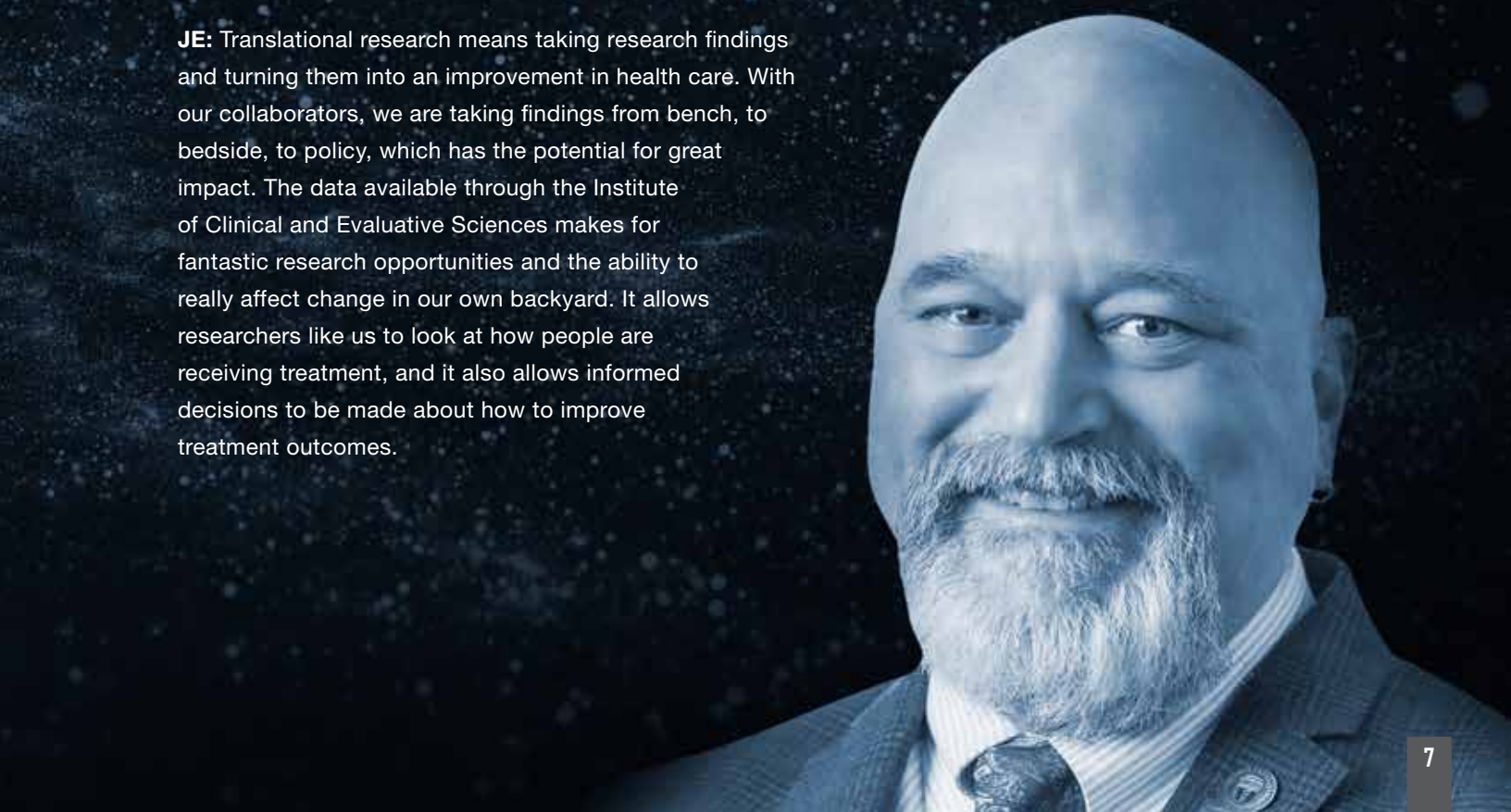
DM: The project first looked at treatment effectiveness in Northern Ontario versus the south, and in urban versus rural settings in Ontario. The data showed that that treatment was more effective in Northern urban and Northern rural settings than southern urban settings. In fact, mortality was higher in southern rural areas than it was in Northern urban and Northern rural areas.

