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The CanMEDS initiative: implementing an outcomes-based framework of physician competencies

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Abstract

Background: Outcomes-based education in the health professions has emerged as a priority for curriculum planners striving to align with societal needs. However, many struggle with effective methods of implementing such an approach. In this narrative, we describe the lessons learned from the implementation of a national, needs-based, outcome-oriented, competency framework called the CanMEDS initiative of The Royal College of Physicians and Surgeons of Canada.

Methods: We developed a framework of physician competencies organized around seven physician "Roles": Medical Expert, Communicator, Collaborator, Manager, Health Advocate, Scholar, and Professional. A systematic implementation plan involved: the development of standards for curriculum and assessment, faculty development, educational research and resources, and outreach.

Lessons learned: Implementing this competency framework has resulted in successes, challenges, resistance to change, and a list of essential ingredients for outcomes-based medical education.

Conclusions: A multifaceted implementation strategy has enabled this large-scale curriculum change for outcomes-based education.

Introduction

The contemporary medical era has witnessed unprecedented calls for greater accountability in all aspects of the professions, and this has inspired the outcomes-based education movement in medical education. Gone is the time when medical education could be planned with a focus solely on the latest aspects of medical diagnosis and treatment. Increasingly, medicine is being asked to be responsive to societal needs and mindful of the outcomes of its educational enterprise. Medical educators now "begin with the end in mind" and focus on the competencies needed by graduates of medical education to meet the needs of those they serve, and effect the outcomes desired in health care. This shift has been variously dubbed needs-based (Habbick & Leader 1996), community-oriented (Hamad 1991), demand-side (Neufeld et al. 1993), competency-based (Long 2000), and outcomes-based (Harden 1999, 2002). It is also the basis for the Royal College of Physicians and Surgeons of Canada's CanMEDS initiative. Many such innovations in professional curricula fail to make a major impact, and a systematic implementation strategy is required (Christakis 1995). In this paper, we briefly describe the origins, rationale, design, and lessons learned in implementing this competency-based initiative nationally and internationally.

Practice points

- Competency frameworks are an effective method for achieving outcomes-based education.
- The CanMEDS initiative defined a framework of competencies designed to address the roles physicians have in meeting societal needs.
- Implementing CanMEDS required a multifaceted approach, including: standards, faculty development, research and development, and outreach.
- Culture change, support, and extensive faculty development are needed to successfully implement outcomes-based education.

Background: origins of CanMEDS

The Royal College of Physicians and Surgeons of Canada (RCPSC) is the independent certifying and accrediting body for specialty medicine in Canada (all disciplines except family medicine). The College is responsible for setting residency training, examination, and accreditation standards across the country (RCPSC 2007). The CanMEDS development story has been told in more detail elsewhere, but briefly its origins include recognition by Fellows and Royal College staff of major environmental forces, foundational work already underway and a commitment of resources to facilitate active stakeholder involvement in the development of the CanMEDS framework (Frank 2004). The impetus for the CanMEDS Project began as a groundswell across many areas of the College at the beginning of the 1990s. Given the rise in consumerism and calls for accountability and professionalism,

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there was great interest in the idea of "societal responsiveness" in medicine (White & Connelly 1992; Murray 1995). Education committees reported on evolving issues and trends in medical education. Fellows wrote to the Office of Fellowship Affairs to highlight their concerns with the new health care environment, and how best physicians could be prepared for it. They identified such forces as patient consumerism, government regulatory encroachment, financial imperatives, medical information on the internet, litigation, technology, and the explosion in medical knowledge. In this, the Fellowship reflected the concerns of contemporary medical literature (Curry & Wergin 1993; Murray 1995; Severs & Crane 2000; Davies 2001; Kinzer 2001; Lewis 2001; Zelenock & Zambricki 2001; Lanier et al. 2003). CanMEDS borrowed personnel and research on societal needs and expectations from the groundbreaking Educating Future Physicians for Ontario Project (Neufeld, et al. 1998). Working groups developed a framework of "key competencies" for all physicians, organized around seven "Physician Roles": Medical Expert, Communicator, Collaborator, Health Advocate, Manager, Scholar, and Professional. This framework was initially adopted as a foundational document for all standards by the RCPSC in 1996, and was revised, updated and re-adopted in 2005 (Frank & Langer 2003; The CanMEDS Physician Competency Framework 2007). Fundamentally, the CanMEDS competency framework is outcomes-oriented: it is focused on the abilities needed by all physicians to meet the health care needs of the patients, communities, and societies they serve. An overview of the CanMEDS 2005 physician competency framework is displayed in Table 1 (Frank 2005).

