



2 Generalism in Postgraduate Medical Education

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Executive Summary

Optimal functioning of Canada's health care system depends on a balance of generalists and specialists, each bringing their unique perspectives and talents to the care of patients. The continuing trend favouring subspecialization has upset this balance. Postgraduate medical education has a social responsibility to address this problem by identifying its many causes and exploring approaches to correct them, especially those causes inherent in the system of medical education.

The three key messages in this paper are:

1. There is need for a widely accepted working definition of generalism that reflects not only a broad foundation of training, but an ongoing philosophy of care that is comprehensive, and integrative – working to reach across gaps in the health care system and adaptive to the needs of local communities.
2. Integration and collaboration between generalists and specialists is essential for optimum patient outcomes. Postgraduate programs must model effective communication and collaboration between generalist and specialist physicians caring for patients in common, especially at the time of admission to hospital and during discharge planning. Achieving this goal will require identifying and addressing elements of the hidden curriculum that devalue generalism.
3. Our residency programs need to be redesigned to ensure that residents are exposed to generalist practitioners within their discipline, rather than simply moving from one highly subspecialized rotation to another.

Introduction

“There is one principal and as it were radical distinction between different minds, in respect of philosophy and the sciences; which is this: that some minds are stronger and apter to mark the differences of things, others to mark their resemblances. The steady and acute mind can fix its contemplations and dwell and fasten on the subtlest distinctions: the lofty and discursive mind recognizes and puts together the finest and most general resemblances. Both kinds however easily err in excess, by catching the one at gradations, the other at shadows.”- Francis Bacon.¹

This paper is one of 24 papers commissioned for the Future of Medical Education in Canada Postgraduate (FMEC PG) Project. The purpose of this research paper is to explore the role of postgraduate medical education (PGME) in achieving an optimal balance between generalist and specialist physicians in Canada. After providing a brief history of generalism and clarifying definitions, we review a number of key issues related to generalism - the declining interest in generalist careers and suggestions for promoting generalism; the importance of a foundation in generalism vs. early streaming for all physicians; specialist-generalist communication and teamwork; and how the CanMEDS and CanMEDS-FM competency frameworks can assist in clarifying the role of generalism in PGME. We conclude with directions for moving forward that will assist in strengthening the role of generalists and collaboration among specialists and generalists in our postgraduate programs.

Methodology

In order to explore current issues on generalism in postgraduate medicine, a literature review was conducted and expert feedback was obtained.

Literature Review

Comprehensive literature searches were performed of MEDLINE, EMBASE, CINAHL, and PubMed from 1990 to 2011. Keywords used to identify articles included the following: “generalism” and/or “generalist” and/or generalist approach AND “general practice” and/or “primary care” and/or “family practice” and/or “primary health care”; “physician’s role” and/or “dimensions” and/or “approaches” and/or “practices”; “consequences” and/or “comparison” and/or “evaluation studies” and/or “outcomes; assessment” and/or “cost-effectiveness”.

More specific searches for each subsection were performed using keywords identified by the authors. Finally, the reference lists of relevant articles were scanned to identify eligible articles. Grey literature was reviewed to retrieve data on the current and past numbers of generalists and specialists in Canada. Additionally, grey literature was also reviewed to examine some of the most important historical documents that have influenced the direction of generalist and specialist care in Canada and the United States.

Expert Feedback

Generalist and specialist medical experts and educators in the field of PGME across Canada were invited to provide feedback and insight to the discussion and concluding portions of this paper.

Background

The tension between the need to train physicians to provide a broad scope of practice and to produce specialists with a focused scope of practice antedates our current model of medical education. The practice of medicine has changed dramatically from the 19th to the 21st century, in large part due to transformative insights into the pathobiology of disease, the availability of new drug treatments and procedural interventions as well as profound societal changes. These

changes were in motion by the early 20th century and informed the recommendations of Abraham Flexner's seminal 1910 report on medical education in the United States and Canada.²

