Towards a Medical Education Relevant to All:

The Case for Global Health in Medical Education

A Report of the Global Health Resource Group of the
Association of Faculties of Medicine of Canada

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The case for Global Health in Medical Education
Executive Summary

Traditional medical education is challenged by the globalization of neglected diseases, disparity of treatment access, and other determinants of good health. As Canadian medical school educators respond to the changing reality, and the emerging need to equip our graduates with the skills to respond, there is an opportunity for collaboration and innovation in the development of curriculum about the global burden of disease, impact of interventions, and challenging questions in urgent need of research. The question is not "Will global health issues need to be incorporated into the curriculum?" but when and how. The appointment of a resource group on global health at AFMC enables a national discussion of core curriculum, best practice models of delivery and sharing of resources for implementation.

The AFMC initiative will

- Enable Canadian medical schools to join the global movement to train physicians, other health workers and scientists to address global health disparities,
- Stimulate medical students and physicians to work with underserved populations and in underserved regions, both within Canada and abroad,
- Capitalize on widespread and growing student interest in global health to attract the best and the brightest individuals to Canadian medical schools,
- Position medical schools and their faculties to compete more effectively for expanding Canadian and international research funding on global health issues,

To meet the challenges created by globalization and to set new standards for medical education, nationally and internationally, the **AFMC Resource Group on Global Health recommends that AFMC establish the following national objectives for Canadian Medical schools**:

- An inventory of available faculty and resources for global health teaching,
- A central clearing house for international health educational tools, curricula and resources through the AFMC,
- Minimum learning objects and core materials to be introduced into the undergraduate medical curriculum over the next 3 years,
- Minimum international health knowledge and skills to be assessed in comprehensive examinations within 5 years.

To achieve these objectives**, the AFMC Resource group encourages Deans to undertake the following actions at each school:**

- Identify a faculty member to oversee international health activities at each school, and provide him/her with sufficient resources to undertake necessary activities,
- Meet with international health student liaisons and faculty representatives to establish priorities in setting up undergraduate global health curricula,
- Provide the Resource Group with assistance in identifying local resources and making them nationally available; eg a web site within AFMC to house global health tools accessible to all Canadian medical schools and faculty,
- Support faculty who have developed courses and resources for individual schools to make these resources nationally available, with appropriate recognition and credit,
- Allow medical students to register across schools to participate in international health courses and electives as space and resources allow

By establishing and achieving these objectives, Canadian medical schools will take the lead in meeting the needs of our students preparing for work in our global society, and the challenges of meeting the goal of health for all.

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INTRODUCTION

Canadian society is rapidly changing. The prevailing forces of globalization make increasingly obvious the fact that the health of Canadians is tied to factors far beyond national borders. Furthermore, the continuing extreme disparities in health worldwide reveal the ongoing inequalities that plague our world. These features of our global society have brought forth the call that the medical profession must become more responsive to the needs of all people, especially those who have been typically underserved. It is within the context of a changing and unequal world that an examination of the role of global health education in Canadian medical schools curricula is essential. Compelling moral, ethical, professional, pedagogical, and economic imperatives dictate a strong shift in medical education toward the inclusion of substantial training in global health.

This position paper details the reasoning behind the call for greater inclusion of global health in undergraduate medical education, and provides a review of the literature relating to global health education. It describes the accreditation standards that Canadian M.D. granting programs are expected to meet with regard to global health education, and examines the current state of global health education in the curricula of the 17 Canadian medical schools. Though recognizing the importance and clinical relevance of post-graduate training, the scope of this report is restricted to undergraduate medical training where the foundations of becoming a physician are established. This report makes the case that the time is now for leaders at Canadian medical schools to come to a consensus on what best practice recommendations for the implementation of global health education are and to take action towards their implementation.

RATIONALE – *Why Global Health is a critical component of undergraduate medical education*

Health is an essential human right. The right to enjoy a standard of living that promotes health and ensures adequate access to medical care has been enshrined in the Universal Declaration of Human Rights since 1948.[1] These principles have been reaffirmed repeatedly by the international community, and in 1978 the World Health Organization declared the attainment of health as "the most important world-wide social goal".[2] Despite these declarations, health inequalities continue to persist and are widening. Under-five childhood mortality and pregnancy-related deaths are far more common in Low and Middle Income Countries, and the often quoted "10/90 gap" with respect to health research remains a dismaying reality.[3] These health inequalities also are readily apparent in Canadian society where the health status of specific populations, such as aboriginal peoples, remains significantly lower than that of the general population. In addition, a large proportion of rural communities are medically underserved, exacerbating health inequalities. Such discrepancies, both within Canada and aboard, mean that achieving greater equity in health must be a global priority.

In the pursuit of better health for all individuals, medical schools have a crucial responsibility to play. Faculties of Medicine, which share the academic mission of universities, fulfill the unique role of training physicians. Striving towards greater global equity in health necessarily should therefore be a central mission of Faculties of Medicine. This report shows that an explicit focus on global health topics as a critical component of undergraduate medical education is essential to achieving the goal of better health for all. Specifically, the report examines the stated objectives for physician training with respect to global health issues, the demand globalisation has placed on the Canadian healthcare system, and the academic benefits that would accrue to medical schools implementing global health programs.

