Building Novel Research Capacity in a Regional Medical Campus Emergency Medicine Program: 1.0 Origins and Partnerships

Shira Brown, BMT MD FCFP CCFP(EM); Karl Stobbe MD CCFP(EM); Maynard Luterman BA,MSc, MDCM,CCFP; Suneel Upadhye, MD MSc FRCPC; Christopher Henderson, BSc; Larry W. Chambers PhD, FACE, FFPH (Hon) (UK), FCAHS; David Heywood MD CCFP(EM); Amber Graystone MD MSc CCFP(EM); Salim Ahmed MD, MBBS, CCFP; Corrine Davies-Schinkel, RN, MSc; Amanda Bell, MD, MSc, CCFP, FCFP
DOI: https://doi.org/10.24926/jrmc.vXiX.XXX
Journal of Regional Medical Campuses, Vol. *3*, Issue 2 (2020)

z.umn.edu/JRMC
All work in JRMC is licensed under CC BY-NC

Published by University of Minnesota Libraries Publishing

Building Novel Research Capacity in a Regional Medical Campus Emergency Medicine Program: 1.0 Origins and Partnerships

Shira Brown, BMT MD FCFP CCFP(EM); Karl Stobbe MD CCFP(EM); Maynard Luterman BA,MSc, MDCM,CCFP; Suneel Upadhye, MD MSc FRCPC; Christopher Henderson, BSc; Larry W. Chambers PhD, FACE, FFPH (Hon) (UK), FCAHS; David Heywood MD CCFP(EM); Amber Graystone MD MSc CCFP(EM); Salim Ahmed MD, MBBS, CCFP; Corrine Davies-Schinkel, RN, MSc; Amanda Bell, MD, MSc, CCFP, FCFP

Abstract

The Emergency Medicine Researchers of Niagara **(**EMRoN) program is an evolving research incubator with the Niagara Regional Campus (NRC) of McMaster University's Michael G DeGroote School of Medicine and Niagara Health (NH). EMRoN is becoming a productive research organization aligned with the strategic priorities of its partner organizations (NRC and NH). EMRoN is committed to advancing local community health care standards and sharing best practices with provincial and national peers. Currently, EMRoN is overseeing 11 projects involving 11 clinical faculty principal investigators**,** 14 medical students, and one emergency medicine resident project lead. In 2018-2019, the group had 29 accepted peer-reviewed abstracts – 55% posters, 41% presentations, and 4% workshops. In its first 2 years of operation EMRoN has achieved success in new structures, processes and outcomes that position it well to be a fulsome research organization for years to come.

Introduction

The growth and rich development of academic programs is one of the highlights for faculty members and hospital leaders practicing community-based care. Research is an important incubator for academic development,[1,4,12-14,17] and community hospitals that strive for academic excellence experience unique challenges in their journeys. Likewise, a regional medical campus is an important accelerator towards achieving a well-developed educational and research environment that fosters the intellectual challenge and spirit of inquiry appropriate to this academic setting.[6] A research-friendly culture is not necessarily well-established in distributed medical education programs in Ontario, unlike Academic Health Sciences Centres.[7,9,11] Therefore, effective, innovative relationships and governance structures are important to remove barriers, such as time constraints on potential research faculty and availability of research support staff, to create a rich and fully developed community-based academic environment.

A collection of Emergency Medicine physicians working as part of Niagara Health (NH), together with the leadership of the Niagara Regional Campus (NRC) for the McMaster University Medical Education Program discovered an opportunity for innovation. The collaboration resulted in the development of a community-based Emergency Medicine (EM) research program, entitled EMRoN.

This article describes the creation and evolution of our community-based EM research program, focusing on foundational partnerships, funding acquisition, and governance structures.

Background

It is helpful to understand the geographical and institutional structure of the Niagara Region as a basis for discussion. NH is a hospital network that serves the Niagara Region with secondary and tertiary care across 5 hospitals.