Implementing the competency framework

Implementing a competency framework on a national scale

A multifaceted implementation strategy for the CanMEDS approach to outcomes-based education began in earnest in 1996 (Frank & Mikhael 2005). The strategy was built on implementation research and theory, including the works of Rogers (1995), Grol & Grimshaw (2003), and others (Dunphy & Stace 1993; Moulding et al. 1999; David & Greer 2001; Berwick 2003; Minich 2003; Kochevar & Yano 2006). The strategies used are listed in Table 2. These were in four main domains: standards, faculty development, research and development resources, and outreach.

(A) Standards for curriculum, teaching, and assessment. In Canada, the RCPSC has the responsibility to set educational standards for residency education objectives, program accreditation, resident assessment, certification exams, and maintenance of competence. All of these were reworked to incorporate the CanMEDS. competencies as the foundation. The Royal College required and supported the specialty committees for all 62 disciplines to rewrite their training standards based on CanMEDS These are available on the College's website (RCPSC 2007). National residency accreditation standards were modified to assure that CanMEDS competencies were incorporated into objectives of training, teaching and resident assessment activities. An ongoing system of peer-review site visits monitors this requirement. Programs (approximately 700 in total) were given support to develop teaching and assessment capacities for the CanMEDS competencies, and were rated on their ability to do so, a powerful driver of implementation. Each RCPSC examination board used the CanMEDS domains to create assessment blueprints to guide item development. CanMEDS also became a component of the College's Maintenance of Competence program (RCPSC 2007). Through incorporation into standards, the College ensured that CanMEDS became an essential ingredient in residency education and continuing professional development in the country.

(B) Faculty development for CanMEDS. Early on, it became apparent that robust faculty development was essential to ensure genuine uptake of the CanMEDS approach in teaching, learning, and assessment in daily residency education. While the vast majority of academic instructors were competent in the domains identified by CanMEDS, many requested support to enhance their abilities to teach and evaluate the competencies in medical learners. Since 2001, the Royal College Office of Education provided on-site CanMEDS workshops-on-demand for universities, hospitals, departments, and groups of faculty. To date, this program has delivered more than 300 sessions that have clarified, operationalized, and developed skills for CanMEDS. In 2007, the College also launched a new program for faculty development: a national "CanMEDS Train-the-trainer" workshop series to develop leaders with expertise in each CanMEDS Role for each of the 17 medical schools in Canada (Sherbino et al. 2007). These Train the Trainer programs were developed and delivered by faculty who are recognized experts in the specific domain, thus assuring high quality and credibility. To enhance capacity to support faculty development overall, the College created new positions for "CanMEDS clinician-educators".

(C) Research and development resources. CanMEDS stakeholders requested resources to support further implementation. The College responded by creating three research and development grants to support scholarship related to CanMEDS implementation (RCPSC 2007). RCPSC educators have presented numerous abstracts on CanMEDS scholarship. In addition, the CanMEDS team began a series of publications and resources to support the work of medical educators. The College publications include ones on the physician competency framework (Frank 2005), and assessment tools for CanMEDS (Bandiera et al. 2006), with several others in development. Furthermore, when Canadian educators came forward to describe their many unpublished innovations, a "CanMEDS Best Practices" online program was created to capture and disseminate this grey literature (RCPSC 2007). The CanMEDS website itself is also a repository of resources of all kinds (RCPSC 2007).

