Manifesto for family medicine educational research

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In response to current societal trends, health care delivery systems, traditionally organized around biomedical expertise and acute health disorders, are becoming more integrated, person centred, community oriented, and based on interdisciplinary teams. To operate optimally in this changing environment, health professionals have to be educated differently. Family medicine professional bodies have consistently recognized this educational need over the past decade.[1-4]

A century ago, academic medical training in Western countries was profoundly transformed when Abraham Flexner published a landmark report in which he emphasized the scientific basis of medical practice.[5] After World War II, academic medicine witnessed the emergence of important emphasis on evidence-based medicine, patient safety, professionalism, and patient-centred care. These domains, while developed in a rather disconnected way, have constituted the driving forces for the emergence of a contemporary era in medical education characterized by the transition away from curricula of university-based, didactic lectures followed by in-hospital clinical rotations, toward curricula integrating foundational and clinical sciences, competency-based education, early and increased clinical exposure to community-based care, and educational continuity.[6]

Science and care, however, are viewed by some scholars as 2 different institutional logics currently in conflict in medical education and practice.[7] In January 2010, the year the medical academic community celebrated the 100th anniversary of the publication of the Flexner report, the Education of Health Professionals for the 21st Century Commission, an independent initiative sponsored by the Bill and Melinda Gates Foundation, was launched. Acknowledging the huge contribution of health professionals to the improvement of health outcomes, this commission pointed out the following in its final report:

> [A] slow-burning crisis is emerging in the mismatch of professional competencies to patient and population priorities because of fragmentary, outdated, and static curricula producing ill-equipped graduates from underfinanced institutions. In almost all countries, the education of health professionals has failed to overcome dysfunctional and inequitable health systems because of curricula rigidities, professional silos, static pedagogy (i.e., the science of teaching), insufficient adaptation to local contexts, and commercialism in the professions. *Breakdown is especially noteworthy within primary care, in both poor and rich countries* [emphasis added].[8]

Some believe that the mismatch between the training of future physicians and the health needs of individuals and populations might partly be owing to the gap between the cost of *medical education* and how little is invested in *medical education research*.[9,10] However, lack of adequate funding to carry out medical education research does not seem to be the only issue. As noted by Horton, "although underfunding remains an obstacle, health professionals' education today does not deliver value for money."[11] Despite the recognized evolution in medical education, several reviews have revealed various shortcomings in the medical education field of inquiry. These include a predominant focus on reporting outcomes at the individual-learner level to the detriment of other broader analytic levels; the dominance of quantitative approaches; and the lack of theory and consensus regarding the meaning of key concepts in medical education such as professionalism.[12-15] What is more, progress still needs to be made for medical education research to adequately inform medical practice and to demonstrate advances in the science of medical education.[16] How has medical education research reached this impasse?

Development of the field

The academic field of medical education research emerged in the United States in the middle of the 20th century as a result of the confluence of several sociohistorical factors such as the growth of scientific knowledge and calls for the public accountability of medical education.[17] Hitchcock traces its origins to the Project in Medical Education undertaken at the University of Buffalo in New York in 1955, known as the *Buffalo project*.[18] This initiative, led by George Miller, MD, Associate Professor of Internal Medicine at the School of Medicine, and Robert Fisk, PhD, Dean of the School of Education, enabled educators and faculty members of the School

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of Medicine to meet, for the first time, over a period of a year and a half, with the aim of increasing the quality of medical teaching and learning.[18]

Recently, Norman identified 3 generations of scholars who have contributed to medical education.[19] The first generation covered approximately the first 2 decades after 1955 and comprised researchers who participated in the Buffalo project (including Norman). Their academic backgrounds were diverse, including physics and economics, and, as Norman recognized,

> many of us came to the field ill equipped with the necessary skills. Training in statistics, psychometrics, psychology or qualitative methods was conspicuous by its absence. We muddled ahead using common sense, as that was about the only relevant tool we possessed.[19]

According to Norman,[19] a second generation of researchers entered the field in the 1990s. As was the case in Europe, where medical education research emerged later, researchers from this second generation were actively recruited from the disciplines of cognitive psychology, anthropology, and epidemiology and they enriched medical education research with their expertise in research methodologies, such as multivariate statistical methods and ethnomethodology. Finally, Norman describes how recent times have witnessed the proliferation of specific graduate programs in medical education. Hence, the field has increasingly integrated researchers specifically trained in this area, constituting what Norman labeled the third generation of researchers in medical education.

Medical education scholars from the 3 generations coexist nowadays. Together they have enriched the field by covering a very broad scope of topics that include, among many others, students' assessment, clinical and communication skills (eg, simulation-based education), clinical clerkships, problem-based learning, multiple-choice examination, computer-assisted instruction, clinical reasoning, faculty development, and medical education scholarship. Although North America leads academic productivity in medical education research, the field has also been developed overseas. The list of countries outside North America with the highest number of scholarly publications in medical education research currently includes the Netherlands, New Zealand, and the United Kingdom.[20]

More to be done

Despite the demonstrated productivity, more research still has to be done. The Education of Health Professionals for the 21st Century Commission advanced the following vision:

> All health professionals in all countries should be educated to mobilise knowledge and to engage in critical reasoning and ethical conduct so that they are competent to participate in patient and population-centred health systems as members of locally responsive and globally connected teams. The ultimate purpose is to assure universal coverage of the high quality comprehensive services that is essential to advance opportunity for health equity within and between countries.[8]

To achieve this vision, medical education research should be viewed as *translational science,* as medical education researchers produce scientific knowledge from bench to bedside to the community, then back to the bench. A more provocative and inspiring agenda in medical education is therefore needed to support the match between health care transformations and educational reforms.[9]

This kind of research agenda will require the intensification of collaboration between doctoral researchers, clinician scientists, and clinician educators, as well as clinicians and learners themselves, and the strengthening of interdisciplinarity in the field. Medical education research can also make greater use of and be more plural and diversified in theories, epistemologies, ontologies, teleologies, methodologies, and methods. In addition, besides the use of more encompassing and methodologically sophisticated research on medical educational initiatives, medical education scholars could pay increasing attention to underexplored themes important in contemporary clinical practice such as, for instance, health professionals' competency in clinical informatics and professional identity.

Required at any level, this critical medical education field of inquiry appears paramount for physicians and other health professionals providing primary health care, owing to the importance of this level of health care delivery not only for individuals and populations in need but also for the sustainability of health care delivery systems. Academic departments of family medicine are in a privileged position to play a leadership role in linking knowledge generated in academic centres with medical practice. Family medicine educational research, while still underdeveloped, is therefore of critical importance not only for the sake of the discipline but also for academic institutions to be able to educate family physicians who are competent

> to undertake functions beyond purely technical tasks—such as teamwork, ethical conduct, critical analysis, coping with uncertainty, scientific inquiry, anticipating and planning for the future, and most importantly leadership of effective health systems.[8]

In conclusion, huge gaps between medical education, medical education research, and health care delivery

have been identified by many stakeholders. A more critical, ambitious, plural, and diversified medical education research agenda is urgently needed; it must be developed by competent researchers in close collaboration with educators, clinicians, and trainees. Given the key role family physicians and academic departments of family medicine are called on to play in contemporary health care and medical education reforms, the enhancement of sound family medicine education research is imperative.

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Competing interests
None declared

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