

The Future of Medical Education in Canada (FMEC):

A Collective Vision for MD Education



An AFMC project

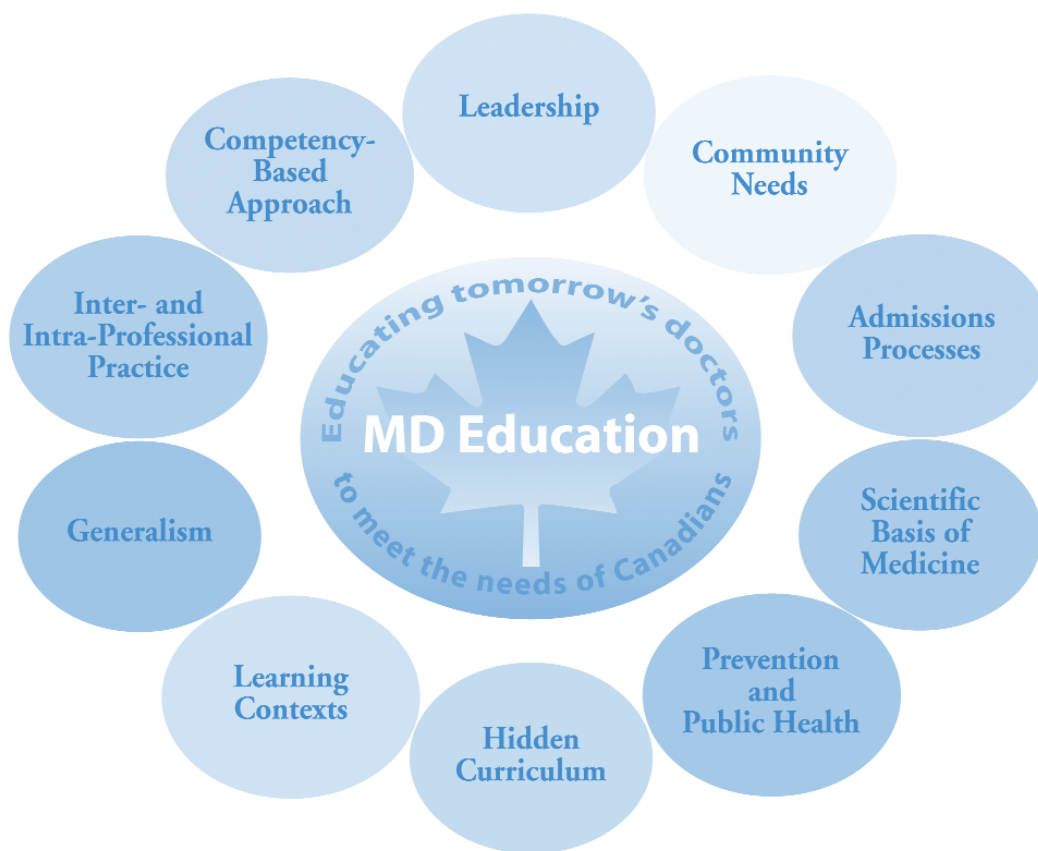
AFMC

The Association of Faculties
of Medicine of Canada

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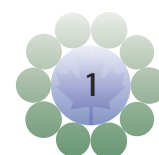
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Executive Summary

Just as Abraham Flexner's report did 100 years ago, The Future of Medical Education in Canada (FMEC) project looks at how the education programs leading to the medical doctor (MD) degree in Canada can best respond to society's evolving needs. In turn, the FMEC project is rooted in the Association of Faculties of Medicine of Canada's (AFMC's) articulated social accountability mission for medical schools.

Health care has become increasingly complex and faces enormous challenges in providing quality care to diverse populations. An important need has developed for a cohesive and collective vision for the future of medical education in Canada. While Canada's Faculties of Medicine are leaders in medical education, continually adapting to changing expectations and requirements, the physician of the future requires skills that will involve further adaptations and reforms to our medical education system.

The 10 FMEC recommendations for MD education (also known as undergraduate medical education) are grounded in evidence and emerge from a broad and rigorous consultative process. They are as follows:

1. Address Individual and Community Needs
2. Enhance Admissions Processes
3. Build on the Scientific Basis of Medicine
4. Promote Prevention and Public Health
5. Address the Hidden Curriculum
6. Diversify Learning Contexts
7. Value Generalism
8. Advance Inter- and Intra-Professional Practice
9. Adopt a Competency-Based and Flexible Approach
10. Foster Medical Leadership

They are accompanied by five enabling recommendations that will facilitate the implementation of the FMEC recommendations:

- A. Realign Accreditation Standards
- B. Build Capacity for Change
- C. Increase National Collaboration
- D. Improve the Use of Technology
- E. Enhance Faculty Development



Process

The FMEC MD education project comprised four main phases: i) research and analysis, ii) consultation and engagement, iii) development of *The Future of Medical Education in Canada: A Collective Vision for MD Education*, and iv) knowledge translation, dissemination, and implementation planning.

The process began with a full year of data gathering and analysis, including a comprehensive literature review and dozens of national key stakeholder interviews. Other key activities that fed directly into the research phase of the project included national meetings with a panel of experts, a Young Leaders' Forum, the creation of a Data Needs and Access Group, and international consultations with medical education innovators in Australia, the Netherlands, New Zealand, the United Kingdom, and the United States.

Ten evidence-based priority areas for change emerged from this comprehensive data-gathering phase. These priority areas were shaped into preliminary recommendations for change. Once they were drafted, an extensive consultation and engagement phase was undertaken to discuss and validate the recommendations and formulate next steps. Each of the 17 Canadian Faculties of Medicine was consulted, as was the broader academic medicine community at two national forums.

The *FMEC Collective Vision* began to take shape and was further refined by the FMEC Task Force on Implementation Strategy. While the essence and integrity of the original recommendations for change were maintained, the consultations and engagements contributed to the careful language used in each as well as to the development of the enabling recommendations. The following report is the final product of this collaborative initiative.

Next Steps

The AFMC is committed to the *FMEC Collective Vision*. The recommendations are crafted to be interpreted and implemented as a whole. However, each of the 17 Canadian Faculties of Medicine will embrace the recommendations in this report in its own unique way. Partnerships and collaborations among faculties with similar interests and priorities will be encouraged and facilitated as this work moves ahead. Improving Canadian MD education programs by implementing these recommendations will not only enhance the quality of education in Canadian medical schools but also better equip Canada's physicians and health care systems to respond and adapt to the changing health and societal needs that define this nation.



The *FMEC Collective Vision* is a platform for change. A proposed postgraduate project will carry this initiative further by creating linkages between undergraduate and postgraduate medical education and examining related themes and unique challenges and opportunities in the postgraduate context. It will build upon the results of this project and create an even more robust vision for the future that spans two key areas of medical education.

A continuing medical education initiative is required to round out the learning continuum and result in a more cohesive and comprehensive collective vision for the future of all medical education in Canada.

Recommendations

Recommendation I: Address Individual and Community Needs

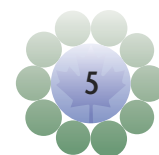
Social responsibility and accountability are core values underpinning the roles of Canadian physicians and Faculties of Medicine. This commitment means that, both individually and collectively, physicians and faculties must respond to the diverse needs of individuals and communities throughout Canada, as well as meet international responsibilities to the global community.