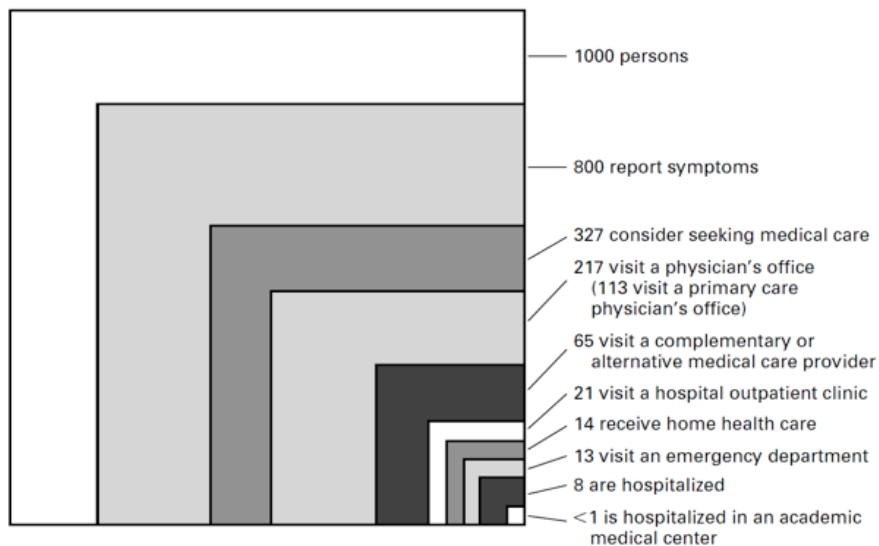
Flexner defined the structure of the medical education system in North America that is still in place today. Since Flexner's time, we have seen a progressive increase in specialization in the practice of medicine and in our medical education system. At the time of the establishment of the Royal College of Physicians and Surgeons (RCPSC) in 1929, there were only two specialties – medicine and surgery. In 2010, the RCPSC recognizes almost 70 specialties, and the College of Family Physicians of Canada (CFPC) recognizes two – family medicine and special competence in emergency medicine - and there is ongoing discussion and debate regarding additional certificates of special competence.³⁻⁴ In the United States, the American Board of Medical Specialties (ABMS) and the Accreditation Council for Graduate Medical Education (ACGME) recognize over 150 specialties, and this number continues to rise.⁵⁻⁶

The value of the practitioner with a broad scope of practice has been recognized since before the current push towards greater specialization. William Osler, the father of residency training as we know it, is famously quoted as stating “There are, in truth, no specialties in medicine, since to know fully many of the most important diseases a man must be familiar with their manifestations in many organs.”⁷ Flexner also expressed concern about the increasing trend toward specialization in his book *Universities: American, English, German*: “the very intensity with which scientific medicine is cultivated threatens to cost us at times the mellow judgement and broad culture of the older generation at its best. Osler, Janeway, and Halsted have not been replaced.”⁸ The recognition of the danger of fragmenting care led to a renewed recognition of the importance of generalism in the early 1990s. The report of the Association of American Medical Colleges (AAMC) on the generalist physician published in 1993 made extensive recommendations for the AAMC, schools of medicine and the practice environment and funders.³ While a number of the recommendations have been enacted, many remain to be implemented (Appendix 4). The report and similar discussions in Canada at that time were instrumental in the RCPSC moratorium on new specialties enacted in the 1990s and stimulated changes to funding and models of care.⁹

Subsequently, Roy Romanow's, 2002 report “the Future of Health Care in Canada” highlighted the need to improve access, particularly in rural and remote communities as well as the need for a comprehensive integrated system. In the years following this report, access to medical care and, in particular, the disparities faced by rural and remote communities have continued to grow, and the growing costs of our health care system threaten his vision for a more responsive, comprehensive and accountable health system.¹⁰

The demographics of medical care provide another perspective on the role of generalism and primary care in medical education. Since most illnesses occur in the community, physicians should spend some time during residency learning to manage patients in community settings. In 1961, White et al estimated the number of patients seen in a typical month in different sectors of the health care system in the United States.¹¹ In 1996, Green et al, using similar methodology, found remarkable similarities. (See Figure 1) Most care is provided in the community and only a tiny minority ends up in a teaching hospital where most medical education occurs.¹²

Figure 1: Monthly Prevalence of Illness in the Community and the Roles of Various Sources of Health Care



Each box represents a subgroup of the largest box, which comprises 1000 persons. Data are for persons of all ages

A number of factors, including better health care, have reduced the death rate from acute disease and increased the life expectancy of Canadians.¹³ One consequence of this is the increase in chronic diseases and co-morbidity. As a result, it is important for all physicians to have a broad understanding of human illness in order to recognize illness outside their area of expertise and be knowledgeable enough to make appropriate referrals. More generalists will be needed to care for the increasing numbers of patients with complex diseases in multiple organ systems.

