Global Health in Canadian Medical Education: Current Practices and Opportunities

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Abstract

Purpose

Globalization is altering health and health care. At the same time, prospective and current medical students are increasingly requesting global health training and creating opportunities when these are not provided by medical schools. To understand the type and amount of global health activities provided in Canadian medical schools, the authors undertook a survey of global health educational opportunities available at all 17 medical schools during the 2005–2006 academic year.

Method

Using a structured questionnaire, information was collected from deans' offices, institutional representatives, faculty, students, and medical school Web sites.

Results

All 17 medical schools participated. Canadian medical schools vary widely in their approach to global health education, ranging from neither required nor elective courses in global health to well-developed, two-year electives that include didactic and overseas training. There is no consensus on the educational content covered, the year in which global health issues are taught, whether materials should be elective or required, or how much training is needed. Of the 16 Canadian medical schools that allow students to participate in international electives, 44% allow these electives to occur without clear faculty oversight or input.

Conclusions

Despite both the strong, growing demand from medical students and the changing societal forces that call for better global health training, Canadian medical school curricula are not well positioned to address these needs. Improving global health opportunities in Canadian medical school curricula will likely require national leadership from governing academic bodies.

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Changes within and outside the medical profession necessitate expanding global health training for medical students so that they may meet their professional and societal obligations as physicians. Externally, challenges arise from an interconnected world where people, animals, food products, technologies, and pathogens move seamlessly across national boundaries. Internally, there is a large and growing demand for access to global health training by medical students and residents, with the availability of this training a factor in medical school and residency selection.[1] Moreover, extreme disparities in health and access to health care within and among countries confront the medical profession, which must be more responsive to the needs of all persons, especially those who typically have been underserved. Major medical organizations, including the American Board of Internal Medicine, the American College of Physicians–American Society of Internal Medicine, the European Federation of Internal Medicine, and the Canadian Medical Association have stated, through specific learning objectives, that addressing health care inequalities both within and beyond our borders is a fundamental principle of physician professionalism.[2,3] For medical schools to prepare students to fulfill the roles demanded of today's physicians, these promulgated objectives must be translated into components of the medical education curriculum.

Though there exist compelling moral, ethical, professional, pedagogical, and economic reasons to include global health training in undergraduate medical education, there are few data available concerning current practices for teaching global health issues in Canadian medical schools. Data from non-Canadian medical schools are also scarce, but medical student surveys conducted in the United States and the United Kingdom indicate an increased, yet unmet, demand for global health training and opportunities.[4,5] Anecdotal information from Canadian medical schools suggests wide variation in the amount of time devoted to global health issues, materials covered, format of presentation, and whether relevant courses are required or elective. Understanding current global health practices in medical schools is an important step in improving and standardizing education in this area. This process is further complicated by the lack of consensus on the knowledge and skills that constitute necessary global health education in medical schools, though one set of recommendations has been recently published.[6]

To understand better the quality and quantity of global health educational

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activities currently available at Canadian medical schools, we conducted a survey of existing global health offerings.

Method

Before we undertook this study, we sent a letter to the deans at each medical school, notifying them of the goals of the survey and inviting each school to participate. We solicited information about international and global health activities and courses from all 17 Canadian medical schools, using a 14-point questionnaire developed for this purpose (see Appendix). To complement the questionnaire, we also consulted representatives identified by each institution as being involved in global-health-related activities as well as publicly available medical school Web sites, other faculty interested in global or international health, international health student liaisons, and personal contacts at each school. To assess Canadian medical school curricula as broadly as possible and to identify any and all relevant information about global-health-related topics, we asked about both global and community health programs as part of the data collection because some medical schools offer global health topics through their community health, infectious disease, or public health modules. We did not define *global health* in the questionnaire; instead, we allowed all respondents to determine which curricular elements and activities at their institution were related to global health. This approach had the important advantage of making it more likely that we identified all relevant global health activities and course offerings, though we recognized that it might affect our ability to compare responses across medical schools. To further enhance our ability to identify all possible global health offerings, we contacted the Canadian Federation of Medical Students' International Health student liaison at each medical school and asked him or her to review and verify collected information for his or her medical school.