ROLE OF THE PHYSICIAN AS SOCIAL JUSTICE ADVOCATE

The professional contract existing between physicians and society has long held that physicians should have values such as compassion, altruism, integrity, and trustworthiness.[4] More recently, it has been recognized that doctors also should have a direct role in addressing issues of social justice and in reducing inequalities in access to health care.[5,6] Nearly all major medical organisations and licensing bodies recognise this role by highlighting the responsibility of medical schools to address the needs of the underserved and endorsing an explicit commitment to global social justice. In the case of the Canadian Medical Association, this commitment is expressed through the Association's Code of Ethics that specifically lists reducing inequality in health care resources and access as one of the responsibilities of Canadian physicians.[7] The *CanMEDS Essential Roles of the Physician*, published by the Royal College of Physicians and Surgeons of Canada and now used to formulate residency program goals across the country, notes that as health advocates on individual and community levels, Canadian physicians must be able to identify vulnerable or marginalized populations and to respond appropriately.[6] Most recently, the American Board of Internal Medicine, the American College of Physicians-American Society of Internal Medicine, and the European Federation of Internal Medicine published a joint Charter on Medical Professionalism, which states that the principle of social justice is among the three fundamental principles of physician professionalism. The charter argues that the medical profession as a whole "must promote justice in the healthcare system".[5] The call for an improved orientation towards social justice from professional organisations, representing and licensing physicians, is clear. In order to align undergraduate

medical education with the current responsibilities for physicians' roles, these objectives must be translated into integrated components of the medical education program.

THE CANADIAN HEALTHCARE SYSTEM

Over the past twenty years, economic and cultural globalization, especially through the forces of immigration, has changed the societal landscape in North America. As Canada becomes more ethnically and culturally diverse, the health care system has had to grapple with increased domestic health inequalities among recent immigrants and refugee populations. Today, over 18% of all Canadians are foreign-born; and in cities such as Toronto, this figure rises to approximately 45%. In the past decade, a majority of Canadian immigrants have arrived from Asia, with 20 per cent coming from Africa, Latin America, and the Caribbean.[8] The broader exposure to health concerns accompanying immigrants necessitates that Canadian medical students be well-trained in health issues specific to farther regions of the world. Moreover, meeting the future health care needs of this large and growing segment of the Canadian population requires that medical students have competency in cross-cultural communication and interactions.

In addition to the health inequalities prevalent in the immigrant population, future physicians must be trained to better respond to the primary care needs of the Canadian healthcare system, especially as this relates to underserved and rural populations. One of the main reasons for Canada's shortage of physicians is "the reluctance of medical students to choose specialties and locations where they are most needed";[9] however, it has been shown consistently that medical students with exposure to global health issues are more likely to work with underserved or minority populations,[10-13] and more likely to choose to practice in primary care.[12] Therefore, an increased commitment to teaching health in the context of global social justice may not only reduce domestic health inequalities but improve the responsiveness of the medical community to societal needs by positively affecting career choices of medical students towards providing primary care.

GLOBALISATION

Challenges arise from the reality of a global society where people, animals, food products, technologies, policies, and pathogens move seamlessly across national boundaries. International travel and emerging diseases are two vivid examples of areas of medical expertise created by globalization. Specific knowledge in these areas is increasingly necessary for modern medical practice. Over the past 15 years, international travel has grown by over 70%, and in 2004, 763 million people crossed international borders.[14] Concurrently, there has been a rise in the need for expertise in providing pre-travel advice, a rise reflected by growth in the field of travel medicine over the past 25 years.[15] It is clear that travel has increased the rate at which diseases endemic to distant areas of the globe are seen in hospitals in North America.[14] Each year, up to 8% of travellers present for health care while abroad or upon returning home. Presenting illnesses vary from cases of malaria, *Shigella* infection, dengue, and more rarely, with Ebola virus disease, Japanese encephalitis, rabies, tetanus, diphtheria and other life-threatening conditions.[16] The average Canadian medical school graduate currently has only a limited knowledge of these infections and diseases. This lack of training increases the likelihood that patients seeking pre-travel health care guidance or presenting with post-travel illness will receive sub-optimal care and face increased and unnecessary health risks.

While improved global health training would lead to an increased understanding of the health of Canadians traveling abroad, it would also enable graduates to deal more skillfully with emerging infectious diseases. The spread of the Severe Acute Respiratory Syndrome (SARS) epidemic through much of Southeast Asia, China, and Canada in 2003 provided ample evidence of the deficit of training in current medical educational programs regarding emerging diseases and global health issues. The Canadian experience with SARS, which included 400 cases and caused 44 deaths, revealed the undeniable links between the Canadian and global healthcare systems and demonstrated how infectious disease transmission has been changed by international travel. With a cost to Canadian taxpayers of over $1 billion, the SARS epidemic took an enormous toll on the health care system, a toll which was worsened by a lack of preparation and awareness of global health issues.[17]

Aside from SARS, other emerging infectious diseases, including West Nile virus, HIV/AIDS, Hepatitis C, and variant Creutzfeldt-Jacob disease (Mad Cow disease) have increased in incidence or geographic range over the past 30 years. The post-September 11 world also has witnessed increased anxiety over the threat of accidental or intentional release of biological agents, including anthrax spores[12]. Experts at the World Health Organization (WHO) believe that there is a high risk for another influenza virus pandemic, and the recent spread of avian influenza virus from Asia to people and bird populations in Europe and North Africa reaffirms the importance of multi-level preparedness for such a pandemic.[18] Such preparedness is inextricably dependent on better global health education for future physicians.

