THE FUTURE OF MEDICAL EDUCATION IN CANADA
POSTGRADUATE PROJECT

L'AVENIR DE L'ÉDUCATION MÉDICALE AU CANADA
PROJECT POSTDOCTORAL

A COLLECTIVE VISION FOR POSTGRADUATE MEDICAL EDUCATION IN CANADA

2012

THE COLLEGE OF FAMILY PHYSICIANS OF CANADA
LE COLLÈGE DES MÉDECINS DE FAMILLE DU CANADA
COLLÈGE DES MÉDECINS DU QUÉBEC
ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA
COLLÈGE ROYAL DES MÉDECINS ET CHIRURGIENS DU CANADA

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EXECUTIVE SUMMARY

The Future of Medical Education in Canada Postgraduate (FMEC PG) Project sets out a vision for educating the kind of doctors Canada needs—today and in the future. Part of this vision is for all physicians, by the end of their training, to possess the clinical expertise necessary to practice medicine based on the principles of quality, safety, professionalism, and patient-centred and team-based care.

The Canadian medical education system is internationally recognized; however, there is more that it can and must do. Recognizing this, a consortium of four organizations—the Association of Faculties of Medicine of Canada (AFMC), le Collège des Médecins du Québec (CMQ), the College of Family Physicians of Canada (CFPC), and the Royal College of Physicians and Surgeons of Canada (RCPSC)—came together with other key stakeholders to review Canada's postgraduate medical education (PGME) system and develop critical recommendations for change.

Building on the work of the Future of Medical Education in Canada Medical Doctor (FMEC MD) Education Project, the FMEC PG project examined PGME as part of the learning continuum for physicians, focusing on medical students as they move into postgraduate training and, later, into practice. Many of the reforms it recommends echo those identified in the FMEC MD project, emphasizing the importance of making consistent changes across the educational continuum.

The foundation of the FMEC PG project has been the identification of a comprehensive base of evidence, including a literature review, stakeholder interviews, and an examination of international best practices. Recommendations and action plans were drafted and refined through an iterative process involving extensive consultations with many stakeholders.

The project culminated in 10 recommendations for change, each one backed by a key transformative action and other actions that will require a collective will to implement. These changes are needed to more effectively transform our PGME system and to act as an anchor for others to come in the future.

The action items also identify key stakeholders (listed in alphabetical order) whose involvement as leaders is essential. The leadership of these critical players implies ongoing dialogue and collaboration as well as the creation of specific plans for the implementation phase of this project. In all cases, there is an open invitation for involvement by others, where interest or need arises.

This report is intended to be considered in its entirety, as effective, sustainable change will require the implementation of each and every one of its 10 recommendations. This can only be accomplished with the engagement of all stakeholders, including resident learners and their national representative organizations.

GUIDING PRINCIPLES

The recommendations are grounded in four guiding principles that encapsulate the strongly held views that emerged from both the FMEC MD and PG projects and provide the lens through which the recommendations in this report are to be interpreted:

1. Align Physicians' Learning around the Health and Well-Being of Patients and Communities
2. Ensure Patient Safety and Quality Patient Care
3. Value, Model, and Integrate Interprofessionalism and Intraprofessionalism into Resident Learning and Practice
4. Integrate State-of-the-Art Technology

RECOMMENDATIONS

#1 Ensure the Right Mix, Distribution, and Number of Physicians to Meet Societal Needs

The recommendation states:

In the context of an evolving healthcare system, the PGME system must continuously adjust its training programs to produce the right mix, distribution, and number of generalist and specialist physicians—including clinician scientists, educators, and leaders—to serve and be accountable to the Canadian population. Working in partnership with all healthcare providers and stakeholders, physicians must address the diverse health and wellness needs of individuals and communities throughout Canada.

This recommendation, and the concept that we must adjust our physician workforce for the future, is fundamental. We need physicians in all corners of our country who have the right skill sets; and we need a balance of generalists and specialists, including clinician scientists, educators, and leaders. In mapping the right mix, distribution, and number of physicians needed across the country against societal need, several key factors must be kept in mind. These include the increasing importance of team-based care, changing scopes of practice of physicians and other healthcare providers, and how the professions interact in generating and disseminating information.

KEY TRANSFORMATIVE ACTIONS

Create a national approach, founded on robust data, to establish and adjust the number and type of specialty positions needed in Canadian residency programs in order to meet societal needs.

and

Establish a national plan to address the training and sustainability of clinician scientists.

Implementation of this recommendation must be led by the Association of Canadian Academic Healthcare Organizations (ACAHO), AFMC (Committee on PGME, Canadian Post-M.D. Education Registry [CAPER]), Canadian Academy of Health Sciences (CAHS), CFPC, CMQ, federal/provincial/territorial (F/P/T) governments, and RCPSC.

#2 Cultivate Social Accountability through Experience in Diverse Learning and Work Environments

The recommendation states:

Responding to the diverse and developing healthcare needs of Canadians requires both individual and collective commitment to social accountability. PGME programs should provide learning and work experience in diverse environments to cultivate social accountability in residents and guide their choice of future practice.

Health care is becoming more ambulatory and community-based. During their training, residents need to experience different types and contexts of practice, including and extending beyond Academic Health Science Centres. These different settings will help inform career decisions.

KEY TRANSFORMATIVE ACTION

Provide all residents with diverse learning environments that include varied practice settings, and expose them to a range of service delivery models.

Implementation of this recommendation needs to be led by ACAHO, AFMC (Committee on PGME), CFPC, CMQ, Medical Council of Canada (MCC), and RCPSC.

#3 Create Positive and Supportive Learning and Work Environments

This recommendation states:

Learning must occur in collaborative and supportive environments centred on the patient and based on the principle of providing the highest quality of care in the context of teaching and learning the necessary competencies.

There needs to be a focus on professionalism and team-based care. Both the privilege of being a physician and the responsibilities that accompany it need to be emphasized. A careful balance is required to ensure that our future physicians combine the best of scientific knowledge and its application with exemplary, patient-centred care.

KEY TRANSFORMATIVE ACTION

Provide residents with adequate opportunities to learn and work in environments that foster respect among professions and are reflective of an interprofessional and intraprofessional, collaborative, patient-centred approach to care.

Implementation of this recommendation needs to be led by ACAHO and the medical schools (PGME Deans and PGME programs).

#4 Integrate Competency[1]-Based Curricula in Postgraduate Programs

The recommendation states:

Develop, implement, and evaluate competency-based, learner-focused education to meet the diverse learning needs of residents and the evolving healthcare needs of Canadians.

Competency-based education[2] is still in its infancy. It involves moving away from a strictly time-based training model towards one that identifies the specific knowledge, skills, and abilities needed for practice. Some of these competencies will be generic and needed by all physicians; some will be specific to specialties or groups of specialties; and others will be specific to the needs of particular communities. Each needs to be identified, explicitly taught, and assessed.

KEY TRANSFORMATIVE ACTION

Develop and implement competency-based training programs.

Implementation of this recommendation needs to be led by the AFMC (Committee on PGME), CFPC, CMQ, and RCPSC.

1 Competency is defined as "an observable ability of a health professional, integrating multiple components such as knowledge, skills, values and attitudes. Since competencies are observable, they can be measured and assessed to ensure their acquisition." Frank JR, Snell L, Cate OT, Holmboe ES, Carraccio C, Swing SR, et al. Competency-based medical education: theory to practice. Med Teacher. 2010;32:638-45.

2 Competency-based education (CBE) is an approach to preparing physicians for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs. It deemphasizes time-based training and promises greater accountability, flexibility, and learner centredness. Medical teacher: 2010; 32: 631–637

#5 Ensure Effective Integration and Transitions along the Educational Continuum

The recommendation states:

The Canadian PGME system prepares physicians for practice. This requires development through the increase of responsibility across the medical education continuum and effective transitions from UGME into PGME, within PGME, and from PGME into practice.

The transitions from medical school to residency and, later, into practice are key opportunities for learning; however, they need to be managed and used more effectively. In particular, entry to residency and the final year of residency training need to be better structured to maximize learning and readiness to practice. The different phases of training also need to be better integrated.

KEY TRANSFORMATIVE ACTION

Develop smoother and more effective transitions from medical school to residency and from PGME into clinical practice:

a. **Review and redesign current practices and systems (e.g., the entry-into-residency process).**
b. **Link the individual learner competencies developed in MD training with the educational objectives set for the resident.**
c. **Review the timing of national examinations.**
d. **Develop strategies to increase flexibility to switch disciplines while in training or when re-entering residency training.**

Implementation of this recommendation needs to be led by ACAHO, AFMC (committees on PGME and UGME), Canadian Association of Internes and Residents (CAIR), Canadian Resident Matching Service (CaRMS), Canadian Federation of Medical Students (CFMS), CFPC, CMQ, Féderation médicale étudiante du Québec (FMEQ), Féderation des médecins résidents du Québec (FMRQ), MCC, medical schools, and RCPSC.