Moving forward, the drive for specialization is likely to continue. The RCPSC continues to receive applications for recognition of new specialties and subspecialties and, in 2011, implemented a new category of recognition, namely Diplomas, to recognize areas of focused competence.⁹ Forces behind the continued push for specialization include the societal trend toward specialization in many fields – sports, business, industry – leading the general public to believe that specialists are more knowledgeable and skilled. In the field of medicine, the emerging quality and patient safety agenda and the recognition that, in certain fields of medicine, such as cardiac and thoracic surgery and aspects of diabetes care, patient outcomes is better when cared for by specialized teams including practitioners with a focused scope of practice. However, when specialists are called on to provide primary care outside their area of expertise, because of a shortage of family physicians or because of co-morbidity, their quality of care is worse than that of generalists.¹⁴

Linking FMEC MD and FMEC PG

The Future of Medical Education in Canada: A Collective Vision for MD Education (FMEC MD), recognizes the importance of generalism while also acknowledging the important contribution of the trend towards specialization. Additionally, the FMEC MD report recognizes that specialized care has led to improved outcomes for specific conditions, but that this may have been achieved at the expense of a more holistic perspective. Finally, the FMEC MD report emphasizes the

need for generalism and family practice, in particular, to be more appropriately valued and of the critical importance of a strong primary health care system.¹⁵

The authors make a number of important recommendations for the undergraduate medical education system, many of which have important implications for PGME. These include:

- Ensuring that the health human resource planning process aligns the mix of generalists and specialists in the physician workforce with the needs of populations.
- Identifying and addressing elements of the hidden curriculum that devalue generalism and family medicine.
- Increasing representation of generalists within faculties and among preceptors.
- Providing learning opportunities for students to experience undifferentiated patients and early presentation of illness in natural contexts.

Definitions

Though the importance of generalism is widely recognized, the term is defined variably. A meaningful discussion of this topic requires clarity on some of the definitions. Some of the important elements of the definition of generalism include preserving a broad foundation to training, advancing specific disciplines felt to be generalist in scope and maintaining a breadth of practice within specialties and subspecialties. Furthermore, the role of the generalist as an integrator is an important dimension, especially in cases where patients see multiple health care providers for multiple medical problems.¹⁶

The RCPSC recently proposed the following definitions for generalism and generalist specialists: “Generalism is a philosophy of care with acknowledgement by the physician that broad based comprehensive care is provided and the generalist physician is prepared and willing to reach across the existing gaps in the health care delivery system. A generalist specialist works directly with primary care providers, Family Physicians particularly. Generalists are able to develop their clinical practice to meet community needs and refrain from narrowing their practice.”¹⁷

Similarly, in 1993, the AAMC stated that generalist physicians constituted the foundation of medicine because “they are trained to provide personal care for a broad range of medical problems”. AAMC further predicted that, accompanying the growing complexity of medicine and technology would be higher costs, which result in an increased need for well-trained generalist physicians to care for patients directly and to coordinate the specialized services of other physicians.³

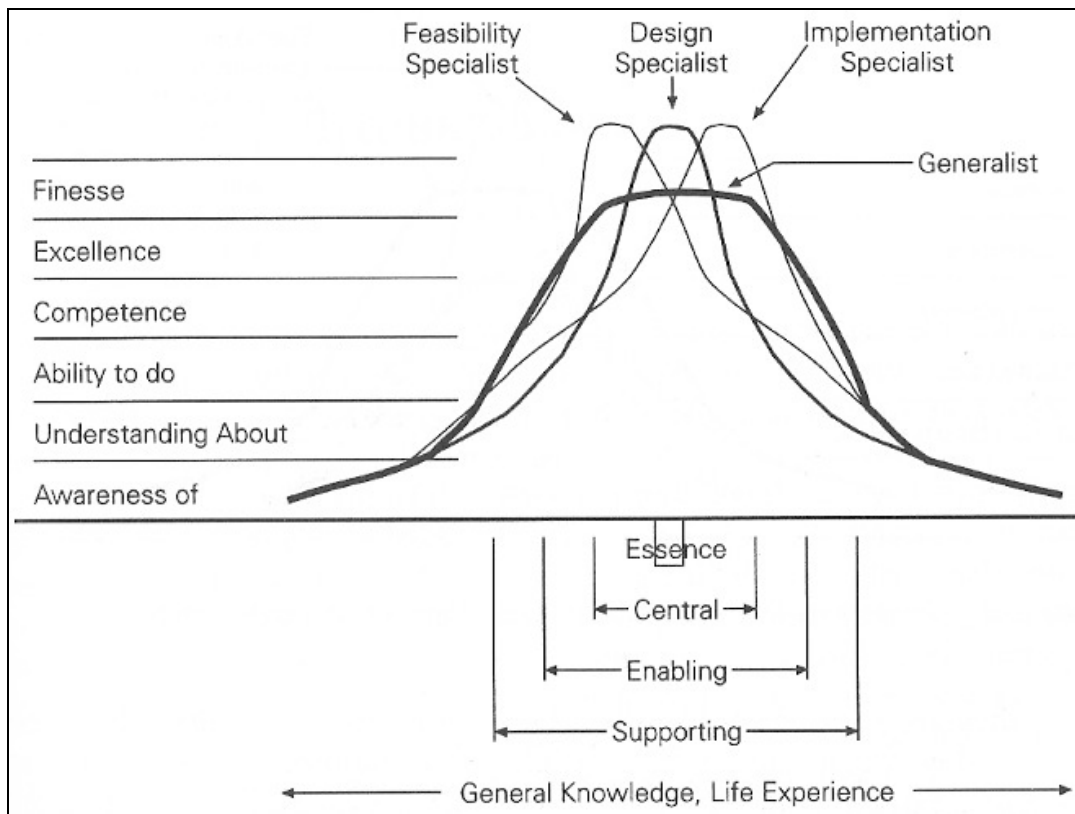
In recent years, as a way to meet the growing needs of specific societal groups, some family physicians have integrated additional competencies into the development of focused practices in family medicine.¹⁸ Increasingly, family physicians in Canada are acquiring special skills in one of the following areas: emergency medicine, palliative care, elder care and rural care. Other areas family physicians sometimes focus on include sports medicine, women’s health and dermatology. We speculate that many family medicine residents choose a third year in a focused area of practice because they feel unprepared for comprehensive practice, and this is the only avenue for additional training. Some of these physicians end up narrowing the scope of their practice, thus reducing the pool of generalists in the population.¹⁹

