Developing Partnerships for Distributed Community-Engaged Medical Education in Northern Ontario, Canada

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The Northern Ontario School of Medicine (NOSM) was established as a not-for-profit medical education corporation in November 2002 with a social accountability mandate to provide "undergraduate and post graduate medical education programs that are innovative and responsive to the individual needs of students and to the healthcare needs of the people in Northern Ontario."[1] NOSM is not only the first new medical school in Canada in 30 years; it is also the first medical school established in, for and about the Northern Ontario region; and the first Canadian dual university medical school. In practice, these "firsts" constitute community-engaged medical education programs distributed in 70 communities across Northern Ontario, made possible by partnerships with universities, advisory groups, community organizations, hospitals and clinics. It is through these partnerships that NOSM works to fully achieve its social accountability mandate with a diverse, multilingual population, dispersed over a wide geographic area.

Northern Ontario is a mostly rural, densely forested area of 820,000 square kilometers (approximately the size of France and Germany combined) with a population of just over 800,000, including First Nations (Aboriginal), Francophone and Anglophone groups. In general, the largest First Nation populations are located on reserves in the Northwest, while Francophone populations are generally concentrated in the Northeast. In April 2007, the Ministry of Health and Long-Term Care designated 37 Northern Ontario communities (including some larger communities such as North Bay and Thunder Bay) as medically "underserviced" with a total shortage of 132 family physicians.[2] In addition, 14 Northern Ontario communities were designated as underserviced in specialists with a total shortage of 129.[3]

Most of the region is characterized by fluctuations in economic stability and development, which are often attributed to an "extraction mentality" associated with the main activities driving the regional economy: logging and associated lumber and paper industries in the Northwest, and mining in the nickel-rich Northeast. Rather than sustaining prosperity in the region, these economic activities tend to generate cycles of relative growth and well-being followed by recession and hard times.

Against this background of geographic, economic and human diversity stand two universities, situated 1,000 kilometers apart: Lakehead University in the northwestern city of Thunder Bay and Laurentian University in the northeastern city of Sudbury (see map). Bridging the distance between these institutions was the first major challenge to creating a medical school that would serve the needs of the entire northern region.

University Partnerships: Building a Joint Academic and Governance Structure

Prior to the creation of NOSM, neither Lakehead nor Laurentian universities offered medical training. Medical students and residents were being trained in Northern Ontario in two separate programs: the Northwestern Ontario Medical Program (NOMP), located in Thunder Bay since 1972, and the Northeastern Ontario Medical Education Corporation (NOMEC), in Sudbury since 1990; the former by agreement with McMaster University Medical School,[4] and the latter by arrangement with the University of Ottawa Medical School.[5] Unfortunately, these programs were designed to impact the number of physicians practicing in the North but did not meet the demand. For example, in the 25 years from 1972 to1997, only 217 of the total 2,335 NOMP participants (approximately 9%) had established practices in Northwestern Ontario. The limited success of these programs underlined the need to establish a broader and fuller medical education program.

The initiatives that led to the development of NOSM involved broadly representative consultative and advisory groups from the very beginning, thereby setting a norm of consultation with multiple constituencies, as well as establishing a conceptual framework for the educational models that were eventually adopted. The first of these consultative groups were the Northern Ontario Rural Medical School (NORMS) Liaison Council and a nine-member external Advisory Board, both of which included

broad representation from the existing NOMP and NOMEC programs, as well as hospital Chiefs of Staff, and community and physician leaders. In 2002, the NORMS Liaison Council presented its report to the Advisory Board titled, "A Northern Rural Medical School," which included recommendations for a free-standing school, a focus on rural health and underserved populations, and the use of small groups for medical student education.[6]

The Ontario Provincial Government initially announced that the new Northern Medical School would have a main campus at Laurentian University in Sudbury and a "satellite" Year 3 and Year 4 campus at Lakehead University in Thunder Bay. However, First Nations leaders, Lakehead University administrators, and political leaders in the Northwest — many of whom had participated in the consultations — immediately rejected the plan because Northwest communities were unwilling to be a "satellite", arguing that only a full-fledged four-year campus on Lakehead University grounds would suffice. The future of the Northern Ontario School of Medicine hung in the balance as leadership sought a solution acceptable to all. It became clear that only the creation of an equitable learning environment at both locations and a full program at Lakehead was viable for recruiting qualified students from the Northwest and developing a curriculum with the involvement of communities throughout all of Northern Ontario. Finally, in May 2002, the Ontario Premier announced the creation of full NOSM campuses at both universities, Lakehead in the Northwest and Laurentian in the Northeast.