We standardized responses from each medical school by placing them in the following predefined categories: global health courses, global health lectures or modules, and lectures/modules that included global health topics. Courses and lectures were further divided into mandatory or elective. Global health courses/modules were defined as courses or modules identified and designed specifically to teach global or international health topics. Lectures and modules that included global health topics were defined as presentations that included global health issues, even though the primary focus was a disease or another topic. Presentations on malaria, poverty, community health, and health care disparities are examples of modules or lectures that might include global health topics.

In deciding whether to consider a course, lecture, or module as either a *global health* course/lecture/module or a course/lecture/module with global health topics, we assessed the overall intent of the class, presentation, or unit using course syllabi and survey information. For example, a lecture on malaria that discussed parasitic life cycles, pathogenesis, prevention, treatment, and global burden of disease would be defined as a lecture that included global health topics, but not a global health lecture.

Some medical schools use the terms *global health* and *international health* interchangeably. We combined information on global and international health activities from each school and refer to both as global health.

Other than allocating responses into the previously defined categories, we did not combine individual school responses using descriptive or other statistical methods. We did not feel that further aggregating the data would be useful in understanding differences across medical schools; moreover, we felt that the number of schools involved (17) and the qualitative nature of the responses did not require further statistical analysis.

Results and Conclusions

Current opportunities in Canada

Thirteen (76%) of 17 medical schools responded to the questionnaire within the time frame provided. Information for the remaining four medical schools was obtained by directly contacting faculty and/or medical student liaisons identified through the Association of Faculties of Medicine of Canada Resource Group on Global Health. Information obtained from designated institutional representatives was more complete and comprehensive than that from other sources.

As of now, there is no uniform approach to curriculum content or educational opportunities in global health across Canadian medical schools (Table 1). At the time of the survey, no undergraduate medicine program provided a mandatory, stand-alone credit course in global health. Dalhousie University Faculty of Medicine was the only medical school planning to start a mandatory, stand-alone global health course within the coming academic year. At four medical schools, neither mandatory nor elective global health courses or lectures were reported. Nine medical schools (53%) reported having either specific global health lectures or modules as part of mandatory courses. Among medical schools that provided additional information, the time devoted to global health lectures or modules in mandatory courses ranged from 2 to 22 hours across four years (Table 1). There was no consistency in the year of medical school that global health material was offered, the topics covered, or the amount of information provided.

Ten medical schools (59%) stated that global health topics were presented as components of mandatory modules such as community medicine, tropical medicine, or infectious diseases; schools responding that global health topics were integrated into lectures also tended to have specific sessions on global health (Table 1). As noted, the definition of what constituted global health topics was left to each respondent, and presentations on subjects such as AIDS, parasitic diseases, or malnutrition were considered by a number of respondents as teaching global health topics.

Seven medical schools (41%) offered global health elective courses. Elective opportunities to learn about global health ranged from, on one end of the spectrum, two-year programs at the University of Saskatchewan and Laval University Faculty of Medicine with courses that include both a didactic component at the medical school and time at an elective site in a developing country to, on the other end, as little as two to three hours of lectures on global-health-related issues nested into other elective units during the course of four years. Though the programs offered by the University of Saskatchewan and Laval University are

Table 1

Global Health Education Opportunities for Students at the 17 Canadian Medical Schools, 2005–2006*

		Elective global health courses‡			Required global health lectures or modules§		
Medical school	Mandatory global health course†	Yes/No	Time allotted	Time frame	Yes/No	Time allotted	Required lectures or modules which include global health topics¶
University of Alberta	No	Not reported			Yes	22 hours	Yes
University of British Columbia	No	No			Yes	Not reported	Yes
University of Calgary	No	No			Yes	Not reported	Yes
Dalhousie University	In development	Yes	13 weeks	Evening	No		Yes
Laval University	No	Yes	52 weeks	Regular class hours	No		No
University of Manitoba	No	No			Yes	3 hours	Yes
McGill University	No	Yes	26 hours	Regular class hours	Yes	6 hours	Yes
McMaster University	No	Yes	10 weeks	Regular class hours	Yes	20 hours	Yes
Memorial University of Newfoundland	No	No			Yes	2 hours	Yes
Université de Montréal	No	No			Yes	Not reported	Yes
Northern Ontario School of Medicine	No	No			No		No
University of Ottawa	No	Yes	13 weeks	Lunch hours	Yes	2 hours	Yes
Queen's University	No	Yes	Not reported	Not reported	No		No
University of Saskatchewan	No	Yes	8 weeks	Regular class hours	No		No
University of Sherbrooke	No	No			No		No
University of Toronto	No	No			No		No
University of Western Ontario	No	No			No		No