Figure 1 shows the geographical distribution of the NH sites for institutionally provided care centers. NH has 5 hospitals with 3 Emergency Rooms (ERs), 3 Intensive Care Units (ICUs), and 2 Urgent Care Centres (UCCs) serving a population of 400 000 people with 160 000 ER and 40 000 UCC visits annually. The emergency departments at NH sites are staffed by approximately 70 emergency physicians. Nearly 80% are

Shira Brown, BMT MD FCFP CCFP(EM)
Karl Stobbe MD CCFP(EM)
Maynard Luterman BA,MSc, MDCM,CCFP
Suneel Upadhye, MD MSc FRCPC
Christopher Henderson, BSc
Larry W. Chambers PhD, FACE, FFPH (Hon) (UK), FCAHS
David Heywood MD CCFP(EM)
Amber Graystone MD MSc CCFP(EM)
Salim Ahmed MD, MBBS, CCFP
Corrine Davies-Schinkel, RN, MSc
Amanda Bell, MD, MSc, CCFP, FCFP

All work in *JRMC* is licensed under CC BY-NC

certified by the Canadian College of Family Physicians (CCFP or CCFP-EM) or the Royal College of Physicians & Surgeons of Canada (FRCPC-EM), as well as a minority of well-experienced general practitioners.

With 400 clinical faculty, the NRC is home to 84 undergraduate medical students and 26 postgraduate trainees across family medicine, general surgery, and family medicine-emergency medicine. In addition, over 300 medical trainees rotate through NH each year for elective or community placements. Students at the NRC rotate through all of NH's ERs and UCCs as part of their core training or electives.

As outlined in the Canadian Medical Education Directives for Specialists (CanMEDS) 2015 Physician Competency Framework, FRCPC-EM residents are expected to be engaged in the continuous enhancement of their professional activities through ongoing learning which includes teaching students, residents, the public, and other health care professionals, integrating best available evidence into practice, and contributing to the creation and dissemination of knowledge and practices applicable to health.[10] Similarly, the Competency Based Medical Education (CBME) for EM residency programs in Canada includes 3 specific Entrustable Professional Activities (EPAs) that residents are expected to meet: 1) appraising and integrating new evidence into clinical practice, 2) advancing emergency medicine through a scholarly project, and 3) participating in a quality improvement initiative to enhance patient care.[3]

Staffing issues in Community EDs

The South Niagara sites provide emergency and urgent care to the communities of Welland (population 52 293), Port Colborne (population 18 306), Fort Erie (population 30 710) and Niagara Falls (population 88 071). These sites have experienced challenges recruiting adequate numbers of EM specialty-trained practitioners due to the extensive human resource requirements of 4 independent sites, and the semi-rural nature of these service areas. Over the past decade, the EM physician team focused on strengthening their physician human resources. The establishment of NRC in 2009 increased local academic resources and structure. To date, there have been 229 MD students trained at NRC, 112 have completed their residency programs and 18% of those have returned to the region to practice medicine. Of the residents trained through the NRC, 52% of family medicine, 100% of general surgery, and 86% of family-emergency medicine residents have stayed in the region to practice.

The NRC's presence has increased local academic resources. On the heels of this momentum, the South Niagara Emergency Medicine Alternative Funding Arrangement physician funding groups in Welland, Port Colborne, and Fort Erie sought to further develop academic activity. They did so, through their shared leadership, by partnering with the NRC and aspiring to build an EM research initiative. The passion for this initiative was significant enough that the EM physicians collectively voted to contribute a meaningful portion of designated physician earnings, approximately 1% to launch a research program, with a long-range view that the program would fortify academic activities and bring energy, interest, and creativity to daily work. The decision was made by the active voting membership of the physician group, as governed by the group's bylaws, and was a unanimous decision. Physicians are provided voting membership when they maintain active staff privileges at Niagara Health and meet a minimum shift commitment to the collective departments. The group understood their decision would improve patient outcomes and increase the brand recognition of the EM group, NH, and the NRC, and would help recruit EM talent to the region.

As both quality improvement (QI) and health services research are strengthened by the use of rigorous and similar methods, EMRoN embraces both types of research initiatives. EMRoN welcomes involvement of hospital QI leads and their participation has resulted in the creation of relevant questions to improve delivery of care while aligning with NH's strategic priorities. Additionally, EMRoN strives to enhance the scholarly activities of students within the NRC.