#6 Implement Effective Assessment Systems

The recommendation states:

Assess competence and readiness to practice through a combination of formative and summative feedback and assessments.

The science of assessment is continually evolving, and there is increasing recognition that new assessment tools are required as we further develop competency-based medical education. Assessments need to be appropriately timed to provide ongoing feedback to learners and to maximize all learning opportunities within a residency program.

KEY TRANSFORMATIVE ACTION

Provide residents with regular and adequate formative feedback from multiple sources on both their individual and team performance, including the identification of strengths and challenges, to support progressive attainment of competence along the learning continuum.

Implementation of this recommendation needs to be led by the AFMC (Committee on PGME), CFPC, CMQ, Federation of Medical Regulatory Authorities of Canada (FMRAC), MCC, and RCPSC.

#7 Develop, Support, and Recognize Clinical Teachers

The recommendation states:

Support clinical teachers through faculty development and continuing professional development (CPD), and recognize the value of their work.

Teaching of residents in medicine now occurs in a wide range of clinical settings, with instruction by a variety of physicians and other healthcare professionals—all of whom possess varying levels of teaching skills. Clinical teachers should be supported to provide excellent instruction, responsible role-modelling, and effective feedback and assessment.

Teachers must be provided with effective and appropriate faculty/professional development support in order to optimize educational outcomes and recognition (e.g., remuneration, academic merit/promotion, awards).

KEY TRANSFORMATIVE ACTION

Develop a national strategy for faculty development and CPD that is accessible, comprehensive, and supports the spectrum of clinical teaching activities, including the teaching, assessment, and role modelling of CanMEDS and CanMEDS-FM roles.

Implementation of this recommendation needs to be led by ACAHO, AFMC (committees of PGME, Faculty Development, and CPD), the Canadian Association for Medical Education (CAME), CFPC, the Canadian Medical Association (CMA), CMQ, and RCPSC.

#8 Foster Leadership Development

This recommendation states:

Foster the development of collaborative leadership skills in future physicians, so they can work effectively with other stakeholders to help shape our healthcare system to better serve society.

Both the FMEC MD and PG projects recognize that collaborative MD leadership is essential. Leadership development must begin in medical schools and be further developed through residency and into practice.

KEY TRANSFORMATIVE ACTION

Develop, in close collaboration with UGME programs, a national core leadership curriculum for all residents that is focused on professional responsibilities, self-awareness, providing and receiving feedback, conflict resolution, change management, and working as part of a team as a leader, facilitator, or team member.

Implementation of this recommendation needs to be led by AFMC (committees on UGME and PGME), CAIR, CFPC, CMA, CMQ, FMRQ, and RCPSC.

#9 Establish Effective Collaborative Governance in PGME

The recommendation states:

Recognizing the complexity of PGME and the health delivery system within which it operates, integrate the multiple bodies (regulatory and certifying colleges, educational and healthcare institutions) that play a role in PGME into a collaborative governance structure in order to achieve efficiency, reduce redundancy, and provide clarity on strategic directions and decisions.

There is widespread acknowledgement that the PGME system in Canada is complex and, at times, somewhat inefficient. There are many stakeholders, decision points, governance challenges, and vested interests involved. Some of these interests must be recognized and supported, while others require re-evaluation and reconceptualization in order to create more effective governance.

KEY TRANSFORMATIVE ACTION

Identify organizations that have decision-making authority in PGME and define roles that could better streamline and enhance their collaboration through the study of governance models and the implementation of the one that promotes the greatest efficiency and effectiveness.

Leadership for the implementation of this recommendation needs to come from ACAHO, AFMC, CAIR, CFPC, CMQ, F/P/T governments, FMRAC, FMRQ, hospitals, MCC, and RCPSC.

#10 Align Accreditation Standards

The recommendation states:

Accreditation standards should be aligned across the learning continuum (beginning with UGME and continuing through residency and professional practice), designed within a social accountability framework, and focused on meeting the healthcare needs of Canadians.

Much of the same information is gathered several times over. The standards of accreditation can be set by the appropriate body, but the conduct of accreditation can be shared and aligned. Standards of training and accreditation systems are in place to ensure that quality physician are trained. It is up to these systems to ensure that physicians in training are prepared for practice and maintain their competence throughout their careers.

KEY TRANSFORMATIVE ACTION

Facilitate and enable a more integrated PGME system by aligning accreditation standards and processes across the continuum of learning in the UGME, PGME, and CPD environments.

This recommendation must be led by the accrediting agencies of UGME, PGME, and CPD, AFMC, CFPC, CMA, CMQ, FMRAC, and RCPSC.

The challenge for us all is to achieve a collective vision, including not only learners and teachers but also provincial governments and the broader Canadian public. We hope that this report and recommendations will accomplish this.

INTRODUCTION

Over the last century, major changes have created increasing demands on the delivery of health care in this country. Canadians are living longer. Many people are experiencing multiple chronic diseases, which has generated the need for more community-based services. Ongoing healthcare challenges continue and new threats to public health arise, while scientific discoveries and the rapid evolution of medical technologies have a profound influence on the way in which medicine is practiced. Expectations on the parts of patients, their families, and their communities are continuously changing, and demands are growing that the healthcare system be accountable for safety, quality, timeliness, and equitable access to services. Scopes of practice are also evolving. Team-based care is becoming the norm. Better service delivery models are being developed. The healthcare needs of Canadians are being more clearly defined, and the education of providers must respond to them.

> *Physicians of the future "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 healthcare systems. Physicians will need to be independent and critical thinkers, capable of appraising evidence free from personal bias and inappropriate influence."*[3]

The education of Canada's future physicians is critical to addressing Canadians' changing needs and expectations. Governments across the country are facing significant budgetary challenges, resulting in more demand being placed upon healthcare organizations and providers to demonstrate fiscal accountability. The reality of provincial responsibility for health care must be acknowledged as we move forward with changes to our healthcare system and medical education.

Collective planning and action is central to addressing these challenges. Medical education plays a vital role in developing the different types of physicians needed by Canadians. Physicians, as products of the medical education system, must be ready to practice within an integrated healthcare system that is designed to deliver the highest quality of care to the people it serves.

Physician training in Canada is recognized worldwide for its high standards. The excellence that exists in this country can be attributed to the thousands of medical educators and leaders who believe in their collective responsibility for educating the physicians needed now and in the future. To ensure that medical education remains responsive to what Canadians expect of their physicians, a comprehensive review of physician education in Canada is timely.

The first initiative of this kind in recent years was the Future of Medical Education in Canada Medical Doctor (FMEC MD) Education Project. Building on the work of the FMEC MD project, the Future of Medical Education in Canada Postgraduate (FMEC PG) Project examined postgraduate medical education (PGME) as part of the learning continuum for physicians, focusing on medical students as they move into postgraduate training and, later, into practice. Many of the reforms it recommends echo those identified in the FMEC MD project, emphasizing the importance of making consistent changes across the educational continuum.

3 The Association of Faculties of Medicine of Canada. The Future of Medical Education in Canada: A Collective Vision for MD Education. Ottawa, ON: The Association; 2010.

THE FUTURE OF MEDICAL EDUCATION IN CANADA MEDICAL DOCTOR EDUCATION PROJECT

The FMEC MD project, led by the Association of Faculties of Medicine of Canada (AFMC), was initiated by medical educators and leaders as an update to the 1910 Abraham Flexner Report,[4] which examined medical education in Canada and the United States. The project, which ran from 2007 to 2010, focused on enhancing the delivery of undergraduate medical education (i.e., training towards the attainment of a medical degree) in Canada.

Ten main recommendations and five enabling recommendations were made in the project report, *The Future of Medical Education in Canada: A Collective Vision for MD Education*.[5] Regional, national, and international interest has been garnered since the release of the recommendations, which identified how undergraduate medical education (UGME) needed to be enhanced to produce the type of physician collectively envisioned for the future (for more details on the recommendations, please refer to page 41):

RECOMMENDATIONS:

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 Interprofessional and Intraprofessional Practice
9. Adopt a Competency-Based and Flexible Approach
10. Foster Medical Leadership

ENABLING RECOMMENDATIONS:

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

THE FUTURE OF MEDICAL EDUCATION IN CANADA POSTGRADUATE PROJECT

The Health Canada-funded FMEC PG Project was undertaken in February 2010 by a consortium of four organizations: the AFMC (which served as the Secretariat), le Collège des Médecins du Québec (CMQ), the College of Family Physicians of Canada (CFPC) and the Royal College of Physicians and Surgeons of Canada (RCPSC). The initiative focused on enhancing postgraduate residency education (i.e., training to the point of independent practice) in Canada.