Recommendation II: Enhance Admissions Processes

Given the broad range of attitudes, values, and skills required of physicians, Faculties of Medicine must enhance admissions processes to include the assessment of key values and personal characteristics of future physicians—such as communication, interpersonal and collaborative skills, and a range of professional interests—as well as cognitive abilities. In addition, in order to achieve the desired diversity in our physician workforce, Faculties of Medicine must recruit, select, and support a representative mix of medical students.

Recommendation III: Build on the Scientific Basis of Medicine

Given that medicine is rooted in fundamental scientific principles, both human and biological sciences must be learned in relevant and immediate clinical contexts throughout the MD education experience. In addition, as scientific inquiry provides the basis for advancing health care, research interests and skills must be developed to foster a new generation of health researchers.



Recommendation IV: Promote Prevention and Public Health

Promoting a healthy Canadian population requires a multifaceted approach that engages the full continuum of health and health care. Faculties of Medicine have a critical role to play in enabling this requirement and must therefore enhance the integration of prevention and public health competencies to a greater extent in the MD education curriculum.

Recommendation V: Address the Hidden Curriculum

The hidden curriculum is a “set of influences that function at the level of organizational structure and culture,” affecting the nature of learning, professional interactions, and clinical practice. Faculties of Medicine must therefore ensure that the hidden curriculum is regularly identified and addressed by students, educators, and faculty throughout all stages of learning.

Recommendation VI: Diversify Learning Contexts

Canadian physicians practise in a wide range of institutional and community settings while providing the continuum of medical care. In order to prepare physicians for these realities, Faculties of Medicine must provide learning experiences throughout MD education for all students in a variety of settings, ranging from small rural communities to complex tertiary health care centres.

Recommendation VII: Value Generalism

Recognizing that generalism is foundational for all physicians, MD education must focus on broadly based generalist content, including comprehensive family medicine. Moreover, family physicians and other generalists must be integral participants in all stages of MD education.

Recommendation VIII: Advance Inter- and Intra-Professional Practice

To improve collaborative, patient-centred care, MD education must reflect ongoing changes in scopes of practice and health care delivery. Faculties of Medicine must equip MD education learners with the competencies that will enable them to function effectively as part of inter- and intra-professional teams.



Recommendation IX: Adopt a Competency-Based and Flexible Approach

Physicians must be able to put knowledge, skills, and professional values into practice. Therefore, in this first phase of the medical education continuum, MD education must be based primarily on the development of core foundational competencies and complementary broad experiential learning. In addition to pre-defined curriculum requirements, MD education must provide flexible opportunities for students to pursue individual scholarly interests in medicine.

Recommendation X: Foster Medical Leadership

Medical leadership is essential to both patient care and the broader health system. Faculties of Medicine must foster medical leadership in faculty and students, including how to manage, navigate, and help transform medical practice and the health care system in collaboration with others.

Enabling Recommendations

Enabling Recommendation A: Realign Accreditation Standards

Recognizing that accreditation is a powerful lever, Canadian medical leaders must review and realign existing standards of the Committee on Accreditation of Canadian Medical Schools and the Liaison Committee on Medical Education and develop new ones, as necessary, to respond to the recommendations in this report. This may involve the alignment of undergraduate and postgraduate accreditation standards.

Enabling Recommendation B: Build Capacity for Change

Each Faculty of Medicine should carry out a review of its organizational systems, processes, and structures to determine and build capacity, where required, to support a constructive response to these recommendations.

Enabling Recommendation C: Increase National Collaboration

Canadian Faculties of Medicine are continually innovating and have much to offer each other. Increased collaboration among schools is needed, including the sharing of teaching and learning resources, evaluation frameworks, tools for common curriculum development, innovations, and information technologies.



Enabling Recommendation D: Improve the Use of Technology

Based on rapid and evolving technological changes related to the way people communicate and learn, there must be increased understanding and use of technology on the part of both faculty and learners at all MD education sites.

Enabling Recommendation E: Enhance Faculty Development

Recognizing that teaching, research, and leadership are core roles for physicians, priority must be given to faculty development, support, and recognition in order to enable teachers and learners to respond effectively to the recommendations in this report.



Introduction

The last comprehensive review of the Canadian system of medical education was undertaken by Abraham Flexner in 1910.¹ Since then, myriad changes in the practice of medicine and a wide variety of societal influences have resulted in a state of continuous evolution.

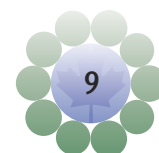
Societal changes—such as increasing socioeconomic disparity, urbanization, diversity, and global mobility and connectivity—contribute significantly to the shaping of medical education. Added complexities include the explosion of scientific discoveries and new knowledge; the mounting burden of chronic diseases; health disparities among sub-populations; and the ongoing challenges of serving people in rural and remote areas. Emerging issues around the safety, quality, and efficiency of health care also influence the skill sets required of contemporary Canadian practitioners.

This report outlines the results of the Health Canada-funded Future of Medical Education in Canada (FMEC) project. The project set out to conduct a thorough review of medical doctor (MD) education in Canada, assess current and future societal needs, and identify the changes needed to better align the two. The 10 recommendations and five enabling recommendations in this collective vision aim to prepare the Canadian medical education system for the century ahead.

Simply put, this report identifies both generally agreed upon and uniquely Canadian challenges in MD education and offers a transformative vision for the way forward. It strikes a balance between the impetus for change, what is currently being done, and what remains to be done.

Canada's 17 Faculties of Medicine shared in the development of this collective vision and are also its primary audience. Many key stakeholders contributed to this work, including other health care professionals, members of the public, students, health system administrators, government representatives, accreditation bodies, and the FMEC Steering Committee and Task Force on Implementation Strategy. It is the hope and expectation of those involved that stakeholders will address these recommendations and play an active role in their implementation.

¹ Flexner, A. *Medical Education in the United States and Canada. A Report to the Carnegie Foundation for the Advancement of Teaching.* Bulletin No. 4. New York: Carnegie Foundation; 1910.



Complex Realities

Canada's health care system is often described as complex. In fact, Canada does not have a single health care system but rather an amalgamation of several. The federal government, 10 provinces, and three territories each play an important role in this system.

The federal government sets and administers national principles for the health care system through the Canada Health Act; provides fiscal transfers for provincial and territorial health care services; delivers such services to specific groups, such as First Nations, Inuit, and Métis (Indigenous) Peoples; veterans; inmates; and performs other functions, including providing public health and health protection programs and conducting health research. The provinces and territories are responsible for health service delivery.

Medical education in Canada is similarly complex, in that post-secondary education is administered by the provinces and territories. As such, health human resource planning, particularly as it pertains to the physician workforce, is not yet guided by a clear national strategy.

Canadian Medical Education: a Global Leader

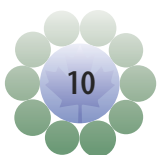
Despite the complexities of its health care system, Canada is a global leader in medical education innovation. Examples abound, from McMaster University's system of problem-based learning, designed to help students keep pace with the continually expanding knowledge base, to the new Northern Ontario School of Medicine, created specially to serve rural, remote, and Indigenous communities.

Focused and innovative curricular changes in medical education are being directed by the Educating Future Physicians for Ontario (EFPO)² and CanMEDS³ projects, including the development of new assessment and evaluation strategies, and through Canadian faculties creating competency-based curricula.

Across all campuses there is a focus on professionalism: we are teaching it more, encouraging appropriate role-modeling, and developing tools to assess it. An emphasis on inter-professional learning is emerging in some Canadian MD education programs. New teaching tools, including simulations, virtual patients, and various online learning techniques are being integrated into traditional learning environments. Innovations in Canada are also having a significant impact internationally.