JE: This was quite surprising to us. Opioid agonist treatment—or methadone therapy—is a time- and resource-intensive therapy. Patients must go to the clinic and the pharmacy every day to get their dose of methadone. So our hypothesis was that patients in Northern Ontario have more barriers to care, in terms of having to travel longer distances to receive their treatment. We thought they'd have poorer health outcomes compared to patients down south. But when we actually dug into it, it became clear that, while it's harder to get into therapy in the North because there are fewer programs available, those who do get in have more community supports and are more committed when they enter the program. The results showed that if you're in a Northern, rural area, you're 31% more likely to have a positive treatment outcome than someone in a southern urban area.

What do you find compelling about this research area?

JE: Translational research means taking research findings and turning them into an improvement in health care. With our collaborators, we are taking findings from bench, to bedside, to policy, which has the potential for great impact. The data available through the Institute of Clinical and Evaluative Sciences makes for fantastic research opportunities and the ability to really affect change in our own backyard. It allows researchers like us to look at how people are receiving treatment, and it also allows informed decisions to be made about how to improve treatment outcomes.

DM: As a clinician, it's important to undertake research to understand what would make treatment more effective. Incorporating research with clinical care also helps to have impact on the broader system. With research that improves care generally, there is an opportunity to help a lot more people that I can help individually as a clinician.



WORKING WITH THE PROGRAM

NOSM Faculty Member Investigates the Impact of Fetal Programming on Health

In the past, it was generally believed that a mother's womb was a protected space. In other words, scientists believed that what happened to the mother did not impact the baby—the baby's development was safeguarded. That turned out to be untrue. Epidemiologist and physician Dr. David Barker was the first to identify that what happens to the mom can also impact the fetus. This process is known as 'fetal programming,' which is the predisposition to diseases that can actually be developed in utero.

Dr. TC Tai, NOSM Associate Professor in Medical Sciences, has dedicated much of his professional career to the investigation of fetal programming, and its impact on health. Specifically, Dr. Tai and his team are examining how hypertension can develop later in life as a result of an adverse fetal development. According to Dr. Tai's research, when a mother experiences stress, there is an increased level of glucocorticoids, the stress hormone. It is believed that prolonged exposure to elevated levels of glucocorticoids can program the fetus to develop hypertension as an adult. Dr. Tai and his team of colleagues and graduate students are looking at how that mechanism comes about in utero.

"Stress in the mother has a substantial impact in terms of fetal growth and development," says Dr. Tai. "Because everyone experiences stress at some point, we're not only looking at how fetal programming works, but also how it can be prevented. Currently, we have evidence that shows that things like diet and exercise are potential regulators, specifically with diet via antioxidants. These factors can potentially reduce the impact of fetal programming for hypertension."

From this research, Dr. Tai is hoping to build awareness about the detrimental effects of fetal programming, and the ways that expectant mothers can protect their babies from developing diseases later in life.

"Like a lot of research that we do at NOSM, I think this work has global impact, but also has specific implications for our social accountability mandate," says Dr. Tai. "In a lot of Northern Ontario communities, it is difficult or expensive to buy fresh fruit and vegetables, for example—the very things that help regulate the stress hormones that cause fetal programming for hypertension. Ultimately, this stress impacts the health of the fetus, the newborn, the adult, and eventually, the health-care system as a whole. Education will allow us to share the potential therapeutic mechanisms that alleviate fetal programming."

Dr. TC Tai, NOSM Associate Professor of Medical Sciences

NOSM'S GOT LEGS

The Meaning and Structure of Local Education Groups

When working within a distributed model of medical education, it's important that physicians feel academically supported in their training of future health professionals, regardless of their geography. At some medical schools, a physician might be down the hall or the street from their medical school, allowing them to access a variety of academic and scholarly support systems. At NOSM, faculty members can be more than 1,000 kilometres apart. Under these circumstances, it could be easy to feel isolated, or as though you're working on things individually as a physician teacher. This was one of a few motivations for establishing Local Education Groups (LEGs), administered through the Northern Ontario Academic Medical Association (NOAMA).