The FMEC PG project linked to and built upon the work of the FMEC MD project. With the vision of the physician of the future defined, this second phase captured the collective wisdom and aspirations of the Canadian public, leaders in health professionals' education, decision-makers, and policy-makers on how PGME in Canada needed to change to fulfill this vision.

The FMEC PG project was designed to examine and assess the systems, programs, and processes of the PGME environment. Building on the successful

4 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.

5 The Association of Faculties of Medicine of Canada. The Future of Medical Education in Canada: A Collective Vision for MD Education. Ottawa, ON: The Association; 2010.

model used by the FMEC MD project, a rigorous review was undertaken from February 2010 to March 2012, involving hundreds of stakeholders (a full description of this process is described in the Methodology section of this report).

As a result of this work, 10 recommendations were developed to enhance the strong PGME system already in place. The changes suggested aim to strengthen the role of medical educators and leaders in producing the type of physicians needed for the future—and are intended as a call to action. The greatest hope for the FMEC PG project lies in its opportunity to influence the production and distribution of the right number, mix, and type of practice-ready physicians across Canada.

A COLLECTIVE VISION FOR MEDICAL EDUCATION

The FMEC PG project shares the same vision of medical education as its predecessor:

> *Medical education in Canada 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.*[6]

The seamless integration of MD training and PGME is critical in order to respond to the evolving needs of Canadians. It is, therefore, not surprising that many of the themes that emerged through the FMEC MD project have resurfaced as important issues for the future of PGME. In both educational environments, the primacy of medical education's social accountability role in health care emerged as its core raison-d'être. Social accountability must inform physician training, with the health and well-being of patients and their communities providing the unequivocal focal points for medical education. Equally, it is held that physicians must work within a healthcare system founded on quality, patient safety, and patient-centred care. The medical education system must create physicians who are both competent and committed to practicing medicine in this way.

Advancing interprofessional and intraprofessional care and the abilities of physicians to work effectively in healthcare teams have emerged as other strongly held views on the manner in which physicians must be trained to provide effective, patient-centred care. Another area of emphasis is the need to ensure that physicians practice medicine in an evidence-informed manner.

THE CONTEXT OF CANADIAN POSTGRADUATE MEDICAL EDUCATION

To understand how the recommendations in this report are interrelated and aligned with the FMEC MD recommendations, it is important to understand the context within which residents are educated. Medical education is a lifelong learning journey. It is helpful to consider the points of transition along what is described as the continuum of medical education, as medical students develop into practicing physicians.

FROM MEDICAL SCHOOL TO RESIDENCY TRAINING

In their last year of medical school, medical students choose and are then matched to a specialty residency program affiliated with one of the 17 Canadian Faculties of Medicine. Each of these university-based degree programs is responsible for providing residency programs that meet accreditation standards set by either the CFPC or the CMQ (in Quebec) for the specialty of family medicine; or by the RCPSC or the CMQ (in Quebec) for all other specialty programs.

6 The Association of Faculties of Medicine of Canada. The Future of Medical Education in Canada: A Collective Vision for MD Education. Ottawa, ON: The Association; 2010.

Once residents complete their training, they must provide evidence of satisfactory completion of their residency program and pass the CFPC or RCPSC examination in order to become certificants of their respective colleges. The CMQ no longer has separate exams and recognizes those of the CFPC and RCPSC; however, CMQ certification is necessary to practice in Quebec. To practice medicine in a province in Canada, graduates must also successfully pass the National Licensing Examinations (Licentiate of the Medical Council of Canada - parts I and II). With these qualifications obtained, a resident is ready for practice upon completion of a residency program.

For some residents, the learning journey continues into a subspecialty area. For others, a choice is made to undertake enhanced skills training with a certificate or diploma of added competence. These additional qualifications are recognized in various ways within different healthcare organizations.

FROM RESIDENCY TRAINING TO PRACTICE IN CANADA

Once in practice, all physicians must maintain a level of competence that meets the needs of their practice population in order to retain their medical licence to practice. The pursuit of continuing professional development has become a mainstay of practice for all physicians.

THE UNIQUE ROLES OF THE RESIDENT AS STUDENT, TEACHER, AND CARE-PROVIDER

Residents are learners throughout their residency training. Residents are also clinical service providers through their affiliation with the healthcare organizations in which they train. They also play an important role in teaching and as role models to medical students and other trainees. Each of these roles is essential to the development of competence—in particular, the ability to function as a member of an integrated healthcare delivery system. Residents are supervised by staff physicians but also provide direct patient care. As such, they receive monetary compensation for their clinical service duties from their provincial ministries of health and belong to a resident-specific employee union or professional association in their respective provinces.

STAKEHOLDERS INVOLVED IN THE CANADIAN POSTGRADUATE MEDICAL EDUCATION SYSTEM

The multiple roles of the resident as learner, teacher, and service-provider result in a complex network of stakeholders who represent a diversity of interests and are involved in many different aspects of PGME in Canada. They include, but are not limited to, universities, accrediting colleges, specialty societies, provincial regulatory licensing bodies, provincial ministries of education and health, healthcare organizations, national and provincial residents' associations, national and provincial associations involved in care or medical education issues, residents, faculty, clinical providers, patients, government, and policy-makers.

The interconnectivity of these groups helps to define a system of players—all of whom support and have a role to play in the delivery of PGME. The recommendations in this report are aimed at all stakeholders, because a coordinated approach, anchored in a collective vision for medical education in Canada, is vital to success.

FROM SHARED VISION TO COLLECTIVE ACTION

The FMEC PG project reflects collaboration at its best. The ideas and interests of those inside and outside medicine and medical education have been collected through an extensive consultation process and rigorous literature review. This report captures the many ideas, aspirations, and commitments of Canadians who are directly and indirectly connected to medical education and health care. The 10 recommendations in this report encompass the collective wisdom of constituents and educational leaders across Canada.

Acknowledged as a highly iterative project, further input from the community is anticipated as the recommendations move forward and discussions are held on how implementation will take place. There must be commitment from and shared accountability by all stakeholders in order to succeed. Leadership will be required by certifying bodies, regulators, governments, hospitals, the AFMC, the Medical Council of Canada (MCC), and Canada's medical student and resident organizations. The establishment of realistic timelines for implementation of the recommendations is a critical step.

Each recommendation identifies at least one key transformative action, along with other actions that require implementation in order to effectively improve the system. The action items also identify key stakeholders (listed in alphabetical order) whose involvement as leaders is essential. The leadership of these critical players implies ongoing dialogue and collaboration as well as the creation of specific plans for the implementation phase of this project. In all cases, there is an open invitation for involvement by others, where interest or need arises.

This report is intended to be considered in its entirety, as effective, sustainable change will require the implementation of each and every one of its 10 recommendations. This can only be accomplished with the engagement of all stakeholders, including resident learners and their national representative organizations.

The consortium partners and committee members involved in this initiative are excited by the possibilities contained in this report and its recommendations. It is shared with enthusiasm with all who have a role in shaping the future of PGME in Canada.

RECOMMENDATIONS

Ten priority areas emerged from the evidence gathered during the FMEC PG project. They are encapsulated in the 10 recommendations presented on the following pages. Each recommendation also includes transformative actions and a brief rationale.

1: ENSURE THE RIGHT MIX, DISTRIBUTION, AND NUMBER OF PHYSICIANS TO MEET SOCIETAL NEEDS

RECOMMENDATION

In the context of an evolving healthcare system, the PGME system must continuously adjust its training programs to produce the right mix, distribution, and number of generalist and specialist physicians—including clinician scientists, educators, and leaders—to serve and be accountable to the Canadian population. Working in partnership with all healthcare providers and stakeholders, physicians must address the diverse health and wellness needs of individuals and communities throughout Canada.

ACTIONS:

1. Create or gather evidence-based data to assess provincial and health human resource (HHR) needs.
2. Create a national approach, founded on robust data, to establish and adjust the number and type of specialty positions needed in Canadian residency programs in order to meet societal needs. *Leadership: Association of Canadian Academic Healthcare Organizations (ACAHO), AFMC (Committee on PGME, Canadian Post-M.D. Education Registry [CAPER]), CFPC, CMQ, federal/provincial/territorial (F/P/T) governments, RCPSC.*[7]
3. Establish a national plan to address the training and sustainability of clinician scientists. *Leadership: AFMC, Canadian Academy of Health Sciences (CAHS), CFPC, CMQ, RCPSC.*
4. Building on the experience of other countries and the province of Quebec, develop and implement a pan-Canadian HHR strategy that recognizes and respects jurisdictional issues and enables the F/P/T process to respond effectively to the health and wellness needs of society. *Leadership: AFMC (Committee on PGME), CFPC, CMQ, F/P/T governments), RCPSC.*

7 **A complete list of abbreviations is provided in the Glossary on page 40.** Organizations identified under the "Leadership" section of each action item are listed in alphabetical order. Groups listed are not seen as having exclusive responsibility for implementing the action; rather, it is suggested that they lead the discussion in this regard, in collaboration with other relevant stakeholders.