² Educating Future Physicians for Ontario Project. What people of Ontario need and expect from physicians. Hamilton: McMaster University; 1993.

³ Frank, JR. (Ed). The CanMEDS 2005 physician competency framework. Better standards. Better physicians. Better care. Ottawa: The Royal College of Physicians and Surgeons of Canada. (http://rcpsc.medical.org/canmeds/CanMEDS2005/CanMEDS2005_e.pdf). Revised 2005. Accessed November 13, 2009



The Physician of the Future

Physicians need a broad knowledge base and strong clinical competencies to enter practice. Through lifelong learning, the physician of the 21st century will be a skilled clinician, able to adapt to new knowledge and changing patterns of illness as well as new interventions, personalized therapeutics, and rapidly changing medical science and health care systems. Physicians will need to be independent and critical thinkers, capable of appraising evidence free from personal bias and inappropriate influence.

Considerable consensus on the role of the future physician has already been developed through Canada's EFPO project, the CanMEDS framework of essential physician competencies (medical expert, communicator, collaborator, manager, health advocate, scholar, and professional) and the four principles of family medicine (skilled clinician, community-based, defined practice population, centrality of patient-physician relationship) as articulated by the College of Family Physicians of Canada (CFPC). Themes from these initiatives are echoed in the World Health Organization's (WHO's) "five-star doctor"⁴ and, most recently, the United Kingdom's Consensus Statement on the Role of the Doctor.⁵

Recognized as an essential trait is the highest level of professionalism, a concept that encompasses medical expertise; a deep understanding of the patient, family, and population; excellent communication; compassionate care; and productive interactions with medical colleagues, co-workers, and the public.

Physicians will also be expected to work in new and innovative ways with other health professionals, both as team members to explore the scope of their practices and maximize community benefit, and as partners in leadership for health-system management and change.

Finally, lifelong learning skills will be required to equip future doctors with the capacity to practise for 30 or 40 years in a constantly shifting environment.

The Medical Education System of the Future

As the role of the physician evolves, so too must medical education. Recognizing the breadth of roles physicians assume, the educational system must ensure that key competencies are attained by every physician while simultaneously providing a variety of learning paths and technologies that prepare students for diverse roles in their future careers. In a nimble and adaptable system, medical education can lay the foundation for physicians to be skilled clinicians, health scientists, researchers, and advocates for health system reform.

⁴ Boelen, C. The Five-Star Doctor: An Asset to Health-Care Reform? (http://www.who.int/hrh/en/HRDJ_1_1_02.pdf). Published 1996. Accessed November 13, 2009.

⁵ Medical Schools Council. The Consensus Statement on the Role of the Doctor. (<http://www.medschools.ac.uk/AboutUs/Projects/Documents/Role%20of%20Doctor%20Consensus%20Statement.pdf>). Published 2008. Accessed November 13, 2009.

To lay this foundation, the medical education system must be sufficiently flexible and supportive to adapt to the individual academic, professional, and personal contexts of learners—including those wishing to pursue complementary graduate degrees (e.g., MPH, MBA, PhD) or other advanced training concurrently. It must also strive to keep pace with advances in information technology and utilize such technologies, where beneficial, in both learning and practice.

Rethinking Medical Education

The FMEC project was launched in 2007 in response to widespread recognition that medical education in Canada should be re-examined. It arose within the multiple contexts of Canada's unique and complex health care systems, expanding international research-based evidence on medical education, and the successful initiatives of the Canadian Faculties of Medicine. While focusing on MD education, the project acknowledges that domain-specific knowledge and competencies are developed and refined during postgraduate residency education and beyond.

The physician's educational continuum is lifelong, starting prior to medical school admission and extending through MD education, residency and fellowship training programs, and into practice (continuing medical education). A systematic review of MD education was the first step in creating a collective vision for the future of medical education in Canada. The next will be an in-depth review of postgraduate medical training in Canada—to be launched in 2010—and, finally, a review of continuing medical education.

The FMEC project began with a thorough examination of the foundations of knowledge, core competencies, and general skills students need to undertake further training in residency. It has attempted to build on the foundation of the existing medical education system, which continues to equip expert specialists and generalists for work in even the most complex and challenging of settings.

Project research and consultations formed the basis of the recommended changes to MD education—changes that must be collectively addressed by all Canadian Faculties of Medicine in order to achieve the best possible learning experience for students. Recognizing the unique strengths of these faculties in the Canadian training environment, the recommendations allow for some flexibility in their implementation; however, all are feasible in an integrated national framework.

A Collective Vision

The FMEC project emerged in tandem with a number of international strategies addressing how physicians are educated. Similar to the work done by the UK and the WHO, the American Initiative to Transform Medical Education⁶ presented specific recommendations for change, while the European Tuning Project⁷ developed learning outcomes and competencies for a primary medical degree.

Significant findings have also been reported in the 2009 Macy Foundation report *Revisiting the Medical School Educational Mission at a Time of Expansion*⁸ and the Carnegie Foundation's forthcoming *Educating Physicians: A Call for Reform of Medical School and Residency*.⁹ All of these have informed the FMEC process.

Building on Success: AFMC and the Faculties of Medicine

A starting point for implementing this vision can be found in the efforts of the Canadian Faculties of Medicine to adapt medical education to evolving realities. In keeping with its fundamental belief in social accountability, the Association of Faculties of Medicine of Canada (AFMC) and Canada's medical schools have responded collectively over the last five years through such means as

- developing models of distributed medical education,
- addressing the health care needs of rural and remote communities,
- encouraging more Indigenous students to enter medicine,
- enhancing public health skills for future physicians,
- creating an end-of-life/palliative care curriculum, and
- acting as the secretariat for a collaboration of eight pre-licensure education accrediting bodies for six health disciplines. This particular effort resulted in joint principles and resources for the implementation of inter-professional health education accreditation standards.

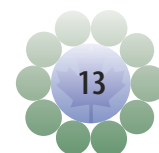
Canadian Faculties of Medicine have also responded to the national shortage of physicians over the past decade by doubling the number of students admitted to medical school. This included opening a new facility in Northern Ontario and vastly expanding the network of distributed medical education sites.

⁶ American Medical Association. Initiative to Transform Medical Education. (www.ama-assn.org/ama1/pub/upload/mm/16/itme_final_rpt.pdf). Published June 2007. Accessed November 13, 2009.

⁷ Cumming AD, Ross MT. The Tuning Project (medicine) – learning outcomes / competences for undergraduate medical education in Europe. Edinburgh: The University of Edinburgh. (<http://www.tuning-medicine.com/pdf/booklet.pdf>). Published 2008. Accessed November 13, 2009.

⁸ Cohen JJ. Chairman's Summary of the Conference. In: Hager M, editor. *Revisiting the Medical School Educational Mission at a Time of Expansion*; Charleston, SC. Josiah Macy, Jr. Foundation. (www.josiahmacyfoundation.org/documents/Macy_MedSchool_Mission_10_08.pdf). Published 2008. Accessed November 13, 2009.

⁹ Cooke M, Irby DM, O'Brien BC. *Educating Physicians: A Call for Reform of Medical School and Residency*. San Francisco: Jossey-Bass. The Carnegie Foundation for the Advancement of Teaching; 2010.