* All 17 Canadian medical schools were surveyed using a structured questionnaire to elicit information about global health educational programs during the 2005–2006 academic year. Information was collected from deans' offices, institutional representatives, faculty, students, and medical school Web sites.
† A stand-alone course that is not integrated into another curriculum unit.
‡ Includes only on-campus courses run or overseen by faculty. Programs organized and run exclusively by medical students were excluded. Time allotted is the sum of all possible such courses over length of MD program.
§ Lecture or module of which the primary focus is specifically and exclusively global health.
¶ Lecture or module of which the primary foci are not global health issues specifically, but are topics such as AIDS, parasitology, or malnutrition, which include issues relevant to global health.

quite comprehensive, they are available only to a select group of students; interest in these programs reportedly far exceeds available spaces. Some medical schools offer elective sessions on global health topics outside of regularly scheduled class times. The University of Alberta Faculty of Medicine and Dentistry offers Saturday sessions on global health issues, and the University of Ottawa Faculty of Medicine has a 13-week seminar and problem-based learning elective course that is offered during lunchtimes. At Queen's Medical School, the global health elective is run by students.

International electives

All 17 medical schools allow their students the opportunity to participate in international electives (overseas activities recognized for academic credits), though Northern Ontario School of Medicine encourages students to take Canadian-

based rather than internationally based electives. However, there is no uniformity in prerequisites required for going on an overseas elective, supervision of the experience, or financial support provided to participate in international electives (Table 2). At 7 of the 16 medical schools (44%) from which students went on international electives, the electives were arranged and supported by medical students without clear faculty support or supervision. Only Dalhousie University Faculty of Medicine, Queen's Medical School, the University of Saskatchewan Faculty of Medicine, and the University of Toronto Faculty of Medicine (25%) could be clearly identified as requiring or providing predeparture training before students could participate in an overseas elective. The amount of preparation required ranged from a two-hour session given at the University of Toronto Faculty of Medicine to 20 hours of mandatory lectures and 23 hours of mandatory language lessons at Dalhousie University Faculty of Medicine. The University of Alberta Faculty of Medicine and Dentistry and McMaster University Faculty of Health Sciences did not require any specific predeparture training for their students; however, they did make students aware of training programs or manuals offered by other institutions.

Not surprisingly, given the strong interest in global health issues, students at many Canadian medical schools have established active global health groups which serve to facilitate student exposure to global health topics and to support summer internships and research electives in developing countries. Examples of such student groups include

- Queen's Medical School's Medical Outreach,
- University of British Columbia's Medical Overseas and student electives,
- University of Toronto's International Health Program,
- Dalhousie's Global Health Initiative, and
- The Université de Montréal's Comité d'Action Sociale et Internationale.

The number of students engaged in these programs varies across universities and was outside of the scope of this survey. Anecdotally, larger schools with greater access to funding were able to provide a greater range of opportunities for their

Table 2

International Elective Opportunities for Medical Students at the 17 Canadian Medical Schools, 2005–2006*