5. Continually adjust medical schools' residency training programs and resources to anticipate and respond to local, provincial, and national HHR needs. *Leadership: CFPC, CMQ, F/P/T governments, medical schools, RCPSC.*
6. Effectively integrate international medical graduates (IMGs) as part of the Canadian HHR strategy. *Leadership: AFMC (Committee on PGME), CFPC, CMQ, F/P/T governments, RCPSC.*
7. Provide career- and workforce-planning information to medical students and residents to ensure better alignment with HHR needs. *Leadership: AFMC (committees on UGME and PGME), F/P/T governments.*

RATIONALE:

Canadians deserve a healthcare system that responds to their evolving and diverse healthcare needs. Yet, gaps in health services exist. Marginalized individuals, such as those living in remote communities, Aboriginal and refugee populations, the urban homeless, and increasing numbers of the elderly, face significant barriers to accessing the care they need. Although family physicians are trained to provide front-line health care to meet most people's needs, other generalists, such as general internists, general paediatricians, general psychiatrists, and general surgeons, are also needed in many communities. While specialists with focused areas of practice will always be required, the complement ratio of generalists should be higher than that of specialists. But that balance is askew. Even though generalist physicians could provide care to many underserved populations and help close the current gap in services, there are not enough physicians graduating from residency training programs who are continuing to practice as generalists. More important than the actual number of practitioners is the effective scope of practice of the specialist. Residency training must instill in residents the importance of maintaining a generalist scope of practice (regardless of their specialist title) and equip them to meet this mandate.

To be socially accountable, the PGME system must produce the right mix, number, and distribution of physicians across the country in order to meet the identified healthcare needs of Canadians. Social accountability requires us to be good stewards of HHR and financial resources. By committing to a coordinated and strategic planning process, leaders across the PGME system can propel this accountability agenda forward. Strategic planning, combined with collaborative stewardship among stakeholders, is vital. Canada also needs to remain at the forefront of scientific advancements and, as such, must continue to train research physicians as clinician scientists. It also needs to produce clinician educators and leaders.

While we advocate for the development of a pan-Canadian agenda in facilitating socially accountable health care, we also recognize the inherent need for the flexible adaptation and implementation of such an agenda in different jurisdictions across Canada. Whereas national consensus may be reached on principles, their application will necessarily hinge on local needs and capacities. We expect that, through a national dialogue, shared interests for PGME will be articulated to address such topics as the movement of physicians across provincial boundaries; remuneration structures; the differing needs of rural and urban health care; job security; and changing scopes of practice (subspecialties and diploma programs), juxtaposed with geographic disparities and demographic changes. Flexibility and adaptability will be required not only in adjusting the type, location, and number of residency training programs and positions but also to facilitate career choice changes. Opportunities for transfers during residency training, as well as retraining over physicians' careers and practice changes, must be available and supported.

Canadian medical schools are the main source of Canadian physicians and have increased their enrollment by approximately 50 percent over the past decade to address physician shortages. IMGs will continue to play an important role in the Canadian healthcare system: Integrating them effectively will be fundamental to achieving the right mix, number, and distribution of physicians. This will require concerted action by governments, including immigration authorities, licensing authorities, universities, and health systems. The Canadian PGME system provides training for many IMGs (the number of IMGs entering PGME in Canada has increased by more than 400 percent over the past decade). All trainees must have an understanding of the healthcare system, culture, and regulations. Since those receiving MD training in another jurisdiction may be disadvantaged in this regard, introductory programs should be developed to enable them to enter and progress through their PGME program and take full advantage of learning opportunities.

2: CULTIVATE SOCIAL ACCOUNTABILITY THROUGH EXPERIENCE IN DIVERSE LEARNING AND WORK ENVIRONMENTS

RECOMMENDATION

Responding to the diverse and developing healthcare needs of Canadians requires both individual and collective commitment to social accountability. PGME programs should provide learning and work experience in diverse environments to cultivate social accountability in residents and guide their choice of future practice.

ACTIONS:

1. Provide all residents with diverse learning environments that include varied practice settings, and expose them to a range of service delivery models. *Leadership: ACAHO, AFMC (Committee on PGME), CFPC, CMQ, MCC, RCPSC.*
2. Provide and support experiences for all residents that focus on improving the health and health care of underserved and disadvantaged populations. Develop residents' understanding of and respect for variations in the health, well-being, and needs of different patients and communities. *Leadership: AFMC (Committee on PGME), CFPC, CMQ, RSPSC.*
3. Develop career-planning resources and supports, including mentors and positive role models. *Leadership: CFPC, CMQ, medical schools (PGME programs), RCPSC.*

RATIONALE:

Twenty-first century health care is becoming increasingly ambulatory and community-based in nature and can only be delivered effectively by well-functioning, multi-professional teams. As such, residents need to experience diverse learning environments that reflect changing realities, including the need for more generalists.

Disadvantaged populations require special attention from the healthcare system and provide a focus for training residents to better understand the determinants of health and the differing needs of patients, communities, and health service delivery models. The involvement of residents in projects to improve the health and health care of underserviced and disadvantaged populations can have an immediate impact on health care and inspire residents' future service. There are also changing healthcare delivery models: Family Health Teams in Ontario, the CFPC's Primary Medical Care Home, the utilization of physician assistants in both primary and specialty settings, and alternate funding plans for academic centres, to name a few. Learners need experience in these models and to understand their potential impact on access and quality.

Given the complexities and uncertainties of predicting Canada's future needs for particular types of physicians, career planning is daunting not only for residents but also for medical educators and health system planners. More collective planning and analysis is needed to ensure the provision of appropriate resources and supports, including mentoring to residents as they make career decisions.

3: CREATE POSITIVE AND SUPPORTIVE LEARNING AND WORK ENVIRONMENTS

RECOMMENDATION

Learning must occur in collaborative and supportive environments centred on the patient and based on the principle of providing the highest quality of care in the context of teaching and learning the necessary competencies.

ACTIONS:

1. Provide resident training that models and reflects patient-centred care and that ensures quality, safety, and accountability. *Leadership: ACAHO, AFMC (Committee on PGME).*
2. Provide residents with adequate opportunities to learn and work in environments that foster respect among professions and are reflective of an interprofessional and intraprofessional, collaborative, patient-centred approach to care. *Leadership: ACAHO, medical schools (PGME Deans and PGME programs).*
3. Advance and apply knowledge to gain a better understanding of the factors that optimize performance, learning, and wellness. *Leadership: AFMC (Committee on PGME), CFPC, CMQ, medical schools, RCPSC.*
4. Research and address issues of resident fatigue, sleep deprivation, and other factors affecting patient safety, quality of care, resident learning, and resident health. *Leadership: ACAHO, AFMC (committees on PGME and Physician and Student Health), Canadian Association of Internes and Residents (CAIR), Canadian Federation of Medical Students (CFMS), CFPC, CMQ, Féderation médicale étudiante du Québec (FMEQ), Féderation des médecins résidents du Québec (FMRQ), RCPSC.*
5. Identify and address both positive and negative aspects of the hidden curriculum in learning and work environments. *Leadership: CFPC, CMQ, RCPSC, medical schools.*

RATIONALE:

The main learning and work environment for residents is our complex healthcare system. In addition to contributing to patient care, the service that residents provide is a source of foundational, experiential learning that fosters their development as the doctors of tomorrow. Patient-centred care that ensures quality, safety, and accountability is vitally important to both the care of patients and the preparation of residents for practice.

While patient care is a core service provided by residents and is foundational to their learning, resident fatigue is a significant phenomenon that can have a negative effect on patient safety, resident learning, and resident health. More research is needed to inform the development of training programs that balance duty hours with other learning modalities, including simulation, needed to develop competence.

The hidden curriculum is defined in Recommendation 5 of the *FMEC MD Education Project Collective Vision* as a "set of influences that function at the level of organizational structure and culture, affecting the nature of learning, professional interactions, and clinical practice." Role-models, attitudes, and conversations all affect daily working conditions and also have an important long-term influence on the approach that young professionals take to their lives, practices, and career choices. A critical examination of the impact of the hidden curriculum on residents' learning and work environments is a first step in addressing this.

Positive learning and work environments contribute to better learning and patient care.