Table 1. The RCPSC CanMEDS 2005 physician competency framework.

The Royal College of Physicians and Surgeons of Canada
Le Collège royal des médecins et chirurgiens du Canada

CanMEDS 2005 Framework

MEDICAL EXPERT

Definition: As *Medical Experts*, physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centered care. *Medical Expert* is the central physician Role in the CanMEDS framework.

Key Competencies: *Physicians are able to . . .*

1. Function effectively as consultants, integrating all of the CanMEDS Roles to provide optimal, ethical and patient-centered medical care;
2. Establish and maintain clinical knowledge, skills and attitudes appropriate to their practice;
3. Perform a complete and appropriate assessment of a patient;
4. Use preventive and therapeutic interventions effectively;
5. Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic;
6. Seek appropriate consultation from other health professionals, recognizing the limits of their expertise.

COMMUNICATOR

Definition: As *Communicators*, physicians effectively facilitate the doctor-patient relationship and the dynamic exchanges that occur before, during, and after the medical encounter.

Key Competencies: *Physicians are able to . . .*

1. Develop rapport, trust and ethical therapeutic relationships with patients and families;
2. Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals;
3. Accurately convey relevant information and explanations to patients and families, colleagues and other professionals;
4. Develop a common understanding on issues, problems and plans with patients and families, colleagues and other professionals to develop a shared plan of care;
5. Convey effective oral and written information about a medical encounter.

COLLABORATOR

Definition: As *Collaborators*, physicians effectively work within a healthcare team to achieve optimal patient care.

Key Competencies: *Physicians are able to . . .*

1. Participate effectively and appropriately in an interprofessional healthcare team;
2. Effectively work with other health professionals to prevent, negotiate, and resolve interprofessional conflict.

MANAGER

Definition: As *Managers*, physicians are integral participants in healthcare organizations, organizing sustainable practices, making decisions about allocating resources, and contributing to the effectiveness of the healthcare system.

Key Competencies: *Physicians are able to . . .*

1. Participate in activities that contribute to the effectiveness of their healthcare organizations and systems;
2. Manage their practice and career effectively;
3. Allocate finite healthcare resources appropriately;
4. Serve in administration and leadership roles, as appropriate.

HEALTH ADVOCATE

Definition: As *Health Advocates*, physicians responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations.

(*continued*)

Table 1. Continued.

The Royal College of Physicians and Surgeons of Canada
Le Collège royal des médecins et chirurgiens du Canada

CanMEDS 2005 Framework

Key Competencies: *Physicians are able to . . .*

1. Respond to individual patient health needs and issues as part of patient care;
2. Respond to the health needs of the communities that they serve;
3. Identify the determinants of health of the populations that they serve;
4. Promote the health of individual patients, communities and populations.

SCHOLAR

Definition: As *Scholars*, physicians demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application and translation of medical knowledge.

Key Competencies: *Physicians are able to . . .*

1. Maintain and enhance professional activities through ongoing learning;
2. Critically evaluate information and its sources, and apply this appropriately to practice decisions;
3. Facilitate the learning of patients, families, students, residents, other health professionals, the public, and others, as appropriate;
4. Contribute to the creation, dissemination, application, and translation of new medical knowledge and practices.

PROFESSIONAL

Definition: As *Professionals*, physicians are committed to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour.

Key Competencies: *Physicians are able to . . .*

1. Demonstrate a commitment to their patients, profession, and society through ethical practice;
2. Demonstrate a commitment to their patients, profession, and society through participation in profession-led regulation;
3. Demonstrate a commitment to physician health and sustainable practice.

Source: Frank, JR. (Ed.) 2005. The CanMEDS 2005 physician competency framework. Ottawa: The Royal College of Physicians and Surgeons of Canada.