The introduction of the CanMEDS-Family Medicine (FM) Framework in 2009 further highlighted the broad range of generalist skills required by family physicians. Both the expert and non-medical expert roles of CanMEDS-FM are of particular importance in the role of the generalist physician. Developing these broad competencies during the course of postgraduate education

in family medicine allows residents to adapt and re-adapt to situations over time, in different environments.²⁰ Providing residents with skills to adapt to change in the medical environment is critical, given the evolving and changing needs of the Canadian population. With the increasing number of residents training to become family physicians, the hope is that this will achieve the right mix of generalist and specialist physicians in Canada.⁴

A common myth about the definition of generalism is that a generalist is a dilettante who knows a little bit about a lot but nothing in depth. However, it has been noted that a generalist knows more about the common diseases than most specialists. In fact, their knowledge base is broad and integrative so that they can apply their skills to the complex comorbidities of their patients. Eraut (1994) outlines the differences in generalist and specialist knowledge diagrammatically using an example from the field of architecture in Figure 2. All disciplines have a broad base of general knowledge, but each subspecialty narrows its scope as its knowledge reaches the level of finesse. The generalist's knowledge remains broad and still reaches a level of finesse, albeit not quite as high as each subspecialist.²¹

Figure 2: Differences in Scope and Depth of Knowledge of Generalists and Specialist (Eraut, 1994):



Moving forward, while much has been written about the special role of the generalist in rural and remote practice, generalism should not be equated with practice only in these settings. Generalists play a critical role in urban settings as well, where the integrative role may be particularly important.

Generalists in Canada are usually the physicians of first contact for patients with undifferentiated diseases and symptoms without disease. Generalists care for most patients with common acute diseases and patients with chronic illness including those with co-morbidity

and complex mixtures of physical, emotional and social problems. Generalists are trained to meet societal needs by continuously adapting to the needs of their practice population and collaborating with primary care providers from a range of disciplines.

Discussion - Implications for PGME

Declining Interest in Generalist Careers and How to Promote Generalism

Much has been written about declining interest in family medicine and generalist specialties such as general medicine and general surgery.²²⁻²⁵ During the initial partners meeting of the key medical education organizations in Canada in 2005, a debate was conducted on “Generalism vs. Subspecialization: Changes Necessary in Medical Education.” The report of the debate concluded with a warning: “Generalists may well be an endangered species. Medical schools and the medical profession need to take action if the health care system as it is currently designed is to survive.”²⁶