4: INTEGRATE COMPETENCY[8]-BASED CURRICULA IN POSTGRADUATE PROGRAMS

RECOMMENDATION

Develop, implement, and evaluate competency-based, learner-focused education to meet the diverse learning needs of residents and the evolving healthcare needs of Canadians.

ACTIONS:

1. Conduct a thorough, evidence-based review of competency-based training model options that most effectively develop readiness to practice by specialty. *Leadership: CFPC, CMQ, RCPSC.*
2. Develop and implement competency-based training programs. *Leadership: AFMC (Committee on PGME), CFPC, CMQ, RCPSC.*
3. Show evidence that program standards and resident competencies are relevant to society's evolving healthcare needs. *Leadership: AFMC, CAIR, CFPC, CMQ, FMRQ, RCPSC.*
4. Share curricular innovations and best practices among medical schools and residency training programs. *Leadership: AFMC, CAIR, FMRQ.*

RATIONALE:

According to the latest census data, nearly 80 percent of Canadians live in urban areas. Serving the healthcare needs of all Canadians, however, means that we must adapt our training of doctors to meet the unique healthcare interests of both the minority and majority of the population. To adequately meet the needs of rural and remote communities, as well as marginalized groups, curricula must be adapted to provide residents with exposure to different populations and service delivery models, both within and outside urban and large tertiary-care centres.

Canadians' evolving healthcare needs must drive and guide the competence[9] required of physicians. As society's healthcare needs shift, the requisite competencies for physicians will also shift. In other words, competencies must be defined on the basis of individual and community health needs. By working together, medical schools, the CFPC, CMQ, and RCPSC can establish a process whereby competencies are periodically reviewed and articulated to ensure that the right generalist and specialist skills are developed for quality patient care in all settings.

8 Competency is defined as "an observable ability of a health professional, integrating multiple components such as knowledge, skills, values and attitudes. Since competencies are observable, they can be measured and assessed to ensure their acquisition." Frank JR, Snell L, Cate OT, Holmboe ES, Carraccio C, Swing SR, et al. Competency-based medical education: theory to practice. Med Teacher. 2010;32:638-45.

9 Competence is defined as "the array of abilities across multiple domains or aspects of physician performance in a certain context…multi-dimensional and dynamic… changes over time, experience, and setting. (Frank JR, Snell L, Cate OT, Holmboe ES, Carraccio C, Swing SR, et al. Competency-based medical education: theory to practice. Med Teacher. 2010;32:638-45.)

Residency training should provide learning experiences that support the development of defined requisite competencies. We also recognize that a flexible, learner-centred curriculum is critical to developing competent physicians. Flexibility requires that we use a blend of time-based milestones and competency assessment to guide learning and progression through residency programs.

We have made significant strides in integrating the CanMEDS[10] and CanMEDS-FM[11] competency frameworks into the PGME curricula. Undergraduate and continuing professional development curricula are also incorporating CanMEDS, providing greater fluidity and uptake of identified competencies. Readiness to practice is an essential marker for successful completion of resident training. Curriculum and assessment should be fashioned around this objective, with time-based milestones and demonstration of competencies as complementary markers of success. Residency training must equip residents with the tools for self-reflection and self-assessment, so they maintain competence throughout their careers.

10 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 January 5, 2012.

11 CanMEDS – Family Medicine. Working Group on Curriculum Renewal. The College of Family Physicians of Canada. (http://www.cfpc.ca/WGPCResources/). Accessed January 5, 2012.

5: ENSURE EFFECTIVE INTEGRATION AND TRANSITIONS ALONG THE EDUCATIONAL CONTINUUM

RECOMMENDATION

The Canadian PGME system prepares physicians for practice. This requires development through the increase of responsibility across the medical education continuum and effective transitions from UGME into PGME, within PGME, and from PGME into practice.

ACTIONS:

1. Develop smoother and more effective transitions from medical school to residency and from PGME into clinical practice:
   a. Review and redesign current practices and systems (e.g., the entry-into-residency process).
   b. Link the individual learner competencies developed in MD training with the educational objectives set for the resident.
   c. Review the timing of national examinations.
   d. Develop strategies to increase flexibility to switch disciplines while in training or when re-entering residency training.

   Leadership: ACAHO, AFMC (committees on UGME and PGME), CAIR, Canadian Resident Matching Service (CaRMS), CFMS, CFPC, CMQ, FMEQ, FMRQ, MCC, medical schools, RCPSC.
2. Review and determine the ideal length and content of PGME training based on competencies required for readiness to practice, including the skills needed to maintain competency in the breath of the specialty, rather than on traditional time-based models. *Leadership: AFMC (Committee on PGME), CFPC, CMQ, RCPSC.*
3. Provide current information regarding career opportunities to students and residents prior to their residency selection with CaRMS. *Leadership: AFMC (committees on UGME and PGME), medical schools, F/P/T governments.*
4. Facilitate collaboration between PGME and UGME programs to ensure that the latter appropriately prepare students for entry into residency (e.g., through a rigorous and flexible use of the final year of medical school that places emphasis on the acquisition of the skills needed for residency). *Leadership: AFMC (committees on UGME, PGME).*
5. Develop a pan-Canadian approach to resident orientation that includes assessment and supplementary learning modules for IMGs, as needed, to ensure their readiness to begin PGME. *Leadership: AFMC (Committee on PGME), CAIR CFMS, FMEQ, FMRQ.*

RATIONALE:

The overarching mandate of PGME is to prepare physicians—intellectually, technically, and emotionally—for professional practice as members of interprofessional teams. Residents' development, however, begins before and continues beyond postgraduate education. PGME plays an integral role in supporting residents' progress along this developmental path, a role that involves collaborative planning with other leaders in medical education to facilitate smoother and more effective transitions. To improve transitions, a number of focal areas at both the system and program level deserve attention.

Collaborative planning among medical education stakeholders is a prerequisite to more effective transitioning to and from residency. Length of training and timing of national examinations are critical factors for medical schools, the MCC, CFPC, CMQ,

RCPSC, and others to review. National examinations, which are but one tool for assessing competence, must be considered within the context of an entire assessment process. The UGME and PGME systems must also collaborate to devise a plan whereby graduating medical students are optimally prepared for residency. Similarly, dedicated resources and attention must be applied to the development of effective assessment tools. Ensuring the effective integration of IMGs into Canadian residency programs and their transition into practice must be a priority. The development of a national orientation program for all graduating MDs and IMGs could provide the necessary infrastructure for standardizing entry into residency training. The Canadian PGME system must also improve the sign-off process for indicating readiness to practice, such that the exit ramp for graduating trainees ensures both competency and accountability in the breadth of their specialty. The role of mentorship for new graduates needs to be developed and promoted.

6: IMPLEMENT EFFECTIVE ASSESSMENT SYSTEMS

RECOMMENDATION

Assess competence and readiness to practice through a combination of formative and summative feedback and assessments.

ACTIONS:

1. Provide residents with regular and adequate formative feedback from multiple sources on both their individual and team performance, including the identification of strengths and challenges, to support progressive attainment of competence along the learning continuum. *Leadership: AFMC (Committee on PGME), CFPC, CMQ, MCC, Federation of Medical Regulatory Authorities of Canada (FMRAC), RCPSC.*
2. Build a broad framework of assessment tools and methodologies that can be used to provide formative longitudinal feedback. *Leadership: AFMC (Committee on PGME), CFPC, CMQ, MCC, RCPSC.*
3. Develop summative assessment methodologies and tools for providing evidence of readiness to enter practice that reflect the integration of all CanMEDS and CanMEDS-FM roles. *Leadership: AFMC (Committee on PGME), CFPC, CMQ, MCC, RCPSC.*
4. Ensure that adequate funding and flexibility are available for residents who require remediation, and develop strategies for the sharing of best practices in effective, structured remediation. *Leadership: AFMC (Committee on PGME).*

RATIONALE:

Residents are expected to develop core competencies throughout their residency. The current process of In-Training Evaluation Reports (ITERs) is not necessarily reliable for ensuring the quality and rigor of non-medical expert CanMEDS roles. Assessment provides mechanisms for focusing attention on staying "on track and on target" to develop practice-ready residents. We should only measure what matters. CanMEDS and CanMEDS-FM, for example, emphasize the importance of the interlinked competencies associated with the seven roles that ensure the development of the complete physician. Patients want and deserve a medical expert who embodies and integrates all of the CanMEDS and CanMEDS-FM roles.

Assessment often results in value-laden scores that ideally constitute valid and reliable data. Assessment is also about a process that must be unequivocally fair. The major rationale for providing supportive, in-the-moment evaluation and feedback is to develop the competencies to improve patient care. A lesser reason for the need for reliable, valid, and fair assessments is increased legal challenges by residents who assert unfair evaluations. Robust assessment and a proper process are essential to ensure equity among learners. More medical education research and faculty development in this area is crucial for both proper assessment and process.