Medical school	International elective option	Institutional financial support	Mandatory predeparture program†	Details of support and/or predeparture program
University of Alberta	Yes	None reported	No	Students are referred to University of Alberta overseas volunteer preparation program
University of British Columbia	Yes	None reported	No	Student-led predeparture initiatives
University of Calgary	Yes	Available	No	Funding available for travel expenses
Dalhousie University	Yes	Available	Yes	Funding, 20 hours of mandatory predeparture lectures, and 23 hours of mandatory language lessons for institutional elective in South Africa and Tanzania
Laval University	Yes	None reported	No	
University of Manitoba	Yes	None reported	No	
McGill University	Yes	None reported	No	
McMaster University	Yes	None reported	No	Student-written tropical medicine and predeparture manuals are available
Memorial University of Newfoundland	Yes	None reported	No	
Université de Montréal	Yes	None reported	No	
Northern Ontario School of Medicine	Not encouraged	None reported	No	
University of Ottawa	Yes	None reported	No	
Queen's University	Yes	None reported	Yes	Predeparture and postarrival program
University of Saskatchewan	Yes	Available	Yes	Funding competition
University of Sherbrooke	Yes	None reported	No	
University of Toronto	Yes	None reported	Yes	Two-hour mandatory predeparture program
University of Western Ontario	Yes	None reported	No	

* All 17 Canadian medical schools were surveyed using a structured questionnaire to elicit information about international elective programs during the academic year 2005–2006. Information was collected from deans' offices, institutional representatives, faculty, students, and medical school Web sites.

† Predeparture programs are provided by the faculty of medicine and do not include student-led preparatory initiatives.

students than were smaller medical schools.

Discussion

During the past 20 years, U.S. and Canadian medical student participation in international electives has doubled to roughly one in five students.[7] In addition, medical students support greater exposure to global health issues in undergraduate medical school curricula.[7] As research has shown, the opportunity to participate in a global health experience during medical school is associated with a number of benefits, including greater cultural understanding, stronger motivation to pursue either primary care or future international health work, better understanding of socioeconomic influences on health and illness, greater appreciation for public health, and improved foreign language proficiency (Table 3).[8,9] However, despite the increased demand for global health training, information to date suggests that medical schools' responses to this need have been fragmented and insufficient.[1,10] Much of the existing literature on global health in medical schools focuses on international electives. International electives are often the only exposure medical students may have to global health issues, yet among the students who participate in international electives, fewer than 30% have participated in programs to prepare them for their overseas experience.[11] As of 2001, only 26% of medical schools in developed countries offer a separate global health component in their curricula.[4]

The results of our survey demonstrate that global health training in Canadian medical schools is haphazard and without uniform guidelines or objectives. Despite the lack of consensus among Canadian medical schools for global health training, medical students are seeking global health opportunities in increasing numbers.[1] Often with little or no faculty oversight, medical students are filling the vacuum in medical curricula by developing their own programs and electives. This situation may lead to medical students who are practicing beyond their competence level, to the detriment of patients, themselves, and their medical schools and affiliated hospitals.[12]

This study has a number of limitations. It is possible that we did not identify all global-health-related activities at Canadian medical schools. We occasionally had to rely on designated medical student liaisons for information about global health curricula at their schools, and it is possible that these students were not aware of the complete range and scope of global health programs at their schools; thus, we may be underreporting the available programs at Canadian medical schools. However, one could question the effectiveness of any global health module that interested medical students do not recognize as being related to global health.

The term *global health* has been described as referring to "health problems, issues, and concerns that transcend national boundaries, may be influenced by circumstances or experiences in other countries, and are best addressed by cooperative actions and solutions."[13] Though there may be a general consensus of what is or is not *global health*, this definition is open to a wide range of interpretations, thus complicating attempts to make comparisons across medical schools. Because the definition of global health was left to respondents, it is also possible that some courses or lectures self-identified as relating to global health might not be considered so by an independent observer.

Much of the literature to date has focused on U.S. medical schools and students,[7,8,14] and there could be important differences in attitudes and interests between Canadian and U.S. medical students. However, given the number of active global health student groups we identified at Canadian medical schools, Canadian medical students are at least as likely to be interested in global health issues as their U.S. counterparts are. Furthermore, whereas 11.1% of the total U.S. population was foreign born in 2000, 18.4% of the total Canadian population was foreign born in 2001, the closest year for which data are available.[15,16] Global health training for Canadian physicians is as relevant as, if not more relevant than, global health training for U.S. physicians.