The FMEC project is a continuation of these initiatives and is particularly timely given the 100th anniversary of the Flexner report, which takes place in 2010. The recommendations in this report are not offered in a vacuum but must be viewed in the context of the broad continuum of learning, as they will also have significant implications for postgraduate and continuing medical education.

Implementing the recommendations will significantly enhance Canadian MD education, optimize health care delivery, and ultimately improve the health status of all Canadians.



Recommendations*

Ten priority areas emerged from the evidence gathered during the FMEC project. These are encapsulated in the 10 recommendations presented on the following pages. Each also includes a brief rationale and selected examples to stimulate thinking in support of implementation. The five enabling recommendations that follow identify overarching facilitators for the transformative change proposed in this collective vision.



* The 10 recommendations in this report are presented in no particular order.

Recommendation I: Address Individual and Community Needs

Social responsibility and accountability are core values underpinning the roles of Canadian physicians and Faculties of Medicine. This commitment means that, both individually and collectively, physicians and faculties must respond to the diverse needs of individuals and communities throughout Canada, as well as meet international responsibilities to the global community.

Rationale

The link to social accountability is not only longstanding but foundational to medical practice and education. It is embedded in the Hippocratic Oath taken by physicians and was identified by Flexner 100 years ago when he undertook a review of medical education in Canada and the United States. Not surprisingly, the importance of social accountability emerged as a cross-cutting theme in this project. Universally seen as fundamental, social accountability connects medical education to the diverse needs of society and requires vigilance to ensure that high-quality health care is available for all Canadians. These diverse needs are often based on factors such as geography, socioeconomic status, illness, and the specific medical contexts of populations, including the most vulnerable among us.

The WHO issued the following statement in 1995:

[Medical Schools have] the obligation to direct their education, research and service activities towards addressing the priority health concerns of the community, region, and/or nation they have a mandate to serve. The priority health concerns are to be identified jointly by governments, healthcare organizations, health professionals and the public.

On the heels of this statement, the AFMC embarked upon an initiative designed to strengthen and make more explicit existing social accountability activities within our faculties. As a result of this, social accountability initiatives have been a cornerstone of the activities of the AFMC over the past five years.

Examples of contemporary pressing issues that Canada's medical schools are continuing to address collectively include developing models of distributed medical education; addressing the health care needs of Canadians living in rural and remote communities; encouraging more Indigenous students to enter medicine; enhancing public health skills for future physicians; and creating an end-of-life/palliative care curriculum, to name but a few. Central to these social accountability initiatives is the provision of a comprehensive education for physicians that will enable them to respond directly to the ever-changing health care needs of the communities they serve.

The particular role of the medical school in terms of social accountability is to support physicians in developing specific skills required to serve the various and changing needs of diverse communities. This means, more specifically, that graduates practise as lifelong learners, assuming roles in medicine as clinicians, researchers, educators, and leaders in the health care system. What is to emerge is a culture of “civic professionalism” in which physicians feel not only an individual obligation to their patients but also a collective obligation to local and global communities.

While medical schools often work relatively independently, this project reflects a strengthened spirit of collaboration that will build upon existing social accountability initiatives. Together, faculties of medicine will examine local initiatives and mandates with a view to what each can bring to national and international collaborative efforts. This process will be instrumental in achieving this pivotal recommendation.

The Way Forward*

Examples of strategies for addressing this recommendation include the following:

- Base medical curricula on an increasingly patient-, family- and community-centred approach.
- Consult with community stakeholders and other professions in curriculum design within each faculty.
- Link social accountability objectives to measurable health care and health human resource outcomes and develop a national strategy to articulate key roles in achieving these outcomes.
- Provide greater support to medical students and faculty as they work in community advocacy and develop closer relationships with the communities they serve.
- Provide students with opportunities to learn in low-resource and marginalized communities as well as international settings. To emphasize student and patient safety in a socially and ethically accountable framework, students should experience adequate training and preparation prior to working in these communities and should have adequate support throughout.
- Support faculty members in role-modeling social accountability by providing leadership in redesigning the medical education curriculum to link more closely with local, regional, national, and international needs.

* The examples in The Way Forward sections of this report are presented in alphabetical order.

Recommendation II: Enhance Admissions Processes

Given the broad range of attitudes, values, and skills required of physicians, Faculties of Medicine must enhance admissions processes to include the assessment of key values and personal characteristics of future physicians—such as communication, interpersonal and collaborative skills, and a range of professional interests—as well as cognitive abilities. In addition, in order to achieve the desired diversity in our physician workforce, Faculties of Medicine must recruit, select, and support a representative mix of medical students.

Rationale

Selecting the most appropriate candidates is one of the greatest challenges in medical education. While Faculties of Medicine have long appreciated the need to incorporate factors that go beyond academic achievement into their selection processes, the changing nature of medical practice and of Canadian society has made non-academic characteristics even more critical.

Evidence is mounting that today's medical students increasingly hail from the highest income-earning families in Canada. Parallel to this, little progress has been made in attracting applicants from First Nations, Inuit, and Métis communities and rural areas. Other sociocultural and economic groups are also underrepresented.

In order to meaningfully serve the complex and diverse health care needs of Canadians and meet social accountability objectives, our physician workforce must become more diverse. The diversity needed in Faculties of Medicine includes dimensions such as ethnicity and religion, gender and sexual orientation, geographic origin, socioeconomic status, and a balance between those who desire to practice in generalist disciplines and other specialities.

Achieving this diversity means attracting an applicant base that is more representative of the Canadian population. This will involve, for example, addressing perceived and real barriers to medical education, such as the high debt loads of medical graduates. It will also involve enhancing admission processes to value non-academic characteristics such as interpersonal and emotional acumen, without sacrificing academic excellence.

The Way Forward

Examples of strategies for addressing this recommendation include the following:

- Customize admissions criteria to align them more closely with each faculty's social accountability mandate.



- Develop and research new admissions tool kits that have meaningful predictive value for desired future medical practice attributes.
- Develop pipeline programs that connect students from underrepresented communities with the medical education system.
- Mount a research agenda that assesses the impact of modified admissions criteria against the impetus for their modification.
- Value and profile diverse academic faculty members as leaders and mentors in order to attract a more diverse applicant base.
- Work with provincial/federal governments to monitor student debt- management and create policies that encourage a broad range of applicants.



Recommendation III: Build on the Scientific Basis of Medicine

Given that medicine is rooted in fundamental scientific principles, both human and biological sciences must be learned in relevant and immediate clinical contexts throughout the MD education experience. In addition, as scientific inquiry provides the basis for advancing health care, research interests and skills must be developed to foster a new generation of health researchers.

Rationale

The bedrock of medical practice is its scientific basis; health research must be part of the culture of medicine, both in terms of its contribution to evidence-based practice and as a component of the careers of medical practitioners. Historically, medical education has been organized around preclinical and clinical years, with life sciences being taught in the former and clinical skills in the latter. This approach has unintentionally limited opportunities for medical educators to embed the basic science learning objectives into relevant health care contexts.

While recognizing that it is important to underscore the scientific basis of medicine, this recommendation recognizes the value of both basic science and clinical instruction. These two complementary domains must be increasingly integrated so that students think about clinical applications as they learn basic sciences and about scientific principles as they learn clinical skills. By making these two domains mutually relevant, it is anticipated that the physicians of tomorrow will draw on both as they practice evidence-based medicine and engage in research.