Educational scholarship has shown that multiple independent observations enhance validity, and that direct observation is the best means of assessing residents' competencies in providing patient care.

While many valuable assessment tools and methods are currently available, there are opportunities for innovative new practices in this area. Assessment must be based in both simulated and actual clinical environments. Evaluating competencies that appear inherently subjective, such as "effective and appropriate collaboration," requires special attention. Furthermore, tools and methods offer utility if applied in a consistent fashion. Future improvements to assessment practices should enhance regular formative feedback in a safe environment, lead to summative tools and methods, and encourage consistent application. Remediation programs, often customized around specific learner needs, deserve greater attention. Medical education scholarship should develop best practices in remediation programming that can be shared through faculty development channels.

On a day-to-day basis, we assess trainees to improve their ability to care for patients. In a broader sense, we assess learners and faculty as a means to ensure the best quality of health care to meet the needs of Canadians. As a self-regulating profession, we have made a commitment to the Canadian public to be expert, professional, and patient-centered. With social accountability as a driver, all stakeholders in the Canadian PGME system must shift the culture of medical education to value assessment as a tool for the continuous quality improvement of individual learners, faculty, and the learning environment.

7: DEVELOP, SUPPORT, AND RECOGNIZE CLINICAL TEACHERS

RECOMMENDATION

Support clinical teachers through faculty development and continuing professional development (CPD), and recognize the value of their work.

ACTIONS:

1. Develop a national strategy for faculty development and CPD that is accessible, comprehensive, and supports the spectrum of clinical teaching activities, including the teaching, assessment, and role modelling of CanMEDS and CanMEDS-FM roles. *Leadership: ACAHO, AFMC (committees on PGME, Faculty Development, and CPD), Canadian Association for Medical Education (CAME), CFPC, CMA, CMQ, RCPSC.*
2. Advocate for university structures that recognize the promotion of clinical teachers on the basis of excellent teaching and scholarship in education.
3. Recognize the issues of clinical teachers in all settings—including community-based, non-tertiary care settings—and provide them with the means to carry out their many roles, including caring for patients and taking on increasing clinical teaching responsibilities. *Leadership: AFMC (committees on UGME, PGME, CPD), CFPC, CMQ, RCPSC.*
4. Identify effective incentives to encourage the ongoing professional development of clinical teachers, including systemic mechanisms (e.g., licensing, certification, hospital privileges, funding models) and recognition (e.g., remuneration, academic merit/promotion, awards). *Leadership: ACAHO, AFMC (Committee on PGME), CMA, CFPC, CMQ, FMRAC, P/T governments, RCPSC.*
5. Develop valid, fair, and reliable assessment tools through which residents can safely provide formative feedback to clinical teachers to support their ongoing professional development. *Leadership: CFPC, CMQ, medical schools (PGME programs), RCPSC.*
6. Recognize the role of residents as teachers and future clinical teachers and create and implement a national competency-based curriculum at the residency level.

RATIONALE:

Quality teaching is the sine qua non of resident training, yet the development and recognition of teaching excellence has not been prioritized accordingly. Greater support for professional development of clinical teachers is required to enable excellent teaching and responsible role-modelling. The limited financial resources allocated to CPD, coupled with the scarcity of medical education mentors, presents challenges to developing the necessary skills in instruction, leadership, and role modelling for those who teach. While several institutions across the country offer best practices in CPD for clinical teachers, the lack of a national-level partnership or dialogue means that these practices are not well shared, thereby creating variability across residency programs.

The CanMEDS and CanMEDS-FM frameworks offer useful structures and a range of resources that can be adapted and implemented by teaching sites and universities for targeted faculty development. Through further partnership with the AFMC, CFPC, CMQ, and RCPSC, a national competency-based curriculum and standardized assessment mechanism for teaching faculty could be developed that leverages the tools built through CanMEDS and CanMEDS-FM. Teaching and assessing the competencies within these two frameworks requires faculty development. Faculty must be supported to incorporate the latest technologies, such as simulation and web-based

media, alongside more traditional teaching practices that, together, enhance resident learning. Clinical teachers outside the academic tertiary-care environment must also be supported to deliver the curriculum through effective role-modelling that reflects and influences behavioural and practice norms.

Assessment provides a valuable method to encourage excellence in teaching. To fully embrace this dual role of teacher and learner, all clinical teachers must be evaluated on their competencies in teaching and role modelling. It is important that assessment and feedback to clinical teachers is collaborative between teaching environments, hospitals, academic centers, community offices, and other venues. Faculty assessment should be conducted in the spirit of continuous quality improvement: aimed at the professional development of the faculty member and also supportive of improving the learning environment as a whole. As is the case with assessing residents, the assessment of faculty must be valid, fair, and reliable—affording both formative and summative feedback to clinical teachers.

To excel at teaching goes beyond natural talent and intellect. It also requires a dedication of time and effort, patience, self-awareness, empathy, and leadership. Excellence in teaching is a valuable contribution to the development of emerging physicians and, in turn, to patients and communities. It should be acknowledged. To provide recognition for teaching is especially important considering the volunteerism of many clinical teachers who teach because of their commitment to develop the next generation of doctors and clinical educators. With this in mind, proportionate recognition of faculty contributions should be further explored, both locally and nationally, as a means of encouraging and rewarding teaching excellence.

Residents are important teachers for other residents, as well as for medical students and other healthcare learners. Accreditation requirements at both the UGME and PGME levels articulate this important role. There is a need for PGME programs to address learners' needs as teachers by identifying the specific teaching competencies that can be taught by all.

8: FOSTER LEADERSHIP DEVELOPMENT

RECOMMENDATION

Foster the development of collaborative leadership skills in future physicians, so they can work effectively with other stakeholders to help shape our healthcare system to better serve society.

ACTIONS:

1. Develop, in close collaboration with UGME programs, a national core leadership curriculum for all residents that is focused on professional responsibilities, self-awareness, providing and receiving feedback, conflict resolution, change management, and working as part of a team as a leader, facilitator, or team member. *Leadership: AFMC (committees on UGME and PGME), CAIR, CFPC, CMA, CMQ, FMRQ, RCPSC.*
2. Tailor leadership development to personal needs, including by making opportunities available for higher education in leadership through formal degree programs. *Leadership: AFMC (Committee on PGME).*
3. Ensure that all residents are given the opportunity to participate in administrative, clinical, educational, and scientific leadership during training. *Leadership: ACAHO, AFMC (committees on UGME and PGME), CAIR, CFPC, CMA, CMQ, FMRQ, provincial residents organizations, RCPSC.*
4. Working with national CPD initiatives, develop programs to enhance the teaching of leadership in UGME and PGME and build on the leadership curriculum for those in practice. *Leadership: AFMC, CFPC, CMA, CMQ, RCPSC.*
5. Encourage the integration of interprofessional and intraprofessional education leadership opportunities in PGME environments to support team skills and teaching across disciplines and professions. *Leadership: ACAHO, AFMC (committees on UGME and PGME), CAIR, CFPC, CMA, CMQ, FMRQ, provincial residents' organizations, RCPSC.*

RATIONALE:

There are various definitions of leadership. The common thread among them is a process of intentional influence between the leaders and followers to work towards a shared goal. In our society, physicians are often perceived as leaders. Every resident must understand that leadership is an enabling component for all CanMEDS and CanMEDS-FM roles and is relevant to patient care, education, research, and administration. Residents must be provided with opportunities to attain competencies related to collaborative leadership. Today's leadership training must be focused on the current environment in which physicians work in interprofessional teams as facilitators, team members, or team leaders. Residents should learn to exercise leadership choices in their daily work, irrespective of whether they have a formal leadership position. Residents must also have the opportunity to receive feedback on their performance on interprofessional collaborative teams. All residents should become engaged in improving the health care of patients and populations and the healthcare system in general. To this end, residents must be supported in developing their collaborative leadership skills during training and have the opportunity to create positive change in our healthcare system.

9: ESTABLISH EFFECTIVE COLLABORATIVE GOVERNANCE IN PGME

RECOMMENDATION

Recognizing the complexity of PGME and the health delivery system within which it operates, integrate the multiple bodies (regulatory and certifying colleges, educational and healthcare institutions) that play a role in PGME into a collaborative governance structure in order to achieve efficiency, reduce redundancy, and provide clarity on strategic directions and decisions.