With the issue of location settled, the question of organizational governance came to the forefront. The conventional academic structure, with separate faculties of medicine at each university, did not seem workable. Such a model would, it seemed, create intractable administrative challenges, not to mention destroy the ability of the faculty, administrative staff and students to feel part of one unified medical school. How could a single integrated faculty of medicine be achieved?

Once again, the solution was both innovative and collaborative: a not-for-profit educational corporation was established as an organizational bridge between the two universities for administration of the medical school only. This corporation is governed by a 35 member Board of Directors representing all stakeholders, including two medical students, two residents, and two faculty members. The NOSM Dean is Chief Executive Officer, and the presidents of each university serve three-year alternating terms as Board Chair. The Board functions through four major non-academic committees: executive, finance and audit, governance, and a nominating committee.

Medical students are enrolled simultaneously in both universities and receive the MD degree jointly. Funding for NOSM comes directly from the Ontario provincial government, and the medical school is a tenant of each university. Figure 1 illustrates how corporate and academic functions are maintained separately, and how governance and operations function in the academic and corporate spheres.

The Academic Council, comprised of faculty and administrators from throughout NOSM, governs the academic affairs of the medical school through a series of faculty committees. Since there is a University Senate in each university, a combined Joint Senate

Figure 1: Northern Ontario School Governance and Operations

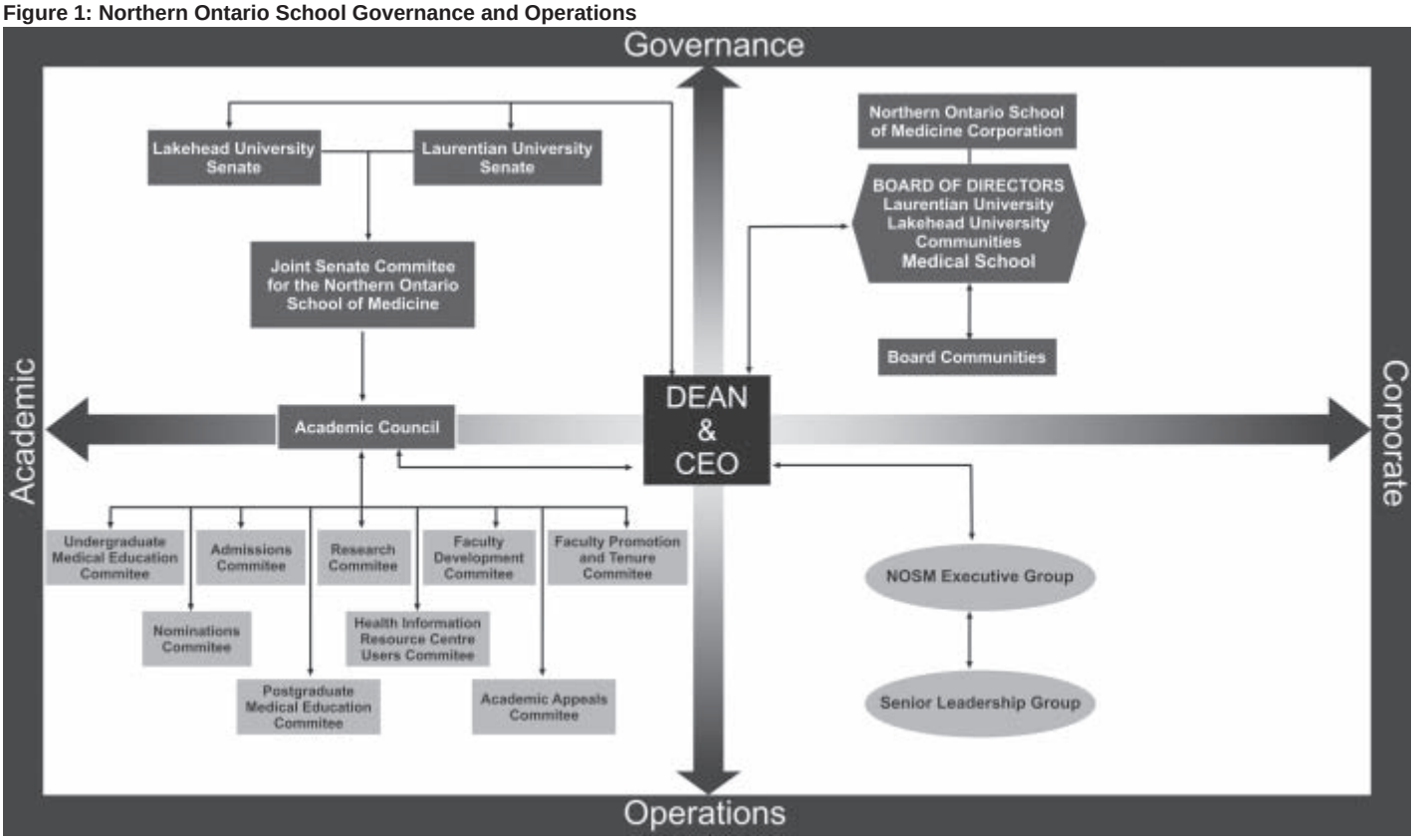

Figure 2: The Northern Ontario School of Medicine Curriculum

Phase 1 **Case-Based Modules (CBM)**		**Phase 2**	**Phase 3**
Each CBM lasts 6 weeks except CBM 101 (4 weeks), and are conducted through Case-based Learning Sessions and Topic Oriented Sessions with an emphasis on self-directed learning. The role of faculty tutors is to facilitate learning. On-campus learning takes place in large group sessions, small group facilitated sessions, structured clinical skills sessions, laboratory sessions and Community Learning Sessions.		8 months	52 weeks
Central themes: 1) Northern and Rural Health, 2) Personal and Professional Aspects of Medical Practice, 3) Social and Population Health, 4) Foundations of Medicine, 5) Clinical Skills in Health Care			
Year 1	**Year 2**	**Year 3**	**Year 4**
Module / System Focus	**Module / System Focus**	**Comprehensive Community Clerkship**	**Clerkship & Electives**
CBM 101 Review / Introduction CBM 102 Cardiovascular / Respiratory System CBM 103 Gastrointestinal System CBM 104 Central Nervous System / Peripheral Nervous System CBM 105 Endocrine System **CBM 106* Musculoskeletal System**	CBM 107 Reproductive System **CBM 108* Renal System** CBM 109 Hematology / Immunology **CBM 110* Neurological / Behavior** CBM 111 End of life issues 4 weeks of required electives	Students assigned in pairs to primary care practice settings in rural communities where they live and learn in small groups of up to eight learners per community. Theme 5 (Clinical Skills) subdivided into six disciplines: • Child Health • Women's Health • Internal Medicine • Mental Health • Family Medicine • Surgery	Theme 5 (Clinical Skills) divided into seven rotations of four weeks each: • Child Health • Internal Medicine • Women's Health • Surgery • Mental Health • Family Medicine • Emergency Medicine Minimum 12 weeks approved elective experiences. Licensure Examination