The Way Forward

Examples of strategies for addressing this recommendation include the following:

- Involve basic scientists, clinical faculty and medical educators in the collaborative design, development, and implementation of the MD education curriculum.
- Reduce departmental barriers within faculties to enable the optimum integration of basic and clinical sciences.
- Support existing and new programs that integrate research training with medical education.
- To enable learning in context, create a national forum to discuss how and where the sciences foundational to the practice of medicine are best taught.



Recommendation IV: Promote Prevention and Public Health

Promoting a healthy Canadian population requires a multifaceted approach that engages the full continuum of health and health care. Faculties of Medicine have a critical role to play in enabling this requirement and must therefore enhance the integration of prevention and public health competencies to a greater extent in the MD education curriculum.

Rationale

Health is much more than the absence of disease. Promoting a healthy Canadian population involves more than treating illnesses when they occur; it also includes promoting healthy lifestyles, addressing the social determinants of health, and preventing illness before it happens.

The epidemic of preventable chronic diseases, the implications of an unsustainable health care delivery system, and the need to improve disaster preparedness and response are just a sampling of the challenges that require physicians to have more than one-on-one clinical skills.

Faculties of Medicine play a critical role in improving the health of Canadians. Integrating prevention and public health competencies into the MD education curriculum will equip medical practitioners to better understand the importance of (i) working in multidisciplinary, interprofessional teams, (ii) the role of physicians in health promotion, assessing health policy and health systems, providing culturally safe care, and “thinking upstream prevention”, and (iii) the need for physicians to consider the social determinants of health (including education, employment, culture, gender, housing, income and social status) and how they affect patients and communities.

Public health involves the organized efforts of society to improve health and well-being and reduce inequities. Evidence from Canadian literature suggests that the health care system accounts for only 25 percent of health outcomes, regardless of the level of funding it receives. The quantitative skills and contextual knowledge that would better prepare physicians to participate in effective health system reform comprise the basics of public health and should be addressed throughout the continuum of medical education.

This recommendation is made in full awareness of the challenges that lie ahead, including the already considerable expectations of the MD curriculum, its biomedical focus, and the hidden elements within it that devalue prevention and population health. Additional challenges include diverse understandings of prevention and population health, limitations in faculty capacity, and unused opportunities for learning in context across the curriculum.

The Way Forward

Examples of strategies for addressing this recommendation include the following:

- In partnership with a variety of communities, agencies, and health disciplines, enhance MD education curricula to include competencies, skills, and expected outcomes in relation to population health, prevention, promotion, and the social determinants of health.
- Promote a culture of innovation and scholarship in the teaching of population health (including prevention and public health).
- Provide encouragement and support to learners and faculty in advocating for population-level interventions.
- Teach learners how to look at individuals in the context of their environments, think about both patient-doctor and population-doctor relationships, and identify patients who are part of “at-risk” populations.
- Teach learners to apply epidemiological principles and critical appraisal of evidence to individual patient care. Encourage faculty to incorporate such principles into every part of the medical curriculum.
- Utilize existing resources, such as the AFMC *Best Practices in Public Health Undergraduate Medical Education* report and established national networks of public health educators.



Recommendation V: Address the Hidden Curriculum

The hidden curriculum is a “set of influences that function at the level of organizational structure and culture,”¹⁰ affecting the nature of learning, professional interactions, and clinical practice. Faculties of Medicine must therefore ensure that the hidden curriculum is regularly identified and addressed by students, educators, and faculty throughout all stages of learning.

Rationale

The hidden curriculum encompasses what students learn outside the formal curriculum. It is pervasive and complex and can be deeply instilled in institutional cultures. In health education, the hidden curriculum cuts across disciplines within and outside medicine.

There are elements of the hidden curriculum that are positive in nature; however, many others have been identified as having a counterproductive effect on learning. The hidden curriculum often supports hierarchies of clinical domains or gives one group advantages over another. It sometimes reinforces the negative elements of existing reward and recognition systems and deters students from pursuing certain careers in medicine, such as family medicine. For these reasons, revealing and clarifying the hidden curriculum will be a challenging yet critical move forward for Canada’s Faculties of Medicine.

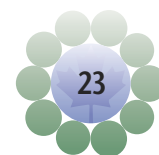
Implementing this recommendation involves engaging both learners and teachers in identifying and acknowledging the hidden curriculum. This recommendation is made in the spirit of improving the socialization of physicians and ensuring that students and teachers acknowledge the hidden curriculum and its impact. It will encourage a process of self-reflection and self-analysis and will ultimately afford the opportunity to continually renew and reinvigorate the culture and value system of medical education.

The Way Forward

Examples of strategies for addressing this recommendation include the following:

- Create culturally safe ways for students and faculty to make the hidden curriculum explicit and relevant to the formal curriculum.
- Encourage ongoing mentorship programs (student-student and faculty-student) to provide guidance for learners in such activities as choosing electives, engaging in research, getting involved in the community, and making career choices.
- Engage students and faculty from different schools in discussing the challenges of the hidden curriculum and in sharing ways to address it constructively.
- Expose students and faculty to the effects of the hidden curriculum on learners by using data and research.

¹⁰ Hafferty, F.W. (1998) Beyond curriculum reform: confronting medicine’s hidden curriculum. *Academic Medicine*, 73: 403-407.



Recommendation VI: Diversify Learning Contexts

Canadian physicians practise in a wide range of institutional and community settings while providing the continuum of medical care. In order to prepare physicians for these realities, Faculties of Medicine must provide learning experiences throughout MD education for all students in a variety of settings, ranging from small rural communities to complex tertiary health care centres.

Rationale

In the post-Flexner era, medical education became well-rooted in university and hospital-based settings. However, studies have reconfirmed that only a very small percentage of patients end up in teaching hospitals, usually with complex illnesses that have already been investigated and diagnosed. This does not enable MD students to experience and develop an understanding of undifferentiated and common problems.

Given the changing nature of Canadian society and the need to meet the diverse health needs of Canadians, students require exposure to a wider range of learning contexts. They need access to a broad range of complex, undifferentiated, and chronic illnesses; the full continuum of care; diverse patient populations; a variety of health care providers; as well as more diverse geographic, socioeconomic, and cultural settings.

A learner's experience of working in a clinic in an Indigenous community, for example, can create an opportunity for a different understanding of Indigenous health issues than the experience of treating Indigenous patients in an urban environment. Similarly, students will better understand and value generalists and family practitioners from their experiences in community contexts while also being exposed to a wide variety of practising role models.

This recommendation acknowledges that medical education will be enhanced by giving students the first-hand exposure to community settings that they need to prepare them for future practice. While the benefits of diverse learning contexts are clear, they do come with inherent challenges. For example, distributed and community-based education models must be accompanied by appropriate faculty development supports and the identification of willing preceptors. Furthermore, as the range of learning contexts is expanded, the need to achieve learning objectives and assure quality of education must not be forgotten. Students must be convinced of the relevance and value of varied learning contexts, irrespective of their future career plans.

The Way Forward

Examples of strategies for addressing this recommendation include the following:

- Create opportunities for early and extensive learning in a variety of community settings, including longitudinal and integrated clerkships.
- Develop specific objectives for learning in community contexts throughout MD education.
- Promote an organizational culture that positively reinforces the value of multiple learning sites in MD education.
- Promote research on learning in community contexts.



Recommendation VII: Value Generalism

Recognizing that generalism is foundational for all physicians, MD education must focus on broadly based generalist content, including comprehensive family medicine. Moreover, family physicians and other generalists must be integral participants in all stages of MD education.