THE ACADEMIC ENVIRONMENT

In addition to the social justice, public health and accreditation benefits to medicals schools that offer global health courses, those that provide these courses will be better placed to compete for the most qualified students. There has been a dramatic rise in student interest in global health education, with many students basing their medical school choice on a school's international health curriculum. Over the past 20 years, student participation in international electives in the United States has doubled to one in five students,[19] with a likely similar increase in Canada. Given such statistics, medical schools hoping to attract top students must consider offering global health training in their curriculum. These courses will not only attract top prospective students, but also will provide those who matriculate into medical school with the training needed to prepare them for overseas electives.

Encouraging and creating an academic environment for global health studies promotes research into the determinants of global health and draws faculty and investigators with global health interests to the medical school. In turn, active researchers bring research funding to the institution. Funding for research on health in low and middle-income countries rose an average of US$138 million per year during the 1990s. More recently, there have been substantial financial commitments to global health research by both philanthropic organizations and national research bodies. The Bill and Melinda Gates Foundation funding for global health research rose to $520 million dollars in the year 2002 alone.[20, 21] Unsurprisingly, Canadian universities with the greatest demonstrated capacity in global health research and teaching have benefited most from these large increases in funding. For example, the University of Manitoba received approximately $6 million over four years while the University of Toronto received over $9 million over five years from the Gates Foundation.[21] Funding from government bodies has increased significantly as well. The Canadian Institutes for Health Research created its Global Health Research Initiative as a major cross-institute initiative in 2002, reaffirming its commitment to funding research in and for low income countries.[22] This

initiative resulted in the recent announcement of the Teasdale-Corti Team Grants from the CIHR and other agencies, allocating at least $10 million over four years in global health funding. Medical schools with faculty active in global health areas are well placed to receive these funds and to secure places as leaders in this burgeoning field.

In summary, moral, professional, practical, and economic reasons are drivers for improved integration of global health topics into Canadian medical school curriculum. The pedagogical benefits also are tremendous. This issue is addressed further in the following review of the literature on global health education.

> I took the Global Health Course at the Karolinska Institute [Sweden] in 1998. It was actually the first time in one and a half years of medical school that I really enjoyed my studies. I suddenly remembered why I had chosen this path and gained new and necessary enthusiasm to pursue my studies. I had been looking forward to this course because one of my reasons for becoming a doctor was a desire to work with improving the level of health in poor and deprived areas. I found that the course gave me a good base and frame-work for understanding health problems in various parts of the world and provided me with new, powerful knowledge to back up my enthusiasm. I was also surprised at the extent to which the teaching revealed and helped to combat prejudices and stereotypical ideas about the world and the reasons for ill health or wellbeing.
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> -5th year medical student, Karolinska Institute[10]

Considering the relevance of global health to the Canadian healthcare system, we embarked on a literature search to determine the status of global health within medical education. Specifically, we used the Medline database to ascertain student interest in global health, the benefits of global health education, and the successes and failures of current programs. We also utilized the reference sections of other articles to aid in our search. The data reveal a rise in popularity in global health in recent years. Global health programs improve students' academic performance and clinical skills, and often influence their career choice towards practicing primary care medicine in underserved communities. Lastly, current global health programs are insufficient to meet the needs of students and society.

Interest in global health has increased significantly in the past 20 years. Global health is no longer strictly an interest acquired during medical school; as the above student notes, it is a reason why many students apply to medical school in the first place. In one study, 50% of prospective medical students and residents indicated that international health programming influenced their decision in selecting medical schools.[23] In spite of often absent institutional support, more and more medical students are seeking out international health experiences. AAMC graduation questionnaires reveal a doubling of participation in international health experiences in the past twenty years.