LEGs are made up of groups of physician clinical teachers who typically share geography and, at times, an area of specialty. They provide a strategy for expanding the walls of the clinical teaching environment beyond the physical classroom—to really ensure that all of Northern Ontario is considered NOSM's campus. As physician clinical teachers, it's important for faculty members to be able to have say in their own professional development, have opportunities to expand their involvement in research, and make decisions about how the clinical competent of a student's education is delivered in their context. Importantly, LEGs provide a network of physicians that are able to collaborate on these very issues. LEGs develop a system of peer support, allowing for much-needed collaboration. Working together allows busy clinicians to share deliverables and strategies for teaching—thus having a positive impact on the learner experience.

"Physicians really need to work as a team, particularly in small communities where they have to cover each other's schedules and share the teaching," says Dorothy Wright, past Executive Director of NOAMA. "The LEGs create a structure where physicians have access to a pool of funding that is generated based on academic deliverables, membership, and scholarly activities. Rather than receiving compensation directly, their NOSM teaching funds and other sources of academic funding from NOAMA are pooled. Physicians in LEG groups can then use these funds to advance community and group priorities. This is ideal in stimulating and enhancing the academic culture across the North."

In addition, Wright believes that this is how the LEGs encourage recruitment. When new physicians join a community, they are able to engage in teaching—already an identified strategy for physician retention—and join a group of like-minded physicians that create a network of professional support for one another. In addition, developing a collaborative environment in communities across the North benefits not only the physicians and learners, but also the communities that they serve.

"Bringing groups of physicians together with similar interests often leads to discussions about community health issues," says Wright. "As a result of these issues, the LEGs are able to brainstorm ways that they could address these issues, which stimulates ideas for research projects that the LEG is able to fund. They're able to work together to address community health as a whole, not just as an individual practitioner, seeing patients and taking students on their own."

Many LEGs across Northern Ontario are engaging in high-quality research. In upcoming issues, *The Scope* will highlight high-quality LEG-led research projects across the North. Stay tuned to learn more about what LEGs across Northern Ontario are investigating!

RETHINKING POND SCUM

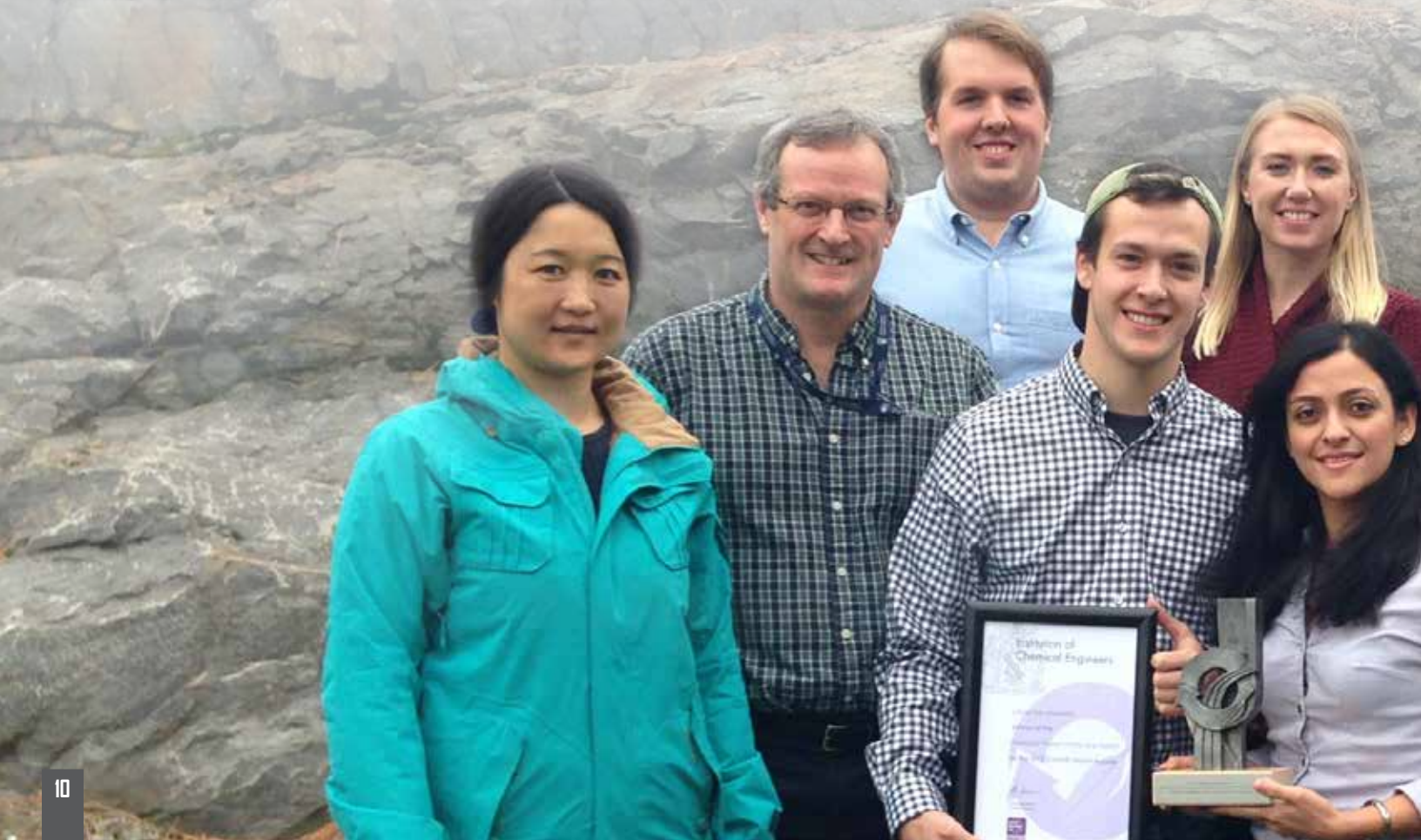
NOSM Researchers Use Algae for Biofuel and other Beneficial Compounds