*Integrated Community Experience (ICE) away from Lakehead and Laurentian campuses, complemented by Distributed Tutorial Sessions (DTS) delivered electronically to each student.

Committee for NOSM was created to streamline academic procedures. The Joint Senate, as well as each of the University Senates, may either approve or return proposals from the Academic Council.

In 2006, the NOSM Academic Council adopted a set of six key principles which guide the development and delivery of all NOSM's academic programs in keeping with the social accountability mandate:[7]

- **Interprofessional** – involving partnership, participation, collaboration, coordination and shared decision-making.
- **Integration** – the combination and interaction of individuals around common purposes and goals to create meaningful experiences for students, residents, faculty and staff.
- **Community-oriented** – the conceptual and pragmatic understanding of the dynamics of communities in the North, and the creation of meaningful, enduring partnerships between all Northern Communities and NOSM.
- **Distributed Community-Engaged Learning** – an instructional model that allows widely distributed human and instructional resources to be utilized among community partner locations across the North.
- **Generalism** – a broad holistic view and approach to activities, values and knowledge in educational, organizational and patient care activities.
- **Diversity** – a set of values that recognizes the richness of all cultures of Northern Ontario and the important ways they contribute to our lives.

Community Partnerships: Toward Social Accountability

The next step in meeting NOSM's social accountability mandate was involving a broad range of stakeholders in consultations on curriculum development. Beginning in January 2003, a series of workshops were held throughout the region to gather input about the type of physician NOSM should train and the type of training the school should offer. The first workshop involved over 300 people from all parts of Northern Ontario, including approximately 100 doctors, 80 academics, Aboriginal people, Francophones, medical students and residents, local government representatives, and many others.[8] From their input, a curriculum framework was developed with Patient-Centered Medicine as its conceptual basis and Learner-Centered Education as the core educational philosophy (Figure 2).

A few months later, 100 Aboriginal leaders gathered for a similar workshop that concluded with recommendations for including programs promoting cultural competence, including spirituality, in NOSM's health care models. As partners, the Aboriginal groups offered programs in traditional healing, access to elders and assistance developing guides on culturally competent behavior.[9] Consequently, an Aboriginal Reference Group was formed; an Office of Aboriginal Affairs was established; and a six-week module on Aboriginal health, culture and lifestyles was created, including a four-week Integrated Community Experience (ICE) on Reserves in the North.