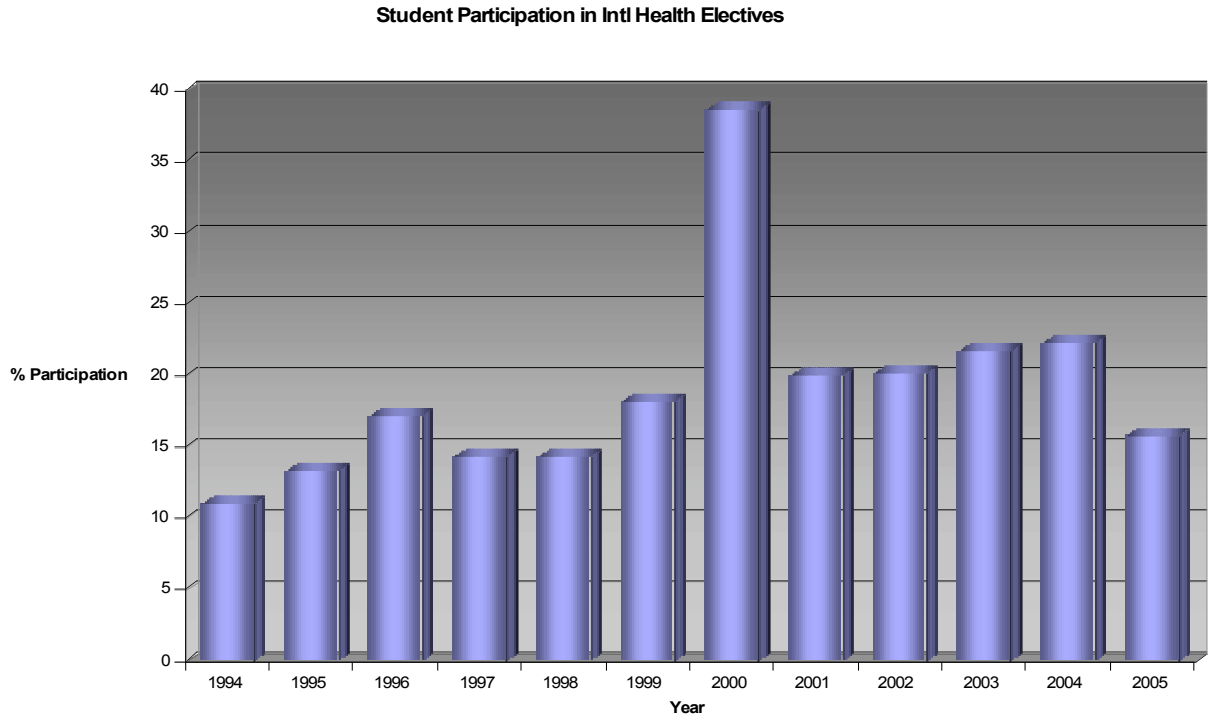

Figure 1: Student participation in international health electives, 1994-2005. Source: Medical School Graduation Questionnaire Report: 1994-2005. Association of American Medical Colleges, Division of Medical Education, Washington, DC.

In 2005, 15.8% of US graduates participated in international health electives (Figure 1). In contrast, only 11% of students sought out international electives in 1994, and 8.6% went abroad in 1985.[24] Interestingly, most international electives are organized independently of any given student's medical school.[25] Thus, the rise in participation in international activities specifically reflects an increasing number of students with sufficient interest in global health to organize these activities themselves.

An even larger body of students expresses an interest in global health, but did not arrange their own international electives. According to a survey from Newcastle University (UK), 76% of students felt that global health should be integrated into their core curriculum, although fewer of them actually had any international exposure. Fifty-six percent of students surveyed felt that current teaching on this subject was insufficient.[19] Importantly, students with minimal exposure to global health stand to gain the most from mandatory classes, since they are the least likely to understand the importance of global issues in health care, and the least likely to search for such information themselves.

When students are exposed to international health topics, the experience is often transformative. A study by Ramsey, Haq, Gjerde, et al. interviewed 42 US medical students participating in the International Health Fellowship Program (IHFP). The program, which involved two weeks of classroom lecture and six to eight weeks in a developing country, was instituted in recognition of the importance of international health. The study shows that the IHFP impacted on the students' medical education, career choices and attitudes toward medicine. Most notably, the IHFP inspired an enhanced commitment to work in medically underserved communities, and a stronger commitment to reducing health disparities. Many participants also felt that they gained greater

cultural understanding, stronger motivation to pursue future international health work, a better understanding of socioeconomic influences on health and illness, a greater appreciation for public health, and improved foreign language proficiency (Figure 2).[12]

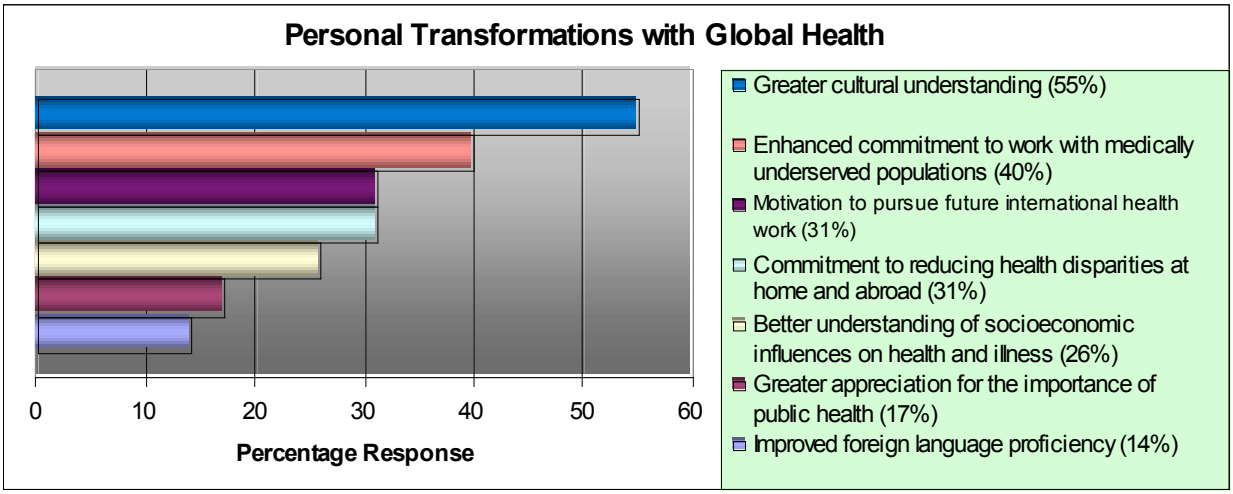

Figure 2: Reported personal benefits of an educational global health experience with the International Health Fellowship Program. Source: Ramsey AH, Haq C, Gjerde CL, Rothenberg D. Career influence of an international health experience during medical school. Fam Med. 2004;36(6):412-6

The same study demonstrated the enormous impact global health exposure has on students' career decisions, especially towards primary care careers. In contrast to the 43% of all US physicians that choose primary care specialties, 74% of IHFP graduates opted to pursue a primary care specialty. Interest in family medicine and internal medicine was particularly strong amongst IHFP fellows: 36% of fellows selected family medicine residencies (versus 11% of all US graduates), and 29% entered internal medicine residencies (versus 22% of all US graduates). These findings are particularly notable considering the decline in interest in primary care medicine, both in the US where this study took place and in Canada.[12]