When most people think about algae in Northern Ontario, they think negatively of blue-green algae contaminating our lakes, or the green pond scum in our waterways. Two NOSM faculty members—Dr. Greg Ross and Dr. Ashley Scott—are looking to change this perception.

As it turns out, algae are actually very useful organisms. As algae grow, they produce fats and oils that can be converted directly into biodiesel and health-related compounds. This useful aspect was attractive to Drs. Ross and Scott as a potential area of research, but the question of feasibility came into play. How does one grow algae all year round, when the climate in Northern Ontario only allows for its natural growth for two to three months of the year?

The answer came from one of Northern Ontario's hallmarks—the mining industry. In order to pursue the benefits of algae and biofuels, Drs. Ross and Scott, and their team of graduate students partnered with Sudbury Integrated Nickel Operations (Sudbury INO, a Glencore company) in Falconbridge, Ontario. During its operation, the Sudbury INO nickel smelter expels substantial amounts of off-gas that contain carbon dioxide and heat—exactly the ingredients that algae require to grow. A collaborative project with the company aims to recover the heat (which is equivalent to around 50,000 electric home heaters burning all day) to help grow algae throughout the year. The goal is that the biodiesel produced from the algae can one day replace fossil fuels used in mining.

"Biodiesel is much cleaner burning than fossil fuels," says Dr. Ashley Scott, Professor in Medical Sciences at NOSM and Professor in Engineering at Laurentian University. "Mines use fossil fuel diesel to power machinery and trucks underground, yet they are getting deeper and deeper, so substantial amounts of ventilation are required to ensure the air quality is high enough for the workers. Because it burns cleaner, biodiesel could provide a much healthier working environment for people in the mining industry."



“Another big driving factor of this project is climate change,” says Dr. Greg Ross, NOSM Professor of Medical Sciences. “The premise of the project is to reuse waste heat and carbon dioxide in order to create a greener alternative to burning fossil fuels.”

In addition, the team is doing more than just one positive thing with algae in the North. With their biofuels project well under way (and internationally lauded—they recently received the Global Research Project of the Year Award from the international Institution of Chemical Engineers), the researchers are exploring other beneficial uses for algae. Specifically, they are investigating algae’s exceptional ability to also produce antioxidants, antibiotics, and Omega 3 fatty acids—the latter being exactly like the kind you get from taking a fish-oil supplement.

“The algae we’re using in all of these projects are naturally occurring species found right here in Northern Ontario, making this a truly made-in-the-North solution,” explains Dr. Scott. “Algal species that are currently used for biofuels tend to come from stock cultures that are grown in places such as Texas or Hawaii. When we started, we wondered what strains of algae we have in Northern Ontario, and how they compare to those described in the literature. Through sampling, we’ve found absolutely phenomenal species of algae here in the North, with useful characteristics reported nowhere else. These species have incredible abilities to produce Omega 3s, antioxidants, biofuels, and excitingly, antibiotics—meaning that they have significant potential to improve the health of the people and communities of the North and beyond.”