Methods

The 3 South Niagara site physician funding groups include a robust cost-sharing governance structure comprised of detailed bylaws that define their membership, voting, and committee mandates. Within these 3 sites, the physician leadership created consensus to commit significant resources towards an EM research initiative. However, it was recognized that this initiative would have far greater success by leveraging and partnering with local academic resources and leadership within the NRC. During early discussions with NRC's leadership it became clear that for this partnership to succeed, the physician group would require an innovative relationship with NRC. The physician group was interested in becoming regional thought leaders in the field of community-based research and wanted to maintain oversight and autonomy in the use of the partnership's resources. Simultaneously, the NRC advocated for this partnership to enhance academic offerings for Niagara medical students by participating in research that would improve their clinical decision-making and strengthen their applications for limited postgraduate training positions.

The creation of this partnership and the Terms of Reference were developed over a series of meetings between the sites' Chief, who also Chaired the EM Alternative Funding Arrangements and was in partnership with the Campus Regional Assistant Dean who was supported in this effort by the academic chair of the Department of Family Medicine in McMaster University.

Building on the flexibility of the regional campus and an eager and engaged physician group, the partnership was able to craft terms of reference that allow the EM physician group to collaboratively guide allocation of the financial resources over

time with leaders of NRC. This was an important prerequisite for stakeholder buy-in that allowed for a balance between the security of governance while retaining autonomy of resources and project development for the physician investors, many of whom would also serve as researchers. Simultaneously, NRC leadership recognized the importance of McMaster providing a tangible commitment of resources to the initiative to be a fully invested stakeholder. Resources have included funding for the physician lead as well as administrative support and guidance. Likewise, NH has been integral in providing infrastructure support necessary for supporting projects within the hospital settings. Therefore, both partners brought forward and elevated the required resources to inaugurate the new initiative.

The incoming Regional Assistant Dean and EM Alternative Funding Arrangement chair/site chief agreed to co-chair the financial governance committee of the initiative. Membership within the committee was equally balanced between members of the physician group and leadership of NRC. Decisions were agreed to be made by consensus.

With agreements established, the partnership was created and the funds were directed to be held in a McMaster University program account that was administered by the NRC under the direction of the Governance Committee. Once these basic frameworks were completed, the Governance Committee was in position to hire a research lead and research coordinator and to recruit the required expertise and human resources to begin this unique initiative.

Results

At the time of inception there were approximately 50 full time EM physician staff, 30 of which were involved in the sites that provide funding for EMRoN. Approximately 15 staff were involved in the "South Niagara Cost Sharing Group" which serves as a governance group among the physicians. A democratic process was used to decide about funding decisions for EMRoN by this group and the decision to participate in funding EMRoN was unanimous. Once voted on, physicians were not able to opt out of the funding decision.

While still in its early stages, EMRoN has experienced an inspiring rate of growth and is beginning to move towards its second phase of evolution. EMRoN allocates resources to areas of excellence with the long-term goal of creating a well-grounded EM medicine research program within the Niagara region. At the time of this writing, it has been 2 years since EMRoN first employed an external clinical faculty research lead, and 1.5 years since the hiring of the program's nurse research coordinator. Within this time, the partnership of EM physician researchers from within the Niagara region have worked on 11 projects which aim to have an impact the field of Emergency Medicine.

Each of the 11 projects involve 11 EM clinical faculty researchers, 14 medical students, and one EM resident lead project. In 2018-2019, the group had 29 accepted peer-reviewed abstracts – 55% (16/29) posters, 41% (12/29) presentations and 4% (1/29) workshops. The research also resulted in 3 invited talks and 2 peer-reviewed publications.[5,20] Recently, the group has been awarded a national award by the annual Canadian Association of Emergency Physicians conference for their work on the Choosing Wisely Canada Guidelines. The group is participating in one Phase IV pharma trial with 80% participant recruitment to date and has received over $100 000 in external grant funding. Two of the hospital sites have also seen a significant increase in Ministry of Health revenue through pay for results from a flow and operations project. The EMRoN initiative has enabled both the partnership and NH as an institution to recruit experts into the local EM community. These additional half-dozen hires have included physicians with extensive academic careers who are supporting the partnership's academic goals in multiple ways. EMRoN has also become an inspiration for the potential genesis of other research groups in the Niagara region. This opportunity is one that will continue to grow and flourish and has the potential to continue to raise the status of EM in our region, and across Canada.