The Canadian Residency Matching Service (CaRMS) collects information on applicant preference and intake numbers in entry into postgraduate year 1 (PGY1) residency programs as well as PGY3 family medicine match and, since 2009, the PGY4 internal medicine match. The Canadian Post-MD Education Registry (CAPER) tracks information on the number of residents in training in all 17 medical schools in Canada as well as their demographic characteristics. The 2009 CAPER report documents that, in the past 10 years, the number of trainees exiting training has risen 28%. Over that time, the proportion of trainees completing their training in family medicine compared to specialty programs has risen from 39% to 43%. The number of residents training in the generalist specialties has also increased. Between 2005 and 2010, the number of residents training in family medicine has increased 34%, internal medicine 30%, pediatrics 27%, general surgery 13%, and obstetrics 19%. This compares to a 25% increase in the total number of residents in training, suggesting that the absolute number of residents training in generalist specialties is increasing significantly and that the proportion appears comparable to the overall increase in resident numbers. Although these changes are encouraging, more needs to be done to encourage entry into generalist programs. For example, in the 2010 CARMS match, only 33% of Canadian medical graduates ranked family medicine as their first choice, still significantly below the 40-45% range recommended to maintain a 50-50 balance of family physicians and specialists.²⁷ On a more optimistic note, this proportion has risen modestly from the nadir of 24.9% in 2003 to the 33% mark in 2010.²⁸

These data suggest that, while the absolute number and proportion of trainees graduating in generalist disciplines has increased over the past decade, students continue to be preferentially drawn to more specialized disciplines.

The Hidden and ‘not so’ Hidden Curriculum

Although usually described in negative terms, the hidden curriculum can also have a positive impact. For example, a central goal of medical education is the development of the “professional self...the internalization of the values and virtues of medicine as a discipline and a calling.”²⁹

To a large extent, it is through the experience of working with expert generalist role models who are passionate about their work that learners become excited about a generalist career path.

The hidden curriculum consists of all those things students learn outside the official curriculum – things they “pick up” by watching others and from verbal and non-verbal cues about what is acceptable behaviour, what is valued and what is important. The hidden curriculum has been defined as “the set of influences that function at the level of organizational structure and culture including, for example, implicit rules to survive the institution such as customs, rituals, and taken for granted aspects”.³⁰

The hidden or informal curriculum powerfully molds the attitudes and values of faculty and students alike.³¹⁻³³ It is more influential than the written objectives and may even be at odds with the stated curriculum of the postgraduate program. The hidden curriculum is so influential because it is taught by example. It is contagious – students “catch” the lessons of this tacit curriculum through immersion in the system. Because it is part of the unspoken culture of medical education, it is not subject to critical reflection but simply taken for granted. Therefore, it requires a concerted effort on many fronts to change. Curriculum reform typically ignores the hidden curriculum and, as a result, only minor change is accomplished.

Although not hidden, the income disparity among the medical disciplines exerts a powerful and often unspoken influence on career choice of students. Money represents prestige; because the income of generalists is, on average, significantly less than the income of specialists and subspecialists, generalists are often perceived to be less important and generalist careers less desirable. According to Schwartz et al, “The simplest reason for the impending shortage of generalist physicians is ‘It’s the economy, stupid.’”³⁴ They go on to argue that a multi-pronged approach is needed to attract more students into a generalist career including dramatically enhancing reimbursement and substantively increasing investment in primary care research. There has been less research funding available for family medicine and other generalist disciplines and less opportunity to develop research expertise in generalist fields. Because postgraduate training in family medicine, general internal medicine, general surgery and general pediatrics are relatively short, there is inadequate time for residents to learn research skills or to become involved in significant research activities.

Some underlying messages that are inferred in the teaching and learning environment include the notion that acute care is more important than preventive or chronic care; specialism is more important than generalism; and tertiary care is more important than primary or secondary care. Some would argue that the notion exists that generalists’ knowledge is superficial based on breadth of scope rather than depth. These undesirable lessons taught by the hidden curriculum deter students from choosing a generalist career and make it more likely that residents will choose to subspecialize

In addition to the lessons taught, other messages of the hidden curriculum are antithetical to a generalist approach to patient care that seeks to understand the whole illness experience of the patient and not just the biomedical abnormalities. The notion that biology trumps everything else can undermine generalism based on the thesis that medicine is merely applied biology. Additionally, behavioral issues are often believed to be just common sense, making it acceptable to ignore the sciences that explain behaviour. The humanities are perceived as something that is “nice to know” but can be ignored if time is needed to learn more important subjects. The notion that feelings are irrelevant in medical education reinforces the notion that it is dangerous to become too involved, too reflexive, or too introspective. Being able to recite the latest facts is more valued than a deep understanding of concepts fostering the preconceived idea that factual knowledge is more important than attitudes or skills and that feelings are irrelevant in medical education.