Drs. Greg Ross (second from left) and Ashley Scott (back, third from right) and their team were recently awarded with the very prestigious Global Research Project of the Year Award from the international Institution of Chemical Engineers.

Dr. Vicky Nguyen is a psychiatry resident at NOSM. She is also the editor for the blog "Psychotherapy Matters" (psychotherapymatters.com), a website dedicated to connecting patients and psychotherapy providers.

EQUAL ACCESS

NOSM Resident Investigates Delivery of Psychiatry in Northern Ontario

For Dr. Vicky Nguyen, NOSM Psychiatry Resident, beginning her residency in Northern Ontario was an eye-opening experience. She quickly came to realize that in Northern Ontario, wait times to see a psychiatrist can be as long as 18 months or two years. This was one of a few aspects of variations in our health-care system that piqued her interest and prompted her to ask, "why?"

"Some of my patients tell me that, in the time they've been waiting to see a psychiatrist, they've attempted suicide more than once," says Dr. Nguyen. "Family physicians who were my preceptors in the community tell me about caring for complex mental health patients lost to follow up by psychiatry usually due to the inability to keep appointments as a result of the mental illness itself. It didn't take long before I really started thinking about the patients I didn't see. Who doesn't get access to mental health services in a timely manner, and why is that?"

These questions led Dr. Nguyen to her current research project, examining alternative strategies for delivering mental health care. These alternative models range from the use of telemedicine to various models of shared care, wherein psychiatrists support family physicians and nurse practitioners in delivering complex mental health care. Her current project is investigating the right approach to these issues—does the health-care system need more psychiatrists, a change in distribution of practising psychiatrists, or more innovative models to better support patients that require psychiatry care?

"There is obviously a distribution problem—not enough psychiatrists in Northern Ontario—but another substantial bottleneck is in psychiatrists' time," Dr. Nguyen says. "In follow up, a psychiatrist needs to see the patient for at least 20 minutes, or longer if the patient requires psychotherapy. And this is after we've already seen them and taken a proper history. The idea is not to look for faults in individual styles of practice, but to see different ways of delivering psychiatry so more people have access."

Partially funded by NOAMA, Dr. Nguyen's project aims to answer the question: "What is the impact of low psychiatrist supply on equity of access to physician-provided community mental health-care services for Northern Ontarians?" Using "big data" from the Institute of Clinical and Evaluative Sciences, Dr. Nguyen is investigating the impact of physician distribution on delivering psychiatry services, and whether certain innovations already in practice are improving equitable access to care. Access to psychiatry is not a new area of research considering the existing publications on this topic. What is new in Dr. Nguyen's project is the focus on geographic distance between physician and patient in Northern Ontario. The goal is to figure out which type of care is best for different contexts.

"At NOSM, we have opportunities as residents that are simply unheard of at other schools, and this research project is one of them," says Dr. Nguyen. "It is so fascinating to able to work with big data—understanding the big picture will help us get a sense of how to solve systems issues. At NOSM, I have the opportunity to make a positive contribution for people in Northern communities."

Dr. Sheldon Tobe is the Heart and Stroke Foundation/NOSM Chair in Aboriginal and Rural Health.

COMMUNITIES ACTIVELY INVOLVED IN "COMMUNITY ENGAGEMENT THROUGH RESEARCH" PROJECT

As a socially accountable medical school, NOSM directs its activities towards the priority health needs of Northern Ontarians, including Aboriginal and Francophone populations. This is not only true with education—NOSM's research portfolio is designed to address priority health concerns for the people of the North.

It is important to foster community-based, participatory projects to ensure that NOSM's research agenda is meeting the needs of the people and communities of the North. To this end, the NOSM/Heart and Stroke Foundation Chair in Aboriginal and Rural Health, Dr. Sheldon Tobe, and his collaborators have developed a project that specifically engages Aboriginal communities in research in an ethical, participatory way, and connects them with students who are looking to gain experience in research.

Over recent years, some Aboriginal communities have voiced that:

- Northern Ontario Aboriginal communities want to develop their own capacity for research.
- Aboriginal communities in the North want to work with NOSM learners, especially those they come to know and trust during their community placements in First Nations and Métis communities across the North.
- Medical students are eager to learn to do research, and want to address questions of importance to Northern Ontario communities.