In examining career choices of and personal changes in students after global health experiences, ascertaining causality can be difficult. Possibly, students who are already predisposed to community involvement and primary care elect to pursue international electives, rather than the international electives influencing students. However, given the widespread interest amongst medical students for more global health training and

Table 3

Global Health Education: A Summary of Benefits*†

Area benefited	Noted benefits
Residency	• Increased interest in primary care specialties ▪ Greater interest in family medicine ▪ Greater interest in internal medicine
Community involvement	• Increased service in underserved communities • Increased volunteering with community groups ▪ Homeless shelters ▪ Immigrant clinics ▪ Refugee clinics ▪ Indigenous peoples' support groups
Medical skills	• Higher performance on United States Medical Licensing Examination, Step II • Better history taking and physical examination skills • Greater awareness of cost issues in medicine ▪ Less reliance on expensive diagnostic tests ▪ Greater sensitivity to patients' financial status • Stronger commitment to reducing health disparities at home and abroad • Better understanding of socioeconomic factors in health • Greater appreciation of public health
International service	• Greater motivations to pursue future international health
Communication	• Greater awareness of the role of communication • Improved foreign language skills

* Benefits reported in the medical literature from medical student participation in international health electives.
† The information in this table is taken from Chiller et al,[9] Ramsey et al,[10] Bissonette et al,[15] and Gupta et al.[7]

opportunities, it is reasonable to postulate that expanding global health components in medical school core curricula might have the benefit of inspiring more students to pursue primary care and community-based careers.

This possible benefit is especially relevant given that Canada has a growing immigrant population, and increased skills in cultural competence and primary care are needed. Furthermore, the obligation to better serve disadvantaged populations regardless of geographic location has been defined as a fundamental component of medical professionalism. Global health programs provide a way to address these needs and to develop required skills.

A substantial challenge facing the expansion of global health training within medical school curricula is the lack of consensus among schools about the necessary information and skills that need to be taught.[6] The lack of agreement among Canadian medical schools has led to a patchwork of programs ranging widely from nothing to two-year electives with combined didactic and overseas components. Medical students and Canadian health care at large would benefit from a systematic approach to global health training supported by organizations such as the Association of Faculties of Medicine of Canada and accreditation bodies. Without this leadership, it is probable that global health training will continue to vary widely among schools. Such an inconsistent, haphazard approach means that many of Canada's future physicians are likely to be ill-prepared to face the global changes altering health and health care around the world.

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Appendix 1

A Questionnaire to Assess Global Health Educational Activities at the 17 Canadian Medical Schools, 2005–2006*

1. How is the school preparing their students for challenges of global health and/or community health?
2. What currently exists in the curriculum in terms of global health and/or community health?
3. Are there mandatory classes or elective courses or both? What is the breadth of each?
4. What is being planned to be offered in the future and by when?
5. When did they start to implement programs/courses on global health and/or community health?
6. What problems arose during the implementation? Do they have any suggestions for other medical schools?
7. Are students formally evaluated/tested on their knowledge about global health and/or community health?
8. What programs exist outside of the curriculum? On campus?
9. Is there a person that is specifically in charge of the projects/curriculum? If so, who?
10. How did the school divide global health and community health exposure to the students? Did you differentiate between the two?
11. What activities/events are being planned on campus/in the medical community to promote global health and/or community health awareness (i.e., conferences)? What activities/events has the school hosted in the past? Did the events achieve the set goals?
12. What student groups exist to promote global health and/or community health awareness within the university campus setting and within the medical school setting?
13. Does the school have any statistics on how many students enroll in the electives on global health and/or community health?
14. How many medical students work abroad either in a formal exchange/project or informal (i.e., over holidays)?

* All 17 Canadian medical schools were surveyed using this questionnaire to elicit information about school-sponsored global health educational programs during the 2005–2006 academic year. Information was collected from deans' offices, institutional representatives, faculty, students, and medical school Web sites.

Did You Know?

In 2005, researchers at Vanderbilt University in conjunction with the CDC found that blocking a protein stops the HIV, measles, Ebola, and Marburg viruses from infecting cells.

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