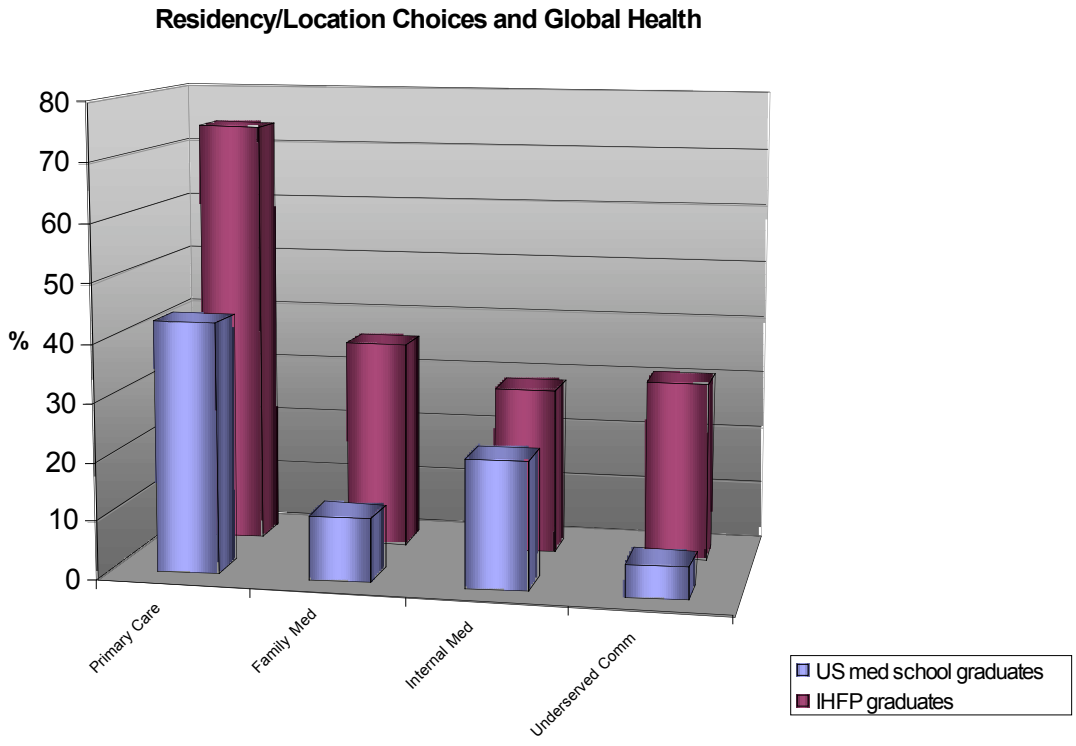

Figure 3: Specialty choice of IHFP graduates, and percentage working with underserved communities. Source: Ramsey AH, Haq C, Gjerde CL, Rothenberg D. Career influence of an international health experience during medical school. Fam Med. 2004;36(6):412-6

Global health exposure via the IHFP not only influenced the specialties chosen by participants, it affected where they chose to practice. Thirty-one percent of IHFP graduates spent more than half their time working with underserved populations, while only 5.6% of comparable graduates from US medical schools elected to do so (Figure 3). Similarly, 67% of IHFP fellows became active within community health organizations subsequent to their global health experience. Their activities included volunteering in clinics for immigrants, refugees, victims of torture, indigenous peoples, and the homeless; directing boards for non-profit organizations; staffing health fairs, and mentoring youth. In addition to becoming more involved in their local communities, IHFP graduates also remained involved in the global community. After their experiences in IHFP, 57% of the fellows spent further time working in developing countries, and 60% intended to work abroad in the future.[12]

Other studies reveal an educational and clinical benefit to international health.[12] Compared to controls, students participating in an integrated classroom/overseas elective program scored significantly higher on the public health and preventive medicine portion of the USMLE Step II.[26] Global health experiences also improved students' clinical diagnostic skills, particularly their physical examination and history taking skills, and decreased their reliance on diagnostic tests.[27] Seventy-eight percent of these students claimed they were more acutely aware of cost issues in medicine, both in regard to costs to the patients and also costs to the healthcare system. These students also gained a greater appreciation for the importance of cross-cultural communication in effectively

interacting with patients (Figure 4). In light of Canada's growing immigrant population, these improved communication skills are increasingly important. The 2001 census showed that 5.3 million Canadians are allophones, speaking neither French nor English as a first language, and there are a total of over 100 languages spoken in this country.[28]

Table 1: A summary of the benefits of global health medical education. Sources: Ramsey AH, Haq C, Gjerde CL, Rothenberg D. Career influence of an international health experience during medical school. Fam Med. 2004;36(6):412-6
Thompson MJ, Huntington MK, Hunt DD, Pinsky LE, Brodie JJ. Educational effects of international health electives on U.S and Canadian medical students and residents: a literature review. Acad Med. 2003;78(3):342-7.
Gupta AR, Wells CK, Horwitz RI, Bia FJ, Barry M. The international health program: The fifteen-year experience with Yale University's internal medicine residency program. Am J Trop Med Hyg. 1999;61(6):1019-23.
Bissonette R, Route C. The educational effect of clinical rotations in nonindustrialized countries. Fam Med. 1994;26(4):226-31.