ACTIONS:

1. Identify organizations that have decision-making authority in PGME and define roles that could better streamline and enhance their collaboration through the study of governance models and the implementation of the one that promotes the greatest efficiency and effectiveness. *Leadership: ACAHO, AFMC, CAIR, CFPC, CMQ, F/P/T governments, FMRAC, FMRQ, hospitals, MCC, RCPSC.*
2. Establish terms of reference, align strategic directions, and establish a collective governance process. *Leadership: ACAHO, AFMC, CAIR, CFPC, CMQ, FMRAC, F/P/T governments, FMRQ, hospitals, MCC, RCPSC.*

RATIONALE:

Effective governance—in this context, the institutions, policies, and processes that support the administration and delivery of resident training—is essential to the administration of the Canadian PGME system. The PGME system is composed of a complex array of players, including educators, government bodies, and health authorities, that have multi-directional accountabilities. Within this complexity lies the profound challenge of finding the clarity and collaboration required for effective governance, which has, to date, resulted in a lack of alignment towards a common vision for resident training. To ensure effective governance within PGME, two things must be in place: clear roles and responsibilities for the many stakeholders involved and a practice of collaborative dialogue.

Partners in the Canadian PGME system must assume a leadership role in beginning a dialogue with other medical education stakeholders to articulate a common vision and their particular interests, responsibilities, and accountabilities in meeting Canadians' health and wellness needs. If sustainable healthcare in Canada is to be achieved, effective governance must be put into practice to enable careful forecasting of the number and types of physicians required in our system. This will enable effective HHR decisions that will streamline the training process and avoid redundancy.

10: ALIGN ACCREDITATION STANDARDS

RECOMMENDATION

Accreditation standards should be aligned across the learning continuum (beginning with UGME and continuing through residency and professional practice), designed within a social accountability framework, and focused on meeting the healthcare needs of Canadians.

ACTIONS:

1. Facilitate and enable a more integrated PGME system by aligning accreditation standards and processes across the continuum of learning in the UGME, PGME, and CPD environments. *Leadership: Accrediting agencies of UGME, PGME, and CPD, AFMC, CFPC, CMA, CMQ, FMRAC, RCPSC.*

RATIONALE:

Current accreditation standards and processes focus exclusively on UGME, PGME, or CPD. The processes share many common attributes and goals; however, they are very labour intensive and costly for the medical schools and accrediting agencies involved. Ways need to be found to reduce the burden of paper, time, and human resources that are devoted to accreditation. There is increasing interest in an accreditation process, be it at the UGME, PGME, or CPD level, that is more continuous, promotes continuous quality improvement, and is less focused on summative visits at the end of each accreditation cycle.

A review of the recommendations in both the FMEC MD report and this one highlights many areas that require change but are interdependent between UGME and PGME. For example, addressing the hidden curriculum and developing clinical teachers are issues in both educational environments. An accreditation system that recognizes these issues across the continuum would well serve the medical education system.

CONCLUSIONS AND NEXT STEPS

This action-oriented mandate for change has been derived from extensive dialogue and engagement with the many stakeholders in the PGME system and builds on much work that is already underway. Our collective challenge in moving forward is to improve our healthcare system not only by implementing the recommendations in this report but also by retaining the many strengths that already exist.

While leadership in the implementation of these recommendations will be provided by the four consortium partners, the participation of a number of key stakeholders will also be required to ensure the success of this effort. For example, the implementation of many of these recommendations will be contingent upon the active participation of our provincial governments. As such, we must be cognizant of today's fiscal realities and strive to make changes collectively, while minimizing any increased financial responsibilities placed on our governments, medical schools, certifying bodies, and learners.

It is hoped that the completion of this report will not only result in the implementation of its 10 recommendations but also lead to the next step in what is increasingly referred to as "the FMEC process": a comprehensive examination of the continuing medical education environment of practicing physicians. This, combined with our recent reviews of the undergraduate and postgraduate contexts, will round out an analysis of the entire medical education continuum and lend an overarching perspective to these highly interrelated learning environments. It is only by reforming this continuum from end to end that we will continue to ensure the capacity of our physicians to meet the needs of Canadians, now and in the future.

METHODOLOGY

The FMEC PG project encompassed many inputs, which formed the basis of evidence from which the recommendations were developed. These inputs came from a variety of sources:

ENVIRONMENTAL SCAN CONSULTING GROUP

The Environmental Scan Consulting (ESC) Group was directed to gather evidence two ways: by preparing commissioned papers on an approved list of topics and by conducting interviews with key informants. The project methodology was guided by the Scientific Advisory Committee (SAC), which included educational research scientists who provided both content and process expertise. Research ethics board approval for the interviews was sought and received at the three participating universities (McGill University, University of British Columbia, and University of Toronto).

The initial inventory of research themes that eventually led to commissioned papers was developed through an iterative consultation process that included a literature review, consultation with the Advisory Committee of PGME Deans and the FMEC PG Steering Committee, a document analysis of FMEC MD literature reviews, and review by the ESC Group and the SAC.

Following an analysis for key themes in PGME, 24 papers were commissioned. Each paper included a review and analysis of relevant literature from the past decade, and many employed multiple methodological approaches (e.g., interviews, feedback from

stakeholders, focus groups) to capture the current issues in PGME, evidence and information about best practices, and innovations and options for the future of PGME in Canada.

Twenty-seven key informant interviews were conducted. The ESC Group used the Towards Unity for Health framework and purposeful sampling to ensure input from multiple viewpoints. Interviewers used a common interview protocol, including consent forms, questions, audio recordings, submission of a brief summary field report, the review of transcripts, and the verification of transcripts with key informants.

For both the commissioned papers and key informant interviews, the research team analyzed the results using grounded theory methods over the course of two separate two-day workshops. For each research theme, a broad group of researchers, including representatives from the FMEC PG Steering Committee, developed a consensus view of the key messages from each of the commissioned papers and the themes from across the papers and key informant interviews.

A final report was submitted to the FMEC PG Secretariat in May 2011. The commissioned papers and synthesis report are available on the project website.

LIAISON AND ENGAGEMENT CONSULTING GROUP

During the first round of consultations (undertaken between August and December 2010), the Liaison and Engagement Consulting (LEC) Group conducted 108 in-person and teleconference consultations with a broad range of stakeholders in the PGME community. The purpose of these consultations was to raise awareness of the project and solicit opinions and ideas for the FMEC PG Steering Committee's consideration in formulating its recommendations. All stakeholders were asked to describe the strengths, vulnerabilities, risks, and opportunities within PGME and suggest ways to innovate or strengthen the current system. The LEC Group developed a standardized process to ensure that consistent messaging and common processes were used for all consultations, including a step-by-step guide, an invitation to target stakeholders, and a reporting template for stakeholder feedback.

The second round of consultations took place in August and September 2011 in response to the first version of draft recommendations, which was released on July 28, 2011. The FMEC PG Management Committee directed the LEC Group to solicit feedback on this first draft from 13 national stakeholders, through town hall meetings at 17 medical schools, and through a web-based survey. All individuals and organizations who participated in the first round of the consultations were invited to submit their feedback on the draft recommendations using a web-based survey.

The project website provided a copy of the LEC Group's first report and a copy of the draft recommendations. A total of 107 individuals participated in the national consultations and a further 579 in the town hall meetings, for a total of almost 700 participants (this underestimates the number of people involved, as many participants provided feedback on behalf of their executive or membership). An additional 18 submissions were provided through the web-based survey or directly to the LEC Group.

Reports were submitted to the FMEC PG Secretariat after both rounds of consultations and are available on the project website.

PUBLIC OPINION POLL

EKOS Research Associates conducted a survey that examined a number of important issues pertaining to health care and the medical education system in Canada—in particular, public confidence in the healthcare system, public priorities, public literacy of the healthcare system, confidence in the medical education system, and the growing role of technology.

The survey was conducted from January 24 to February 4, 2011, using EKOS's hybrid online-offline research panel, Probit. A random sample of 1,720 Canadians aged 18 and over responded to the survey (1,502 online and 218 by self-administered mail-out surveys). A sample of this size provides a margin of error of +/- 2.4 percentage points, 19 times out of 20.

NATIONAL SURVEY OF PROGRAM DIRECTORS

An online survey was distributed to all 807 Specialty and Family Physician Program Directors across Canada in December 2010. Recipients were asked to rate the importance of a number of issues and challenges they faced that could be affected by PGME. Both qualitative and quantitative data were collected and analyzed collectively and according to Specialty/Family Physician program. An overall response rate of 33% was achieved (56% Family Physician and 32% Specialty).

INTERNATIONAL CONSULTATIONS

Site visits and key stakeholder interviews were conducted in the United States, United Kingdom, and France in the spring of 2011. The Steering Committee identified international institutions, locations, and individuals able to contribute relevant information and examples of innovative PGME programming and processes. Many environments outside the Canadian context were included to facilitate an understanding of the PGME response to societal shifts in different but comparable contexts, identify international trends and drivers, and obtain evidence of exemplary practices in PGME.