In collaboration with NH, NRC and other researchers in McMaster University, EMRoN is recruiting and supporting projects that build expertise and personnel in research across an array of topics. These projects are building the expertise and capacity of NH and NRC in advancing QI in the Niagara region. Furthermore, EMRoN aims to prioritize projects that support the economic sustainability of health care and research delivery. EMRoN has prioritized creating a research community and building a research-friendly culture within the NH emergency departments and urgent care centers. As EMRoN matures, it will support and expand engagement with individuals and organizations, both current and potential, including, but not limited to, engaged networks of patients and learners.

Discussion

This early initiative demonstrates that distributive medical education campuses, in partnership with their community-based physician groups, have a unique opportunity to innovate through flexible partnerships and an unconventional mentality. Further, financial resources that would be considered meager in a larger academic center can be leveraged successfully as a substantial accelerator in a regional medical campus and with a local physician group. The structures and processes of these opportunities can respond to area needs while being informed by successful existing examples. In addition, lessons learned from this organically grown and the expanding opportunities are an important resource. These initiatives can facilitate trust and growth through governance that balances the input of the

funders with the unique challenges and opportunities within a location.

For example, the partnership has allowed EMRoN to explore opportunities and evolve the membership, including internal medicine and other disciplines, during its first 2 years, before finalizing its terms of reference governing allocation of research resources. EMRoN members and governance committee recognize the importance of full stakeholder engagement that are building the capacity of EMRoN and establish its role in among its members, the EM department, NH, NRC, and the community at large.

Future Directions

The next evolution of EMRoN is to create governance over financial and human resources for allocation towards QI and other research projects. These decisions must be guided by a clear vision and mission that aligns with EMRoN's partners. Predictably, EMRoN has found that the demand for research resources, student engagement, and valuable collective meetings is outpacing capacity.

In its broadest terms, EMRoN's vision is to create a rigorous and ethically conducted research program; it seeks to align with NH's vision of "Achieving Ambitious Results," as part of the CORE NH Values statement and McMaster's commitment to creativity, innovation, and excellence. However, adapting this vision further to personalize it for researchers within EMRoN will become important when deciding on future resource allocation.

Challenges and Limitations

Additional stakeholders will need to be engaged to inform a more mature research initiative. These stakeholders within and outside the Niagara Region include, but are not limited to, career academics, patients, allied health practitioners, including Emergency Medical Services (EMS), nursing, and community health providers, hospital, and community leadership. Ensuring future governance provides ample opportunity for a chorus of voices to guide research that will ultimately be required to ensure a mature infrastructure warranting national and international attention

The potential governance of a novel research initiative was unclear and complicated by a lack of a template for action, the unique practice requirements in the culture of community-based medicine, and the challenges specific to distributed medical education. Organizational challenges requiring attention have been overcome within the partnership among the NRC, NH, and the EM physician alternative funding arrangement. This partnership required creative negotiations, relationship building, transparency, and mutual trust. However, after now working through these initial challenges, this innovative model is an incubator for an enthusiastic research team who aspire to be responsible stewards of research in the Niagara region, and to represent NH and NRC with high quality research, robust scholarly activity, and improved patient care.

Conclusions

Based on the progress to date, EMRoN can be a model for other distributed campuses and community hospitals to inform their local leaders to evolve their academic offerings to students, and to enhance medical services in their own region. EMRoN shows that community hospitals and community physician groups have the capacity to build academic resources and grow as a research entity. Further, the successes experienced by EMRoN provide evidence that structures for accomplishing a similar culture of research do not need to be overly complicated and the amount of resources required to have significant impact do not need to be extraordinary.[2]