Global Health: A Summary of 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
Medical Skills	Higher performance on the USMLE, Step II Better physical examination, history taking skills Greater awareness of cultural issues when treating patients Increased 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 motivation to pursue future international health

In examining career choices and personal changes in students after their global health experiences, ascertaining a convincing causality can be difficult. It is possible that students already predisposed to community involvement elect to pursue international electives, rather than the international electives influencing students to become more involved in their communities. However, in light of the overwhelming support (76%) for greater global health exposure amongst medical students,[19] one can surmise that a global health component in the core curriculum would inspire more students to overcome their inertia and participate more fully within their communities. Such strong interest

implies that many students could benefit in the ways described above, if their medical schools supported such opportunities in their curricula.

Unfortunately the response by medical schools to increased student demand for global health courses has been insufficient. Between 1990 and 1992, the number of US medical schools offering international health courses increased by 35% to 35 schools; however, the number of students enrolled in these courses increased by 58% to 984.[29]

Much of the existing literature on global health in medical schools focuses on international electives. Indeed, international electives are often the only exposure many medical students have to global health. Of the students who participate in international electives, fewer than 30% have participated in programs to prepare them for their overseas experience.[25] As of 2001, only 26% of medical schools in developed nations offered a separate global health component in their curricula.[19] Within Canada, only 5 medical schools—University of Laval, University of British Columbia, McGill University, University of Alberta, and University of Ottawa—offer separate global health courses, most of which are optional.[30]

Offering global health courses in addition to international electives has many advantages. Since international electives are voluntary, they essentially "preach to the converted", rather than impact those students who might learn the most from such an experience.[31] Evidence shows that all medical students—not only the students with a previous interest in international health—benefit from mandatory global health classes. A mandatory global health component in the University of Bristol's curriculum consistently received positive marks of roughly 4 out of 5 for usefulness and delivery of content by the students. Students benefited from learning about global threats to health, misconceptions commonly held by people with limited travel experience, globalization, links between health and wealth, childhood and vaccine-preventable disease, and HIV/sexually transmitted infections.[31] Often these social determinants of health are overlooked in medical school curricula, yet the student support at the University of Bristol demonstrates the interest in these issues in medical education.

In addition to meeting students' educational needs, global health courses can provide an important foundation for future international electives. Many students enter into international electives with very little preparation, and their supervision by home university advisors is similarly minimal. While most medical students return from their electives with a positive experience, many concede that they were inadequately prepared for the disease risks, political instability, and physical threats they encountered. One author recounts, "[he] remembers (fondly) his elective in Uganda . . . just as the HIV epidemic took hold. Negotiating road blocks manned by 13-year-olds brandishing Kalashnikovs seemed exciting and character-building, although we doubt if many medical schools today would support an equivalent experience . . . Preparation and support from the medical school was close to non-existent".[32] Medical schools have a responsibility to prepare their students for the experiences they will encounter during their training, regardless of where that may be. Moreover, students often assume a greater responsibility than they are qualified for while participating in international electives. Medical schools should teach students to recognize their limitations.[33] In the absence of direct supervision during these electives, global health courses would be the most suitable venue in which to address these concerns.

Though there is a shortage of doctors plaguing Canada, it is important to note that the number of doctors arriving from developing countries exceed the number of doctors leaving Canada to work

abroad. A recent study calculated that 23.1% of Canadian physicians are internationally trained, 43.4% of whom came from lower-income countries. While Canada has lost 5604 doctors to other developed countries, 6814 doctors from the developing world now practice in Canada.[34] The unfairness of the current situation is dismaying. Canada should encourage global health work amongst its doctors, considering how indebted the Canadian health care system is to foreign doctors. Canadian medical schools have the chance to ameliorate this inequality by creating student opportunities in global health.

An examination of the literature demonstrates that global health education tangibly benefits medical schools, students and society. Currently, student interest in global health has outpaced medical school course offerings in global health. While the specific case of Canadian medical schools will be discussed in section V of this report, in general few schools were found to offer classes on global health. Nonetheless, medical students rate these classes highly, and perceive these classes to be very relevant to their future practice of medicine. Exposure to global health has numerous benefits, including an increased interest in primary care specialties, increased likelihood of working in underserved communities, greater awareness of the financial costs associated with various medical decisions, greater academic performance, improved clinical skills, a stronger understanding of the importance of cultural issues in the practice of medicine, and a greater likelihood to pursue future international health work. International electives alone provide a limited benefit to students. Mandatory global health classes would not only prepare students better for the international electives they pursue, but also reach all students in need of exposure to international health issues.

The recognition that medical education should be restructured to respond more effectively to Society's needs has led to changes in the training of future physicians including the incorporation of subject matters previously neglected in formal medical education such as population health, ethics, and communication skills. The guidelines for accreditation of medical schools in the United States and Canada also have been reshaped to incorporate these new subjects, as have the medical licensing exams and guidelines for residency training programs. However, despite being a significant step forward, these reforms have not resulted in systematic changes in the current medical education curricula to include global health topics. Therefore, the health problems of populations with the greatest burden of disease continue to remain mostly absent from standard American and Canadian medical education. This section provides a survey of global health within the CanMEDS 2000 project on the residency training of specialists, medical school accreditation guidelines, and the Medical Council of Canada's Qualifying Exam. By examining these documents, it is clear that global health education is increasingly expected of medical faculties worldwide, and that Canadian Faculties of Medicine will soon fall short of meeting accreditation standards unless explicit training in this field is implemented.