Rationale

There is a well-recognized trend in medicine towards specialization and sub-specialization. This has resulted from, among other things, an explosion in scientific knowledge and understanding of complex human physiological processes. While there is no question that specialization has led to improved care for specific conditions, it can be argued that this progress comes at the expense of a more holistic perspective and appreciation of the role of generalism and family practice.

There is mounting evidence that a strong primary health care system leads to better population health status,¹¹ and the MD education system must align with this reality. Central to the practice of medicine is an understanding of patients' needs, contexts, and environments. Integrating family physicians and generalists as an important component of medical education, even in specialized areas, will ensure that students continue to develop clinical reasoning skills in a generalist context with undifferentiated patients.

This approach will encourage a more holistic view of the patient and family and emphasize continuity of care in the patient-doctor relationship as a guiding principle.

Implementing this recommendation will mean addressing elements of the hidden curriculum that devalue generalism and family medicine. Existing barriers to full participation in medical education by generalists and family doctors will need to be identified and removed. As well (and linked to Recommendation VI), the current structure in which education is delivered in academic health science centres must be addressed in order to ensure that students are exposed to a wide range of clinical contexts.

The Way Forward

Examples of strategies for addressing this recommendation include the following:

- Ensure that the health human resource planning process customizes the mix of generalists and specialists in the physician workforce with the needs of populations.



¹¹ Starfield B, Shi L, Mancinko J. (2005). Contribution of Primary Care to Health Care Systems and Health. *Millbank Quarterly*. 83:457-502

- Identify and address elements of the hidden curriculum that devalue generalism and family medicine.
- Increase representation of generalists within faculties and among preceptors.
- Provide learning opportunities for students to experience undifferentiated patients and early presentation of illness in natural contexts.



Recommendation VIII: Advance Inter- and Intra-Professional Practice

To improve collaborative, patient-centred care, MD education must reflect ongoing changes in scopes of practice and health care delivery. Faculties of Medicine must equip MD education learners with the competencies that will enable them to function effectively as part of inter- and intra-professional teams.

Rationale

The nature of medical practice is not static. Changes in the scope of practice of many health care providers and the emergence of new professions such as physician assistants and advanced nurse practitioners require a curriculum focused on inter- and intra-professional practice.

As health care delivery teams become more complex, physicians will need to be able to function collaboratively in order to ensure better patient outcomes, enhanced safety, and quality of care. New models of collaborative care, when appropriately coordinated, can create greater efficiencies and improve access to health care providers. The skills related to effective collaborative care must be integrated across disciplines and throughout the spectrum of health education.

This recommendation requires significant cultural change within Faculties of Medicine and other health care professions. Positive attitudes towards inter- and intra-professional education and practice will need to be further cultivated within the profession and among medical students. This recommendation will also necessitate the renegotiation of traditional departmental boundaries.

The Way Forward

Examples of strategies for addressing this recommendation include the following:

- Acknowledge and address the traditional power relationships and hierarchies that undermine the implementation of effective inter- and intra-professional education and practice.
- Collect and share exemplary practices in inter- and intra-professional education.
- Foster further research and knowledge translation to help shape medical education policies that support inter- and intra-professional learning.
- Review existing faculty and departmental structures with support for inter- and intra-professional learning in mind.
- Teach and assess team-based and collaborative competencies in all learning environments.

Recommendation IX: Adopt a Competency-Based and Flexible Approach

Physicians must be able to put knowledge, skills, and professional values into practice. Therefore, in this first phase of the medical education continuum, MD education must be based primarily on the development of core foundational competencies and complementary broad experiential learning. In addition to pre-defined curriculum requirements, MD education must provide flexible opportunities for students to pursue individual scholarly interests in medicine.

Rationale

The Canadian medical education system must continually promote excellence while, at the same time, enabling learners to develop basic competencies. Competencies are important observable combinations of knowledge, skills, attitudes, and abilities.^{12,13} Core foundational competencies are those that all medical students should be able to demonstrate by the time they graduate with their MD degree and enter into postgraduate training.

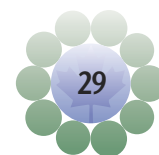
The rationale for this competency-based approach to medical education is threefold. First, there are multiple pressures to expand the current MD curriculum, yet little tolerance for programs of more than four years. Second, there is an articulated need in a time of rapid specialization and sub-specialization to define a set of core competencies required of the undifferentiated physician who is graduating as an MD and entering a residency training program. Third, there is a need for the medical education system to be sufficiently flexible to accommodate students' specific learning styles, interests, and rates of learning.

MD education is now expected to prepare learners to master a whole host of contemporary knowledge domains, such as public health, professionalism, cultural competencies, interprofessionalism, improved communication, new and emerging technologies, increasingly predominant health conditions such as obesity and addiction, and the global nature of disease. These curriculum pressures are occurring at a time when medical schools are being asked to graduate more and more students within existing program durations. A competency-based approach is essential to ensuring that all areas of learning are appropriately addressed within the medical education curriculum.

A competency-based approach will aid curriculum designers in determining core learning outcomes for various medical areas as well as the core competencies required of the graduating MD student—the undifferentiated physician. It is critical for medical students to learn as broad a range of content areas as possible. It is similarly imperative that all graduates have had sufficient

¹² Frank, JR. (Ed). The CanMEDS 2005 physician competency framework. Better standards. Better physicians. Better care. Ottawa: The Royal College of Physicians and Surgeons of Canada; 2005.

¹³ Parboosing J, Bankey R, Horsley T, Perrier L, Silver I. Environmental scan in support of the teaching of lifelong learning qualities and abilities in the undergraduate medical curriculum. In: The Future of Medical Education in Canada: National Literature Reviews. Ottawa: The Association of Faculties of Medicine of Canada; 2008.



learning experiences to develop and demonstrate core clinical competencies, including history-taking, physical examination, differential diagnosis, collaboration, and communication. The ultimate goal of defining core competencies is to ensure that our physician workforce is well-equipped to respond to population health needs.

While core competencies will identify essential skills required of the undifferentiated physician, the goal is not to create a homogenizing effect. On the contrary, a competency-based approach will afford students the opportunity to progress through components of their learning at their own pace, with greater opportunity to pursue and develop their own interests, and all the while assured that they will emerge with the necessary core competencies required of a physician. This approach will also provide opportunities for students to pursue areas of scholarship and service (e.g., research, international work), thereby meeting 21st century students' expectations of flexibility and accessibility in their education.

Implementing a competency-based approach to medical education will not be easy. Medical educators are already thinking about the implications of this transformative change. They have identified the need for a wide range of assessments of competencies that respect the fact that competencies are integrative and develop over the continuum of education and practice. The community is beginning to think about the implications of this approach for certifying bodies, examination organizations, the CaRMS¹⁴ system, accreditation standards, and licensing authorities. Seeing this recommendation through to fruition will require perceptive leadership at the highest levels and throughout the continuum of medical education.

The Way Forward

Examples of strategies for addressing this recommendation include the following:

- Create a national stakeholder task force to guide movement toward a competency-based approach.
- Develop a competency-based assessment system (supported by appropriate faculty development) that includes continuous assessment.
- Extend the CanMEDS competency framework to admissions criteria.
- Identify MD education level competencies.
- Link more closely with postgraduate education to create a learning continuum.
- Tighten the integration of accreditation standards for MD education into those for postgraduate medical education.