In response to this guidance, the Community Engagement through Research project was born. Currently being piloted in Northern Ontario, the project supports Aboriginal communities in choosing a research question that they want to have answered. From there, the program pairs the community with a medical student who is interested in doing the research. The student is mentored by NOSM faculty throughout their NOSM education. In the end, the student reviews the results with the community and answers questions about how the collected data can be used to the community's benefit.

"Many communities tell us that once researchers have come through and done their project, they leave and don't come back," says Dr. Tobe. "Other times, they'll drop off a glossy document full of complicated language and think they've done their job. But truly, it is the researcher's role to ensure that the community is actively involved in the research, and understands how best to use the collected information."

Approaching its third year in operation, the Community Engagement through Research project is ensuring that the community leads the research agenda when it comes to answering questions of importance to Aboriginal health.

"I believe this is an important project for many reasons," says Dr. Tobe. "First, it enhances the participating community's trust with NOSM, and allows them to develop research capacity. Second, it enhances the School's ability to facilitate research. And finally, for our medical students, it's an amazing opportunity where they can develop research networks and lasting community partnerships."

A LIVE LABORATORY

NOSM Associate Professor in Human Sciences Researches Physician Performance in Rural Settings

You may have heard it before, but Dr. Elizabeth Wenghofer, NOSM Associate Professor in Human Sciences, will say it again: The rural physician is the quintessential multitasker. Scope of practice is one of the many factors that sets rural and Northern physicians apart from their urban neighbours to the south. Of these two very different practice settings, to which are NOSM grads drawn?

According to Dr. Wenghofer and her colleagues, 89%* of NOSM's first two graduating MD classes who completed both their undergraduate and postgraduate education at NOSM chose to practice in the North. With a program designed to meet the needs of the people and communities of Northern Ontario and address chronic shortages of health-care professionals, this is exciting news at NOSM.

Dr. Elizabeth Wenghofer is a NOSM Associate Professor in Human Sciences, and was recently awarded the Laurentian University Faculty of Health Research Award for 2015. In addition, she is the Director of Laurentian University's School of Rural and Northern Health, which offers a Master's program in Interdisciplinary Health and a PhD program in Rural and Northern Health.

But there's certainly more to the story. Director of Laurentian University's School of Rural and Northern Health, Dr. Wenghofer is also researching what physicians are required to do in rural settings, and consequently, which competencies are required to ensure they are successful in practice while there.

Of course, there are many aspects that influence a physician's performance and their ability to provide high-quality care for their patients. Among them are individual factors, such as age and gender. But more importantly, the environment of a physician's practice can also strongly influence their performance. Factors such as too high a practice volume, too low a practice volume, access to collegial support, and access to medical and professional resources all play a role in patient outcomes.

"A physician is not an island," says Dr. Wenghofer. "He or she reacts to his or her environment just like anyone else, and they need various supports. Proper infrastructure is extremely important in ensuring physicians are effective in what they do. In this way, you can make the rural physician's life easier—and lo and behold, you also support physician retention, and improve patient outcomes."

Another interesting arm of Dr. Wenghofer's research is looking at the competencies and knowledge required in order to provide quality care in specifically Northern and rural communities. Investigating the rural and Northern environment for practice and its realities—such as the huge breadth of scope of practice, the importance of collegial support in rural areas, the expanded role of the family physician, and the importance of multitasking—allows for the opportunity to map curriculum requirements and future practice requirements to ensure that the students are already equipped to address the challenges and reap the rewards of life as a rural or Northern physician.

"NOSM is a live laboratory, and from that perspective, it's really interesting to investigate the School's work," says Dr. Wenghofer. "Although it's still too early to assess the performance of NOSM graduates in the North, I am very interested in what the data will tell us five or ten years from now."

*Additional analysis of statistics compiled between the years of 2008 and 2014 by NOSM's Postgraduate Education office identify that, of those who have completed both their MD and postgraduate training at NOSM, 94% are practising in Northern Ontario.

INTERNATIONAL CONFERENCE: COMMUNITY ENGAGED MEDICAL EDUCATION IN THE NORTH

NORTHERN HEALTH RESEARCH CONFERENCE

JUNE 24-25, 2016 | SAULT STE. MARIE, ONTARIO, CANADA

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