As residents learn the lessons of the hidden curriculum they pass them on to students in the clerkship. Residents are important role models for clerks and may pass on negative images of primary care and generalism in their comments about the quality of care provided at “Elsewhere General Hospital.”³⁵ Residents-as-teachers workshops could include instruction on the hidden curriculum and the importance of showing respect for colleagues in the community. Professional development activities for faculty and academic half-days for residents could include education about the potential negative influences of the hidden curriculum on career choice and interprofessional collaboration.

The Importance of a Foundation in Generalism vs. Streaming – for all Physicians

The structure of postgraduate training in Canada has been the subject of extensive discussion. Topics such as the value of a general internship year, the number of entry points into PGY1 residency and the flexibility to move between programs have been the subject of extensive scrutiny. A number of reports have examined this area and, in particular, the structure of the PGY1 year, including the Cox report of the Canadian Medical Association (CMA) in 1986, the RCPSC Maudsley report in 1996, the Langer report in 1998, the CMA conference on flexibility of career choice in 1997, and the RCPSC medical stream model proposal in 2002.³⁶⁻⁴⁰ These reports made a number of recommendations on the structure of residency training, many of them attempting to facilitate generalist training and flexibility in career choice, but none resulted in significant changes.

In 2009, “Directions for Residency Education, 2009: A Final Report of the Core Competency Project” was published. This report, developed through a collaboration of the RCPSC and the CFPC, included an extensive systematic review of the published literature as well as extensive consultations with stakeholder groups. The report found a high degree of support for the current structure of the Canadian PGME system and did not recommend re-introduction of a common PGY1 year (rotating internship) or reduction in the number of routes on entry into residency. However, it did suggest improved support for medical students in making career choices, including encouraging a breadth of experience early in training and mechanisms to facilitate switching between programs and re-entry into training after completion of residency. The report urged that “All specialists, regardless of their discipline, require a common foundation of knowledge, skills, and attitudes. This foundation, established during undergraduate medical education, must be maintained and enhanced during the postgraduate period and throughout the professional career of the physician.”⁴¹

Specialist-generalist Communication and Teamwork

“Good relations among physicians are essential for good patient care.”⁴² Preparation for intraprofessional and interprofessional collaboration and teamwork should begin in medical school and continue throughout postgraduate education in all RCPSC and CFPC programs. Practical activities that could enhance specialist-generalist communication include clinical teacher’s role modeling of exemplary teamwork within and across disciplines. Electronic medical record (EMR) systems could facilitate timely transfer of clinical notes at the time of referral and following referral. Postgraduate programs could increase the amount and quality of teaching about writing requests for referral and preparing consultation notes. Additionally, referring physicians could be included in the discharge planning of patients, which would increase communication while also enhancing patient centered-care. Elective experiences could be created to increase the opportunities for residents from generalist and specialist programs to learn together, thus increasing their understanding and respect for each others’ roles. Finally, curriculum changes could be implemented, which might include common educational experiences such as academic half-days directed towards both specialist and generalist residents.

Roles of the RCPSC and the CFPC in promoting generalism

In 1996, the CFPC and the RCPSC convened a two-day colloquium to discuss issues surrounding relationships between family physicians and other specialists “with the goal of improving working and learning relationships to enhance patient care, and patient and physician satisfaction.”

Recommendations relevant to generalism included the following:

“The CFPC and the RCPSC work conjointly to develop common accreditation standards for postgraduate education governing the professional relationships between family physicians and other specialists. Among other aspects this should include the referral/consultation process;

The CFPC, the RCPSC, and other key stakeholders, in association with regulatory authorities, advocate for the evaluation of intraprofessional relationships, including the referral / consultation process, as an important part of peer review programs;

The CFPC and the RCPSC support and encourage further research in the area of intra-professional relationships between family physicians and other specialists;

- The CFPC and the RCPSC promote the acceleration of the adoption of electronic information, e.g. EMRs, to facilitate communication between family physicians and consultants, with the appropriate protections for privacy.”⁴³

CanMEDS and CanMEDS-FM

The CanMEDS Framework, also known as the Canadian Medical Education Directives for Specialists, was adopted by the RCPSC in 1996. The CanMEDS Framework is defined by a series of competencies organized around seven key physician roles including Medical Expert, Communicator, Collaborator, Health Advocate, Manager, Scholar and Professional. Since the adoption of the CanMEDS Framework, specialty programs across the country have begun incorporating the CanMEDS roles into their curriculum, teaching, learning and assessment. This has been integrated into the curriculum of both specialist and family medicine programs in a variety of ways. CanMEDS is seen as a method of ensuring that comprehensive patient care is a top priority for all postgraduate medical trainees and physicians. The CanMEDS Project redefined medical competence – no longer is it sufficient for physicians to be only biomedical experts. They are expected to be skilled in all seven physician roles. In this sense, the CanMEDS project expects all physicians to have a foundation of generalist skills. As we move forward, the CanMEDS competencies have become an integral component for accreditation of postgraduate programs, further signifying a shift towards increased accountability, best practices and consistency in training across the country.⁴⁴