PUBLIC PANEL

The Public Panel was composed of members of the "informed lay public": community members who possess an understanding of and have some experience with medical education but are not MDs or directly involved in the PGME environment. Many participants were public members from the boards of organizations represented on the Steering Committee. The panel met twice: initially in January 2011 to discuss their priorities for PGME, and again in November 2011 to provide feedback on the second version of the draft recommendations.

REVIEWING THE INPUTS

All of these inputs were considered in formulating the draft recommendations. Members of the Steering Committee and Advisory Committee of PGME Deans met in early February 2011 to develop preliminary themes. The Management Committee then met in late March 2011 to review the evidence and preliminary themes and to formulate a list of key thematic areas. A meeting in June 2011 marked the final time that all committee members met before the first version of the recommendations was drafted. The first draft was distributed in July 2011 and reviewed through the LEC Group process and by committee members. Deans of Medicine provided feedback via webinar. Feedback on a refined version of the recommendations, distributed in early November 2011, was provided by the Advisory Committee on Health Delivery and Human Resources, the Deans of Medicine, and the Public Panel. Following a meeting in early December 2011 of all committee members, a third version was drafted for review at the National Forum on January 30 and 31, 2012.

ACKNOWLEDGEMENTS

On behalf of the four consortium partners—the AFMC, CFPC, CMQ, and RCPSC—we would like to extend our thanks to many individuals for their roles in the FMEC PG project, which was truly collaborative in nature and far-reaching in breadth.

First and foremost, we extend sincere thanks to Health Canada for its generous funding over 25 months, and a special thank you to Margo Craig Garrison for her presence and participation as a member of the project Steering Committee. We similarly acknowledge staff administrators at Health Canada for their patience and collegial support throughout this initiative.

The FMEC PG project was truly a pan-Canadian effort and would not have been possible without the dedication and commitment of many medical educators across the country. We formally acknowledge the significant contributions of our consortium partner organizations, which provided considerable in-kind support through our participation as lead representatives and the involvement of our colleagues who served on the Steering Committee or Strategic Implementation Group, or were engaged in other ways in this project.

Several key groups carried this work forward. Members of the 33-person Steering Committee—with representatives from national medical education associations, decanal teams of Canadian medical education programs, governments, learner and resident groups, national and provincial certifying colleges, and regulatory authorities—contributed their time and ideas through participation in multiple face-to-face meetings.

The Advisory Committee of PGME Deans, composed of the PGME Deans from all 17 medical education programs across Canada, worked in close collaboration with the Steering Committee throughout the project to bring both philosophical and frontline perspectives to this work.

We four signatories, along with Drs. Pierre Leblanc, Geneviève Moineau, and James Rourke, constituted the project's Management Committee. The committee guided the day-to-day work of the project, working closely with Secretariat staff and the consulting writer to shape the draft recommendations. This was a major commitment involving monthly teleconferences, the chairing of meetings, and extensive on-line writing and editing of multiple drafts of this report.

The SIG, composed of members of the Management Committee as well as Drs. Mathieu Dufour, Tom Feasby, Kevin Imrie, Cathy MacLean, Jay Rosenfield, and Mark Walton, helped to edit later versions of this report and contributed strategic thinking as the project shifted into its implementation phase.

The 20-member Public Panel met twice over the duration of this initiative. Their high level of engagement and critical feedback in reviewing drafts from a public/patient perspective was imperative to this effort. The Deans of Medicine and many other key national stakeholder groups held several focused discussions on this project and the draft recommendations as they emerged. Thank you all for your consideration and input.

International consultations revealed key innovations and shed light on how PGME is carried out in comparable environments. We recognize Steering Committee members Drs. Mathieu Dufour and Joshua Tepper, who undertook consultations in France, and Drs. Maureen Topps and Jerry Maniate, who visited multiple sites in both the United States and United Kingdom. Thanks, too, go out to the numerous medical educators with whom they met and who took the time to share their wisdom and experience.

The FMEC PG project benefitted tremendously from the involvement of a number of highly skilled consultants, whose contributions greatly enriched this work and facilitated the development of this report.

An environmental scan team from the University of British Columbia, University of Toronto, and McGill University provided a comprehensive and academically rigorous evidence base for this work. These leading thinkers in medical education worked together to complete a thorough literature review, 27 national key informant interviews, and a synthesis report. The project owes a debt of gratitude to Drs. Sarita Verma, Sarkis Meterissian, Salvatore Spadafora, Joanna Bates, Kamal Rungta, Jean Jamieson, Susan

Glover Takahashi, and their colleagues for their exhaustive efforts in producing the high-quality research that helped to inform this project.

The LEC Group from the same three universities, led by Dr. Sarita Verma, completed two rounds of extensive national consultation on the draft recommendations as they emerged. This role was critical in that it kept the Canadian PGME community apprised of developments in the project and provided opportunities for all project stakeholders to voice their opinions and provide feedback on work to date.

We thank Frank Graves and his colleagues at EKOS, who collected and analysed highly relevant national public opinion data that also informed this report.

Bernard Gauthier and his associates from Delta Media coordinated e-newsletters and updates to the FMEC PG project website to keep all stakeholders and the general public informed of progress. They also helped to create the FMEC PG project video and provided advice and professional services for communications leading up to the National Launch of the project report.

Lori Charvat, of Sandbox Consulting, did a wonderful job of integrating input and feedback from multiple voices into a coherent whole as the consulting writer. Working closely with the Management Committee over many months, she drafted the first three iterations of this report, which were pivotal to its successful and timely completion.

Two comprehensive evaluations of the project, prepared by Blair Stevenson and his colleagues at Silta Associates, were each very helpful to our process.

The professional team at Strachan-Tomlinson provided overarching process design advice to this complex project as well as superior meeting design and facilitation skill and liaison work with project staff, consultants, and stakeholders. It was a true pleasure to work with Dorothy Strachan.

On the important matter of language, we thank Leslie Jones, of Leslie Jones Communications, who documented the entire project with her outstanding note-taking and report-writing skills at the many meetings held over the course of the initiative. She also did a wonderful job of editing this report. We are very appreciative of the efforts of Geneviève Denis, who provided superior translation services all the way from Harare, Zimbabwe, and Sylvie Leboeuf, of the CMQ, who generously reviewed and revised translations of each major iteration of this report.

Last but not least, we extend a sincere thank you to project manager Catherine Moffatt and project assistant Claire de Lucovich, of the AFMC, for their efforts in administering this multifaceted project. They were the backbone of this team effort and the ones who ensured the delivery of a high-quality product. AFMC senior management team members Irving Gold, Dr. Geneviève Moineau, and Steve Slade also contributed their time and unique talents to this initiative, and for this we are very grateful.

It is our sincere hope that the multiple parties who participated in this collaborative initiative will continue to carry forward this collective vision through the implementation of its recommendations.

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GLOSSARY

ACAHO	Association of Canadian Academic Healthcare Organizations
ACHDHR	Advisory Committee on Health Delivery and Human Resources
AFMC	Association of Faculties of Medicine of Canada
CAHS	Canadian Academy of Health Sciences
CAIR	Canadian Association of Internes and Residents
CAME	Canadian Association for Medical Education
CanMEDS	Canadian Medical Education Directions for Specialists
CanMEDS-FM	Canadian Medical Education Directions for Specialists-Family Medicine
CAPER	Canadian Post-M.D. Education Registry
CaRMS	Canadian Resident Matching Service
CFMS	Canadian Federation of Medical Students
CFPC	College of Family Physicians of Canada
CMA	Canadian Medical Association
CMQ	Collège des médecins du Québec
CPD	Continuing Professional Development
ESC	Environmental Scan Consulting
F/P/T	Federal/Provincial/Territorial
FMEC	Future of Medical Education in Canada
FMEQ	Fédération médicale étudiante du Québec
FMRAC	Federation of Medical Regulatory Authorities of Canada
FMRQ	Fédération des médecins résidents du Québec
HHR	Health Human Resources
IMG	International Medical Graduate
ITER	In-Training Evaluation Report
LEC	Liaison and Engagement Consulting
MCC	Medical Council of Canada
PGME	Postgraduate Medical Education
RCPSC	Royal College of Physicians and Surgeons of Canada
SIG	Strategic Implementation Group
UGME	Undergraduate Medical Education

FMEC MD 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,"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.

RECOMMENDATION VI: DIVERSIFY LEARNING CONTEXTS

Canadian physicians practice 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 INTERPROFESSIONAL AND INTRAPROFESSIONAL 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.

THE FUTURE OF MEDICAL EDUCATION IN CANADA

POSTGRADUATE PROJECT

L'AVENIR DE L'ÉDUCATION MÉDICALE AU CANADA

PROJECT POSTDOCTORAL