References

1. Bass MJ. Office-based Research: The antidote to learned helplessness. Canadian Family Physician. 1987 September; 33:1987-1992.
2. Balanger M. Implementation of a clinician and academic researcher-led funding program to stimulate research in a Regional Medical Campus. Journal of Regional Medical Campuses 2019;2:5: DOI: https://doi.org/10.24926/jrmc.v2i5.2137
3. Bednarczyk J, Pauls M, Fridfinnson J, Weldon E. Characteristics of evidence-based medicine training in Royal College of Physicians and Surgeons of Canada emergency medicine residencies - a national survey of program directors. BMC Medical Education. 2014 March 21; 14: 57.
4. Bernard CD. Scholarship for community physicians. Canadian Family Physician. 2014 April: 60: 388-390.
5. Brown, NS, Chirico, J, Hollidge, M, Randall J. Clinical leadership in reducing risk: managing patient airways. Healthcare Management Forum. 2019 March; 32(2): 92-96. DOI: 10.1177/0840470418810678.
6. Cathcart-Rake W, Robinson M. Promoting scholarship at regional medical campuses. Journal of Regional Medical Campuses. 2018;1:1. DOI: https://doi.org/10.24926/yrmc.v1:1.999
7. Council of Ontario Faculties of Medicine. Distributed Medical Education in Ontario 2014 Report: Bringing Care Closer to Home. Toronto, Council of Ontario Faculties of Medicine. 2015a. https://cou.ca/wp-content/uploads/2015/05/COU-Distributed-Medical-Education-Report.pdf

8. Council of Ontario Faculties of Medicine. Distributed Medical Education in Ontario 2014 Report: Bringing Care Closer to Home: Program Compendium. Council of Ontario Faculties of Medicine. Toronto 2015b. https://cou.ca/wp-content/uploads/2015/05/COU-Distributed-Medical-Education-Program-Compendium.pdf
9. Council of Ontario Faculties of Medicine. Report to Council of Ontario Faculties of Medicine (COFM) from the Distributed Medical Education (DME) Committee. Scholarly Activity within Distributed Medical Education Programs: Reflections and Recommendations. Council of Ontario Faculties of Medicine. 2019
10. Feank JR, Snell L, Sherbino J. CanMEDS 2015 Physician Competency Framework. Royal College of Physicians and Surgeons of Canada. 2015.http://canmeds.royalcollege.ca/uploads/en/framework/CanMEDS%202015%20Framework_EN_Reduced.pdf Accessed September 2019
11. Gehrke P, Binnie A, Chan SPT, Cook DJ, Burnds KEA, Rewa OG, Herridge M, Tsang JLR. Fostering community hospital research. Canadian Medical Association Journal. 2019;191(35):E962-E966. DOI:10.1503/cmaj.190055
12. Hennen BK. The dragon research. Canadian Family Physician.1988 June; 34: 1265, 1417.
13. Hogg W, Donskov M, Russell G, Pottie K, Liddy C, Johnston S, Chambers LW. Riding the wave of primary care research: Development of a primary health care research centre. Canadian Family Physician. 2009 October; 55: 35-40.
14. Kelly L. Developing a rural research project. Canadian Journal of Rural Medicine. 2008; 13(4):194-196.
15. Lamphear JH, Strasser R. Developing Partnerships for Distributed Community-Engaged Medical Education in Northern Ontario, Canada. MEDICC Review. 2008;10(4):15-19.
16. Lemky K, Gagne P, Konkin J, Stobbe K, et al. A review of methods to assess the economic impact of distributed medical education (DME) in Canada. Can Med Educ J. 2018 Mar; 9(1): e87–e99.
17. Paige G, Binnie A, Chan SPT, Cook DJ, Burns KEA, Rewa OG, Herridge M, Tsang JLY. Fostering community hospital research. CMAJ 2019, September 3:191:E962-6, DOI: 10.1503/cmaj.190055
18. Royal College of Physicians and Surgeons of Canada. CanMEDS: Better standards, better physicians, better care. Accessed July 31, 2019 http://www.royalcollege.ca/rcsite/canmeds/canmeds-framework-e
19. Royal College of Physicians and Surgeons of Canada. Competence By Design; 2017. Available at: http://www.royalcollege.ca/rcsite/cbd/competence-by-design-cbd-e Objectives of Training in Emergency Medicine. http://www.royalcollege.ca/
20. Upadhye S, Worster A, Valani R. Relevance of opiod guidelines in the emergency room (ROGER). American Journal of Emergency Medicine. 2019 March; 37(3): 538-539. DOI: 10.1016/j.ajem.2018.07.028