¹⁴ The Canadian Resident Matching Service (CaRMS) is a not-for-profit organization that works in close cooperation with the medical education community, medical schools and students, to provide an electronic application service and a computer match for entry into postgraduate medical training throughout Canada. Canadian Resident Matching Service. *About CaRMS*. (<http://carms.ca/eng/index.shtml>). Published 2009. Accessed November 13, 2009.

Recommendation X: Foster Medical Leadership

Medical leadership is essential to both patient care and the broader health system. Faculties of Medicine must foster medical leadership in faculty and students, including how to manage, navigate, and help transform medical practice and the health care system in collaboration with others.

Rationale

In Canada, the health care system transcends its component parts and has come to reflect core values held by the people of Canada. The importance that Canadians place on health care is seen across a broad spectrum—from the health column in a local newspaper to the principles outlined in the *Canada Health Act*. This close connection to societal values places leadership demands on caregivers, managers, researchers, and others who work in or in collaboration with the health care system.

Faculties of Medicine must foster the development of a variety of leadership skills in future physicians. For example, physicians are positioned to lead in the protection of public safety as new medical therapies and devices are developed and to advocate for and develop improved medical care for under-served populations. Medical education must prepare physicians to serve as competent and authoritative leaders in those areas where society encounters illness and where medicine can alleviate suffering.

Medical education must also prepare physicians to see the constructive roles they could play beyond direct medical care. For example, physician involvement is needed in health care management, with some medical careers progressing toward major leadership in administrative and management roles. System-level advocacy for social change and leadership on issues important to the health of individuals and populations must also continue to be seen as a central role for physicians. Finally, in a multi-faceted, multidisciplinary, and constantly evolving health care system, physicians must be able to recognize areas where their roles involve contributing constructively to initiatives led by others.

The Way Forward

Examples of strategies for addressing this recommendation include the following:

- Cultivate collaborative leadership skills in learners through mentors and role models from multiple disciplines.
- Develop and teach a set of core values and competencies relating to collaborative leadership skills that are relevant to learners and teachers alike.
- Develop both core and advanced leadership opportunities for students in the curriculum.
- Enhance learners' understanding of the health care system and their responsibility as physicians to participate in the process of transforming the health care system.

Enabling Change

In formulating the 10 recommendations for change contained in this report, several facilitators and key enablers of transformation emerged. These levers, which are detailed below, will greatly improve the ability of Canadian Faculties of Medicine to implement these recommendations.

Enabling Recommendation A: Realign Accreditation Standards

Recognizing that accreditation is a powerful lever, Canadian medical leaders must review and realign existing standards of the Committee on Accreditation of Canadian Medical Schools and the Liaison Committee on Medical Education and develop new ones, as necessary, to respond to the recommendations in this report. This may involve the alignment of undergraduate and postgraduate accreditation standards.

Enabling Recommendation B: Build Capacity for Change

Each Faculty of Medicine should carry out a review of its organizational systems, processes, and structures to determine and build capacity, where required, to support a constructive response to these recommendations.

Enabling Recommendation C: Increase National Collaboration

Canadian Faculties of Medicine are continually innovating and have much to offer each other. Increased collaboration among schools is needed, including the sharing of teaching and learning resources, evaluation frameworks, tools for common curriculum development, innovations, and information technologies.

Enabling Recommendation D: Improve the Use of Technology

Based on rapid and evolving technological changes related to the way people communicate and learn, there must be increased understanding and use of technology on the part of both faculty and learners at all MD education sites.

Enabling Recommendation E: Enhance Faculty Development

Recognizing that teaching, research, and leadership are core roles for physicians, priority must be given to faculty development, support, and recognition in order to enable teachers and learners to respond effectively to the recommendations in this report.

Conclusions and Next Steps

The recommendations of the FMEC MD education project synthesize and support much of the burgeoning post-Flexner literature on medical education in Canada and around the world. The *FMEC Collective Vision* is designed as an action-oriented mandate for change, derived from extensive dialogue and engagement, that is already beginning to translate into concrete changes in the ways physicians are educated in this country. A review of outcomes will permit a scholarly assessment of the adoption of the FMEC recommendations and enable Canadian Faculties of Medicine to review and benefit from each other's experiences in implementation.

An examination of the postgraduate environment is of pivotal importance to the implementation of the recommendations focused on undergraduate education, as the two are closely interrelated. At the time of writing, a proposal for an FMEC postgraduate education project was being reviewed, with the project expected to begin in 2010. Plans for a review and analysis of the continuing professional development context are also underway and will be the next step in an exploration of the continuum of Canadian medical education. While a thorough review and analysis of each of these environments is a productive and important undertaking in itself, together they will create a comprehensive and complementary review of the continuum of medical education in Canada.

The *FMEC Collective Vision* is a prescription for change. Individual faculties will, no doubt, address each of the recommendations in different ways by establishing priorities in accordance with community needs, faculty strengths, areas needing improvement, and visionary strategic directions for the 21st century. It will be the *collective* vision and its implementation, however, that truly result in transformative change.

Method

The recommendations in this document were formulated from broad-based evidence generated over the 2008 calendar year. The following methods were employed to obtain this evidence:

a) Literature Reviews

A research team from the Wilson Centre for Research in Education at the University of Toronto and le Centre de pédagogie appliquée aux sciences de la santé (CPASS) at the Université de Montréal undertook a comprehensive literature review. More than 30 key topics were developed jointly by the FMEC Steering Committee and the research team. Five overarching themes, comprising four to 12 topics apiece, were chosen, and experts from across Canada were commissioned to conduct literature reviews of each topic. Several additional papers were commissioned as a result of these reviews to address apparent gaps. A complete book of the 34 literature reviews was prepared by the research team as a final input to the process (<http://www.afmc.ca/fmec/pdf/National%20Literature%20Reviews.pdf>).

b) Key Stakeholder Interviews

To ensure a diversity of opinions, 30 key medical education stakeholders were selected from a broad range of health-related areas of expertise. They included academic leaders (6), leaders of health care and trainee institutions and programs (7), health and/or education ministry officials (3), academic leaders in health professions other than medicine (5), representatives from medical professional organizations and journals, and public commentators (9).

Interviews were conducted with each participant in person or by telephone. In all cases, the interviews were audio-recorded and transcribed. Transcripts were printed and sent to each interviewee so they could confirm accuracy and, if desired, delete any material they felt was inappropriate for public consumption. This process resulted in very minor revisions.

Each transcript was then coded using rigorous qualitative methods. Codes were developed through iterative reading and organized into major and minor headings. One rater coded all transcripts, and each transcript required approximately one day to code fully. A subset of transcripts was coded by a second rater, and the coding was compared and adjusted to ensure consistency of the coding process.

As a final step, the entire codebook was reviewed during a full-day retreat, and 10 key priorities emerging from the interviews were identified. To accomplish this final synthesis, 19 individuals from the Wilson Centre (7), the CPASS (5), and the AFMC Steering Committee (7) were

randomly assigned to one of three groups. Each group identified six to 12 key emergent priorities based on the interview data, taking care not to project onto the data any particular priorities or perspectives from their professional roles.

Following their independent group work, each of the three groups presented a list of the key priorities they had identified. The lists were then compared and discussed. The high degree of consistency among the three made it possible to merge them into an integrated list of key priorities for medical education in Canada.

c) International,¹⁵ National,¹⁶ and Regional Consultations¹⁷

Steering Committee members conducted international consultations by visiting sites in the Netherlands, the United Kingdom, and the United States. Interviews were held in person and via videoconference with key stakeholders from Australia and New Zealand. Two national consultations were held with a wide range of invited and self-selected stakeholders, and four regional consultations took place with groups of undergraduate deans of medicine. An interview guide for the consultations was adapted from the guide used for national key stakeholder interviews.

d) Other Inputs

In addition to these three foundational data inputs, three other groups were convened to provide input to the project.