The CanMEDS 2000 Project pioneered the idea of defining a set of competencies or essential abilities defined on the basis of identified societal needs. Published in 1996 by the Royal College of Physicians & Surgeons of Canada, CanMEDS groups the set of competencies into seven interdependent roles of the physician: Medical expert, Professional, Collaborator, Communicator, Scholar, Manager, and Health Advocate.[6] Of these, the roles of Manager and Health Advocate in particular require a strong understanding of global health issues. As a *Manager*, the physician is expected to "understand population-based approaches to health care services and their implications for medical practice." In turn, this depends on the competencies of a *Health Advocate,* a role defined by the ability to "identify the determinants of health that affect a patient, so as to be able to effectively contribute to improving individual and societal health". As a *Health Advocate,* the physician must understand determinants of global health such as "poverty, unemployment, early childhood education, and social support systems" and demonstrate a working knowledge of "public policy for health by describing how public policy is developed, [and how it] affects health".[35] Through these competencies, the CanMEDS, an influential document that has inspired other professional organisations to revisit their guidelines, has set out a vision of medical education that values and promotes the explicit integration of global health issues.

In the United States and Canada, the specific accreditation standards of medical education programs leading to the M.D. are set and monitored by the Liaison Committee on Medical Education (LCME). The current norms were published in October 2004 in the document *Functions and Structure of a Medical School: Standards for Accreditation of Medical Education Programs Leading to the M.D. Degree*.[36] As stated by the LCME, one of the central goals of faculties of medicines must be to meet the objectives of this document. While this document states that medical education programs are expected to "prepare students for their role in addressing the medical consequences of common societal problems," several objectives directly relating to global health such as cross-cultural biases and competency in addressing health problems of 'people of diverse cultures and belief systems,' are included. The document underscores the importance of cultural competence, stating that students must "demonstrate an understanding of the manner in which people of diverse cultures and belief systems perceive health and illness" and that "all instruction should stress […] the effect that social

and cultural circumstances have on [a patient's] health." Building on what has already been proposed in the CanMEDS objectives, the LCME's document clearly requires that any program of medical education leading to the M.D. "must include…the effect of social needs and demands on care." The explicit inclusion of global health topics in the curriculum – with its already demonstrated potential in increasing competence in societal dimensions of health – is therefore critical to the attainment of the aforementioned objectives.

Despite the direct focus of the CanMEDS objectives on residency training, the far-reaching influence of the project has directly impacted the Medical Council of Canada (MCC). The MCC sets the standards of undergraduate medical education by describing what medical students should have learned by the end of their undergraduate medical education. These objectives are reflected in the publication *The Objectives for the Qualifying Examination*.[37] The third edition of *The Objectives*, released in 2003, includes for the first time two separate sections that strongly articulate the importance of global health in undergraduate medicine. These sections are entitled *Population Health and Its Determinants* and *Health of Special Populations*. The latter section focuses on the health of people who are the traditional sufferers of health inequalities that global health courses strive to address.

Calls for integrating global health topics into medical education also have arisen from global medical education efforts in addition to the above cited guidelines. Besides the Universities in Solidarity for Health of the Disadvantaged (UNISOL) project supported by UNESCO, leaders in the field of medical training have gathered through the World Federation for Medical Education (WFME) and the WHO to define what curricula should constitute medical education worldwide. These leaders include prominent experts such as Dr. Dale Dauphinee, Executive Director of the MCC; Dr. David Leach, Executive Director of the Accreditation Council for Graduate Medical Education; Dr. John Parboosingh of the Royal College of Physicians and Surgeons of Canada; Dr. Gregory Paulos, of the American Medical Association; Dr. David Stevens, of the AAMC; and Dr. Dennis Wentz, also of the AMA.[38] The WFME's report, *Basic Medical Education: WFME Global Standards for Quality Improvement,*[38] states unequivocally that "the improved health of all peoples is the main goal of medical education" and acknowledges that "the world is characterized by increasing internationalisation, from which the medical workforce is not immune." It further takes on as a goal "to ensure that competencies of medical doctors are globally applicable and transferable" and takes the position that "social responsibility" should be a part of the mission and objectives of basic medical education. S*ocial responsibility*, as an intrinsic component of medical training, ought to compel Faculties of Medicine to empower future physicians through their training to care for all individuals regardless of political and socio-economic boundaries.

As a whole, the guidelines set out by CanMEDS, the LCME, MCC and the WFME clearly indicate the need for undergraduate medical education reform. Unanimously, these guidelines call for more socially responsible and globally aware undergraduate medical education programs. All of the mentioned guidelines present a vision of explicit and direct integration of global health issues as an integral part of the training of future physicians. The Canadian Faculties of Medicine therefore have the responsibility to shape their programs of medical education accordingly in order to train physicians with skills relevant to the health of all Canadians and people worldwide. It is in this way that medical education can fulfill the overarching goal of building a more healthy society.

As the section on accreditation council objectives indicates, the importance of global health teaching within Canadian medical school curricula is not a new phenomenon. In practice, several schools are integrating global health teachings into varying components of their programs. To better understand how global health should be integrated into undergraduate medical education and to respond to the rationale and guidelines noted above, it is crucial to know how global health topics are presently taught in Canadian medical schools. An understanding of programs currently in place serves two purposes. First, it illuminates the different approaches to incorporating global health into the curriculum and generates tangible ideas for administrators of other schools about how such programs might be implemented at their respective faculties. Second, an awareness of programs across Canada can lead to establishing an evidence-based model of how integration of global health topics into medical school curricula may be most effectively achieved.