Recently, CanMEDS-FM has been created by the CFPC “to guide curriculum and to form the basis for the design and accreditation of residency programs. The ultimate goal is to improve patient care and to ensure that postgraduate training programs in family medicine are responsive to societal need.” (Working Group on Curriculum Review, 2009) After reviewing a number of other national competency-based frameworks, the Working Group chose the CanMEDS framework to harmonize “the definition of competencies between the RCPSC and CFPC...(to) promote clearer communication and goal-setting for those involved in curriculum planning and learner evaluation.” The structure consists of the same seven physician roles defined by the original CanMEDS framework: Family Medicine Expert (known as Medical Expert in the RCPSC framework) Communicator, Collaborator, Manager, Health Advocate, Scholar, and Professional. The most significant difference is in the description of the expert role, which was extensively revised to reflect the “key competencies required in the day-to-day practice of broad-based, comprehensive and continuing care in family medicine.”⁴⁵

The CFPC is committed to converting postgraduate education in family medicine to a competency-based model. This “Triple C” Competency-based curriculum consists of a **C**omprehensive curriculum focused on **C**ontinuity of care and of education and **C**entred in family medicine. Being centred in family medicine means that goals and objectives will be established

by family medicine and family physicians will be central role models. Training will be provided primarily in family medicine contexts and will result in new ways of collaborating with specialists. The structure of specialty rotations will likely change. In addition to the CanMEDS-FM document, the CFPC will use the new evaluation objectives in family medicine developed by the Working Group on the Certification Process.⁴⁶ A new Alignment Subcommittee will provide advice on integrating the reports of the Working Group on the Certification Process and the Working Group on Curriculum Review, while the Triple C Curriculum Taskforce has a four-year mandate for implementation.

Summary

The need to advance generalism remains as acute now as it has ever been. Critical to this is the need for a widely accepted working definition of generalism that reflects not only a broad foundation of training, but more importantly an ongoing philosophy of care that is comprehensive, and integrative – working to reach across gaps in the health care system - and adaptive to the needs of local communities.

Generalism and specialization are often spoken of as opposing forces, but doing so is inaccurate and risks promoting the tension that contributes to the devaluation of generalist physicians. We require both expert subspecialized and expert generalist care. More importantly, we need subspecialists and generalists who respect each others' roles, understand the scope of each others' work and effectively collaborate with each other and with other health care providers. This integration and collaboration is essential for optimum patient outcomes. In order for this to occur, postgraduate programs must model effective communication and collaboration between generalist and specialist physicians caring for patients in common, especially at the time of admission to hospital and during discharge planning. Achieving this goal will require identifying and addressing elements of the hidden curriculum that devalue generalism.

Finally, if we are to be successful in encouraging young graduates to choose generalist practices and not unduly restrict their scope of practice, we must change how we design our residency programs. Residents must be exposed to generalist practitioners within their discipline, rather than simply moving from one highly subspecialized rotation to another. Furthermore, it is critical that our programs offer learning experiences outside of the large, urban tertiary and quaternary care facilities, to expose trainees to a variety of practice settings.

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Appendix 2: Annotated Bibliography:

Royal College of Physicians and Surgeons of Canada. Directions for residency education, 2009: A final report of the core competency project. *The Royal College of Family Physicians of Canada*. 2009. Ottawa. Available at <http://royalcollege.ca>

As part of the Core Competency Project requested by the Canadian Medical Forum, this final report by the Royal College Council address three key chronic problems in Canadian medical education. Specifically, the issues pertain to whether the PGME admissions process adequately prepares medical students for career decision making; if the PGME system provides sufficient flexibility between career disciplines for medical residents; and whether the educational outcomes from existing structures and processes effectively prepare physicians to respond to societal needs. The report reveals a way forward driven by literature, systematic, and qualitative reviews, as well as analyses and interviews with key stakeholders. The CCP draws on four principles of PGME education and maintains that medical education must: meet societal expectations through a system recognizing those health care requirements; work towards superior quality to ensure exceptional educational outcome for physicians; permit an effective transition from undergraduate training up until the focused scope of practice; and also encourage educational growth and lifelong learning after PGME.