A Data Needs and Access Group (composed of deans, vice-deans, administrative managers, representatives of federal ministries, and executive directors of health care organizations) was convened to identify and prioritize existing and emerging data and information needs pertaining to Canada's medical education system.

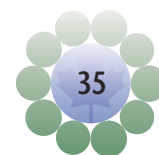
A Young Leaders' Forum (which included representatives of student and resident organizations and emerging and future leaders in undergraduate medical education from across the country) was held so that future leaders of the Canadian health care system could provide input into a vision for the future.

Finally, a Blue Ribbon Panel brought together nationally recognized participants, including chief executive officers of hospitals, former members of Parliament, economic and legal experts, and

¹⁵ Association of Faculties of Medicine of Canada. *Activities – International Comparisons*. (<http://www.afmc.ca/fmec/activities-comparisons.php>). Published 2008. Retrieved November 13, 2009.

¹⁶ Association of Faculties of Medicine of Canada. *Activities–National Consultations*. (<http://www.afmc.ca/fmec/activities-consultations-nat.php>). Published 2009. Retrieved November 13, 2009.

¹⁷ Association of Faculties of Medicine of Canada. *Activities – Regional Consultations with Undergraduate Deans*. (<http://www.afmc.ca/fmec/activities-consultations.php>). Published 2008. Retrieved November 13, 2009.



social commentators, to gain their perspectives on potential areas of change in the Canadian medical education system. The panel met a second time with the Deans of Medicine to engage in a high-level discussion around emerging principles for change.

e) Analysis

The research team from the Universities of Toronto and Montréal conducted an in-depth analysis that took into consideration all of the aforementioned inputs. Ten key priorities emerged that formed the basis of 10 issue-analysis papers, which included a set of evidence-informed directions for change. These directions for change were further refined by the FMEC Steering Committee and at the national consultations, resulting in the final series of recommendations contained in this document.



Acknowledgements

The *Future of Medical Education in Canada: A Collective Vision for MD Education* would not have been possible without the contributions of countless organizations and individuals. The following is an attempt to acknowledge and thank as many of the contributors as possible.

First and foremost, Health Canada is graciously acknowledged for its commitment to this work and generous funding of this project. The Department's support in extending the original project from 18 to 30 months was greatly appreciated. Special thanks to Helen McElroy and Julie Gravel for their support, hard work, and collegiality along the way.

The Wilson Centre for Research in Education at the University of Toronto and le Centre de pédagogie appliquée aux sciences de la santé at the Université de Montréal are gratefully acknowledged for their significant contributions to the environmental scan. Their world-class research team, under the skilled leadership of Dr. Brian Hodges, worked industriously for over a year to produce an exceptional three-volume environmental scan—containing comprehensive literature reviews, dozens of key stakeholder interviews, and an analysis—that formed the basis of the *FMEC Collective Vision*. It is in this evidence that the FMEC recommendations are solidly grounded.

The Steering Committee provided inspired leadership to the project from its inception to the formulation of the draft principles for change. Members gave of their valuable time to participate in numerous teleconferences, meetings, consultations, and planning committees. They tirelessly contributed their expertise, enthusiasm, and passion to improving Canadian medical education: working with each other and members of the Blue Ribbon Panel, interviewing medical educators in Canada and around the world, formulating the principles for change that emerged from the evidence, and, finally, articulating, refining, and editing early versions of this report.

The Blue Ribbon Panel assembled a group of prominent Canadians, each noted experts in their respective fields, to provide an important community perspective on the principles for change as they began to emerge from the mid-point environmental scan. They reacted to early versions of the draft recommendations, and their commitment, engagement, and contributions are much appreciated.

Many additional medical educators and learners provided valuable insights into the project and helped shape the FMEC recommendations through their participation in the Young Leaders' Forum, Data Needs and Access Group, and two major national consultations.

Numerous medical educators from the United States, the United Kingdom, Australia, New Zealand, and the Netherlands generously opened their doors to the FMEC project, sharing successes and innovations as well as challenges and lessons learned. Our international

colleagues kindly organized full-day site visits that incorporated interactions with learners, faculty, and administrators for the Steering Committee members who conducted the international research. These unique international insights strengthened and enriched this work.

Members of the FMEC Task Force on Implementation Strategy brought their time, energy, expertise, and commitment to reading and refining later drafts of the *FMEC Collective Vision* and, subsequently, to developing strategies for knowledge translation, dissemination, and implementation planning. Moreover, four Deans actively participated in all stages of the development of this report as members of the Task Force.

The Deans of Medicine and their decanal teams have been central to this work. They reacted to several iterations of the draft principles for change and the *FMEC Collective Vision* and also provided feedback through cross-Canada regional consultations, two national consultations, and ongoing engagement via the AFMC Council of Deans. Collectively, the faculties' contributions have truly shaped the *FMEC Collective Vision*, ensuring that it is both academically rigorous and grounded in the realities of the 17 Canadian MD education programs. Their ongoing engagement will be a key component in the realization of this collective vision.

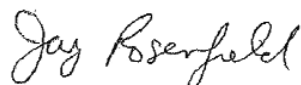
Project staff Catherine Moffatt and Claire de Luovich and AFMC senior management team members Susan Maskill, Irving Gold, and Steve Slade are gratefully acknowledged for their dedication and very conscientious work throughout the project: liaising with stakeholders and consultants, gathering feedback from the aforementioned groups, organizing the logistics of mail-outs and meetings, and sharing in the writing and editing of the many versions of the *FMEC Collective Vision*.

Thank you,



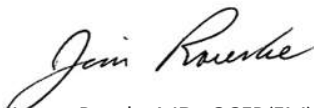
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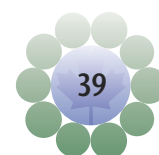
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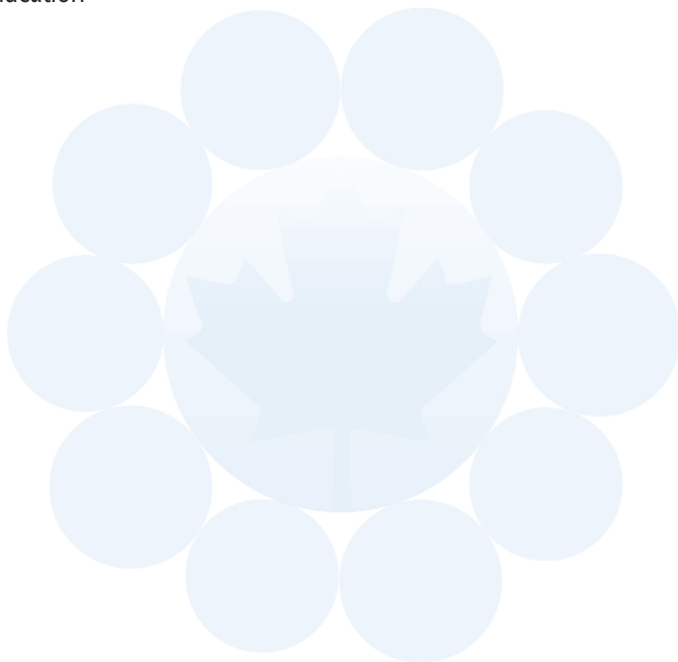
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