It was necessary to assess broadly Canadian medical school curricula in order to collect the relevant information to know which programs offered global health-related topics. Many schools, in fact, offer global health information through their community health programs or within other units such as infectious disease or public health. Thus, both global and community health programs were specifically inquired about as part of the data collection.

Information was solicited from all 17 Faculties of Medicine in Canada. Answers are presented in the attached table (Appendix I). The Deans at all medical schools were notified of the inquiry and the relevant data was collected through a 14-point questionnaire appended to this document (Appendix II). To complete the questionnaire, publicly available school websites, relevant faculty and student members, and personal contacts at the various schools were consulted. Thirteen of 17 Faculties of Medicine responded to the questionnaire within a timeframe necessary for the completion of this report. In general, questionnaires answered directly by faculty administration were the most complete and informative.

We found that no undergraduate medicine program offers a mandatory and specific global health credit course. Dalhousie University is the only faculty of medicine presently working on a proposal for integration of a mandatory stand-alone global health course into the curriculum. This course should be implemented in the coming academic year.

In all other medical schools, global health is taught through integrated components of the overall program, is not mandatory, or is not offered. These programs include 'optional full courses' such as those offered by the University of Saskatchewan, the University of Alberta, the University of Ottawa and Laval University to several hours of lectures dealing with global health related issues nestled into other units. The 'optional full courses' at the four mentioned universities offer classes outside of the medical program. At the University of Alberta, the course consists of 12 hours of Saturday lectures. At University of Ottawa, a similar arrangement is used with 20 hours of lunch time lectures as well as PBL cases. Dalhousie offers 12 hours of global health seminars that are currently optional, but will become mandatory in the coming year for any student wishing to take an international elective.

The most developed of integrated programs are those offered by the University of Saskatchewan and Laval University. Both schools provide two full-year courses as well as fully funded internship opportunities in developing communities for a select group of students. Seven faculties of medicine

surveyed reported discussing global health associated topics as part of other components of their undergraduate program. However, whether these components were mandatory or optional varied among schools.

The most comprehensive program to use global health integration is at the University of Toronto where a theme of 'Global Health and Social Advocacy' is integrated into 20 hours of mandatory components throughout the 4-year program. Eight faculties of medicine did not have, or could not be identified as having, any specific global health issues incorporated into their curriculum.

Fourteen medical schools offer their students international health opportunities through facilitating or supporting elective work overseas. Eleven of the 14 schools provide specific pre-departure training and preparation, as well as the possibility of funding. International Health Education Program at Dalhousie, under the Associate Dean of International Medical Development and Research, provides 20 hours of mandatory lectures and 23 hours of mandatory language lessons for pre-clinical students taking international electives. In most cases however, the preparation is nominal and the funding is inconsistent and lacking clear application and selection guidelines.

In addition to the opportunities provided by the Faculties of Medicine, many schools have active global health student groups that work to facilitate student exposure to global health topics. These programs often take the form of summer internships or research electives in developing countries. Successful examples of such student groups include Queen's Medical Outreach, Medical Overseas and Student Electives at University of British Columbia, University of Toronto International Health Program (UTIHP), the Global Health Initiative at Dalhousie and Comite d'Action Sociale et Internationale at the University of Montreal. The number of students engaged in these programs varies from each university and was outside of the scope of this survey. Anecdotally, larger schools with greater access to funding are able to provide a greater range of opportunities for their students. One example is the wide range of programs offered in partnership between the Centre for International Health and UTIHP at the University of Toronto. Students initiate other global health activities besides electives. At the Dalhousie University, the University of Toronto and McGill University, students arrange an annual global health conference, often with faculty support and collaboration. The students and the International Health Education Program at Dalhousie also co-sponsor a monthly international health lecture series.

This summary and the attached table outlining the specific details of each Faculty's program demonstrate that the integration of global health topics in Canadian undergraduate medical programs is ad-hoc and inconsistent (Appendix 1). As a result, there is significant variation between schools, with no common vision on the role that global health should play in undergraduate medical education or how the global health objectives of the relevant accreditation bodies should be implemented. The programs described above often are derived from continuations of student-initiated experiences. This non-systematic approach contributes to the wide range of programs presently in place. To date, there has been no direct and active program of curriculum development with respect to global health. The majority of medical schools lack a global health office or coordinating staff, which may contribute to the haphazard situation that currently exists in Canadian medical schools. As a result, there presently is no model of global health integration that can serve as an ideal starting point for other Canadian medical schools. Nonetheless, there remains great potential in understanding the impact that these different approaches have had and how they can best be compiled to create an optimal model.

CONCLUSION

The global community is one of growing health disparities. Canadian medical schools must recognize the need to educate physicians who will be responsive to the needs of those most affected by these inequalities. Faculties of Medicine are uniquely positioned to address the needs of the underserved. Although a review of the literature cites numerous benefits of integrating global health education into the medical school curriculum, and accreditation and licensing bodies are increasingly calling for such integration, there exist no standards for global health education in Canadian medical schools. The integration of global health topics in undergraduate medical programs is at best ad-hoc and inconsistent, with no agreement on how schools can best meet the standards that are being set by accrediting councils and medical associations. It is therefore crucial in fulfilling their societal responsibility that Canadian Faculties of Medicine work towards developing and implementing a comprehensive educational program in global health. By doing so, medical education can move closer to meeting the needs of our global society and to attaining the goal of health for all.

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APPENDIX I - QUESTIONNAIRE

1. How is the school preparing their students for the 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)?