Batalden P, Leach D, Swing S, Dreyfus H, Dreyfus S. General Competencies And Accreditation In Graduate Medical Education. *Health Affairs*. September 2002; 21(5): 103-111.

In this paper, Batalden et al., evaluate the six general competencies of graduate medical education (GME) brought forward by the Accreditation Council for Graduate Medical Education (ACGME). These recommendations were proposed subsequent to growing frustration regarding the professional development of physicians and the educational process; specifically, the lack of attention on educational outcomes and building community across specialties. Batalden et al., follow and observe this initiative's implementation process and its effect on medical education, physician preparedness and patient care; as well as its limitations. In summary, they also offer a model that described how accrediting agencies can be nurturing workforce developmental change.

Starfield B, Lemke KW, Bernhardt T, Foldes SS, Forrest CB, Weiner JP: Comorbidity: Implications for the importance of primary care in 'case' management. *Annals of Family Medicine*. 2003; 1:8-14

This paper attempts to reveal what types of health service nonelderly respondents typically seek when they claim a health comorbidity. Very little is currently known about the types of health service that is sought out and used by people with comorbidities. By using claims of nonelderly patients, Starfield et al., attempt to study variation in extent of co morbidity and resource utilization. Results seemed to vary with each diagnosis and the type of resource use depended on the degree of co morbidity rather than the diagnosis. The number of visits to primary care physicians for both the index condition and for co morbid conditions almost invariably exceeded the number of visits to specialists. These patterns differed only for uncommon conditions in which specialists played a greater role in the care of the condition, but not for comorbid conditions. Star field concludes that a strategy of single-disease management needs to be replaced by an approach based in primary care and oriented to the overall health care needs of patients. The burden is on primary care physicians to provide the majority of care, for both

targeted and general conditions. Starfield notes that there is an increasing need for coordination and collaboration between generalists and specialists.

Donohoe, MT. Comparing generalist and specialty care - discrepancies, deficiencies and excesses. *Arch Intern Med.* 1998 Aug 10-24; 158 (15):1596-608

This article reviews studies comparing the knowledge base of and quality of care provided by generalists and specialty care physicians. Evidence is strongest that the knowledge base and quality of care provided by specialists exceeds those of generalists for certain conditions such as myocardial infarction, depression, and acquired immunodeficiency syndrome. The differences, however, are not as striking or important to the health of the public at large as those deficiencies in disease management, preventive care, and health maintenance that are common to all physicians. Donohoe notes that an issue exists with specialists and their tendency to overuse diagnostic and therapeutic modalities which leads to increased costs with either no benefit or added risks to patients. Donohoe provides strategies and suggestions on how generalists and physicians can work more closely to develop a system that compliments patients centered care while also finding a collaborative balance between the two groups.

Appendix 3: Acknowledgements

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Appendix 4: AAMC Recommendations on the Generalist Physician

The AAMC
1) Should lead a nationwide effort to underscore the need for more generalist physicians
2) Spur the development of government policies designed to promote, encourage and reward generalist physicians
3) Continue to advocate for funding and expansion of teaching sites
Schools of Medicine
1) Should specify their institutional commitments to helping to correct the imbalance of generalist and non-generalist physicians
2) Should fund and create administrative units for generalist physicians
3) Should foster research opportunities for students who are interested in generalist medicine
4) All medical students should have meaningful curricular experience in generalist specialties
5) Should appoint faculty from generalist specialties
6) Students should have adequate opportunity to encounter role models among faculty in the generalist specialties
7) Should enable community-based generalist physicians to contribute to academic programs
8) Medical schools should adjust admission criteria to increase matriculation among those students genuinely interest in generalist disciplines
Postgraduate Medical Education
1) Residency programs for generalist physicians should be designed to ensure acquisition of knowledge, skills and attitudes required for practice.
2) Residency programs for generalist specialties should maintain current capacity for training residents while efforts to increase the attractiveness of these specialties are implemented
3) Mechanisms employed to finance direct costs for graduate medical education should not create barriers shifting the balance between generalist and non-generalist physicians
4) Certifying and accrediting bodies should strengthen the guidelines used to designate non specialists and subspecialists
Practice Environment
1) Third party payers should accelerate the transition to a resource based fee schedule and should adopt other reforms in physician payment designed to compensate generalist physicians more adequately
2) Third party payers should reduce unnecessary paperwork and the bureaucratic incursions on the physician-patient associated with contemporary medicine

Adapted from: Generalist Physician Task Force. *AAMC Policy on the Generalist Physician*. Acad Med. 1993 Jan;68 (1):1-6