A Francophone Reference Group was also formed. In 2005, 160 participants attended a workshop focusing on Francophone

issues, which included the high incidence of smoking, increased alcoholism, reduced life expectancy, and the need for Francophone physicians who can discuss a patient's condition in his or her first language.[10] With the help of Francophone partners, NOSM has committed to continued recruitment of Francophone students and to make all students aware of Francophone issues through curricular programs that include learning modules focused on Francophone health needs, language and culture, as well as student placements in Francophone communities.

Follow-up re-engagement workshops were held with both the Aboriginal and the Francophone groups in 2006 and 2007; and an ongoing consultation and feedback process continues through bi-annual workshops with both groups.

Today, almost 70 communities across the North participate as "classrooms" for NOSM students and residents. Between 2005 and 2007, a somewhat different type of consultation was carried out to establish partnerships with the communities in which NOSM students are placed in Year 2 and Year 3 of the curriculum. These partnerships provide the context for medical education in the communities in which we hope our students will practice as future physicians. Meetings were held in each location with hospital administrators, community leaders, and community physician faculty. These two-day sessions involved descriptions of the program, student backgrounds, and expectations for students and faculty. Seminars in clinical teaching skills were also provided.

Recognizing the importance of community participation, the concept of the Local NOSM Groups (LNG) was set forth by the NOSM leadership and supported by many community leaders. Each community developed its own model with representatives who understood the potential value of medical student learners in their communities as future practicing physicians. The LNGs provide a mechanism for each organized community to channel its views, recommendations, plans and needs to the NOSM administration. An administrative liaison in each Year 1 and 2 community, and a Site Administrative Coordinator in each Year 3 community, provide key links between the LNGs, NOSM administration and the students.

Among concerns raised by communities has been their capacity to support a given number of learners at undergraduate and postgraduate levels in terms of physician manpower and physical space in community hospitals and clinics. Other issues have included a need to provide improved infrastructure for students, including high speed internet connectivity. In some communities, electronic learning devices such as whiteboards, computers and videoconferencing units were purchased and installed.

There is no substitute for personal contact in communities where face-to-face daily interactions are the rule. Re-engagement with community faculty leaders and health professionals is vitally important. The program evaluation information provided by personal contacts creates a sense of involvement, collegiality and professional engagement critical to program survival in these community campuses.

Developing Hospital Partnerships: A Transitional Process

Creating partnerships with the smaller hospitals and clinics outside of Thunder Bay and Sudbury has been a reasonably simple and straightforward process, but the same cannot be said of the two large regional hospitals where NOSM students do their Year 4 clerkships.

Thunder Bay Regional Health Sciences Center (TBRHSC) and Hôspital régional de Sudbury Regional Hospital (HRSRH) were recently designated Academic Hospitals of Ontario,[11] a major institutional shift requiring significant adjustments for NOSM students, faculty and administration. In January 2007, the NOSM Dean and the two hospitals' Chief Executive Officers convened a consultation work group — once again, a broadly representative group of all key stakeholders — to advise them on the best way forward. Initial meetings identified major issues of concern, including physical resources, human resources, support for educational activities, and, most significantly, a culture shift affecting the educational environment. The Ontario Ministry of Health and Long-Term Care (MOHLTC) has provided funding to cover some of the additional costs associated with these changes, and, at this writing, discussions continue regarding adequate support for physical resources, educational activities, and increased operating costs.

This developing partnership has led to multiple consultations with hospital administrators, physician groups, staff and students. Many more no doubt will be required as the educational programs are tuned to best meet the needs of learners and the institution in which they are educated and trained.

Perhaps the most difficult change has been the culture shift away from a one-on-one preceptor model to a medical education model that assigns students to a hospital "service". Most physicians in both hospitals are independent contractors, not hospital employees, and many are remunerated on a fee-for-service basis. Thus, they feel that teaching medical students only adds to their already overbooked schedules. In this sense, NOSM's distributed model with no Geographic Full Time (GFT) faculty is at a disadvantage. At academic hospitals with GFT faculty, educators are paid a salary by an affiliated university and have protected time commitments to provide educational activities. In contrast, the distributed model requires sensitivity to the time pressures of clinicians, which, in turn, has led to extensive discussions about alternative methods of support, remuneration, and delivery of educational services.[12]

This ongoing process of consultation, discussion, and partnership is the essence of distributed community-engaged learning and community-oriented medical education. The involvement of a broad range of stakeholders at each phase of the process is also essential to meeting its social accountability mandate.

As the Northern Ontario School of Medicine continues to forge partnerships in medical education, it extends both its collaborative practice and commitment to social accountability through the systems in which it operates, thus increasing the potential for communities, universities, hospitals and rural practices to prioritize appropriate, equitable health care for everyone in Northern Ontario.

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