(D) Outreach and communications. Social marketing approaches to implementing change describe the necessity of having an effective communications plan to reach stakeholders (Grier & Bryant 2005). CanMEDS was therefore carefully disseminated as an incremental change to advance patient care. CanMEDS articles appeared in newsletters from the Royal College as well as sister organizations and in other communication vehicles. The Royal College ensured the ongoing support and development of CanMEDS "champions" and opinion leaders in medicine. Interest in speakers on CanMEDS topics lead to the development of a list of CanMEDS spokespersons.

All of these elements were essential ingredients in supporting adoption and dissemination of the CanMEDS initiative.

Implementing CanMEDS globally: partnerships and collaborations

The Royal College has found it enriching to openly share CanMEDS intellectual property worldwide. Conversations with members of such organizations as the Accreditation Council for Graduate Medical Education (ACGME) in the US, the Australian Medical Council, the Royal College of Surgeons of England, the Central College of Medical Specialists of the Netherlands, and others have led to synergistic collaborations. The results of some of these interactions appear elsewhere in this issue. Other professions, including nurses, chiropractors, physician assistants, pharmacists, and veterinarians, have adopted CanMEDS in jurisdictions around the world.

Table 2. CanMEDS implementation strategies.

A. Standards for Curriculum, Teaching, and Assessment:
1. CanMEDS standards: objectives of training for all specialties
2. CanMEDS standards: accreditation standards for all programs recognized by the RCPSC, including curriculum content and assessment approaches
3. CanMEDS blueprints for certification examinations
4. Incorporation of CanMEDS into the RCPSC Maintenance of Competence program
B. Faculty Development for CanMEDS
5. Faculty development: traveling CanMEDS workshops-on-demand
6. Faculty development: development of a national ''CanMEDS Train-the-trainer'' workshop series
7. Recruitment of CanMEDS clinician-educators at the College and at Universities
C. Research and Development Resources
8. Publication of CanMEDS resources (e.g. CanMEDS Framework, CanMEDS Assessment Tools Handbook)
9. CanMEDS Best Practices
10. CanMEDS website
11. Presentation of CanMEDS scholarship
12. CanMEDS-oriented research and faculty development grants
D. Outreach and Communications
13. Support and development of CanMEDS ''champions''
14. Provision of CanMEDS spokespersons
15. CanMEDS communications strategy
16. CanMEDS newsletters
17. Collaborative partnerships

Lessons learned

Implementing outcomes-based education with CanMEDS

(A) CanMEDS successes. The CanMEDS competencies have successfully become part of the fabric of Canadian medical education at all levels. For the Royal College, standards and faculty development have ensured that residency programs have incorporated CanMEDS into the regular curriculum of residents. Perhaps most importantly, most Canadian faculty have accepted the ideas fundamental to CanMEDS: namely that medical education must be multidimensional, and impart competence beyond Medical Expert to effectively be responsive to society. CanMEDS innovations, best practices, and scholarship continue to grow. A new generation of medical education leaders has taken up the next phase of CanMEDS dissemination.

(B) CanMEDS challenges. As in any change in medical education, large or small, there are always challenges. CanMEDS began its implementation at a time when Canadian medical education was contracting, and faculty development programs were shrinking. The RCPSC had to secure adequate resources and personnel to support the work of CanMEDS initiative Investment in medical educators, faculty development and a publishing enterprise was essential. The Royal College continues to receive inquires about the outcomes of the initiative, and new program evaluation capacities are still in development to address these challenges.

(C) Resistance to change. We have found that resistance to change for CanMEDS has revolved around five themes.

(1) Late adopters. Some of those who have not embraced the new standards have simply expressed disinterest with any change in medical education.
(2) Do no harm/"Show me the money". Another population has expressed concern that changes in medical education follow fads, and may cause harm to the system (Del Bigio 2007) This group has called for more evidence to justify the need for such elements as communication skills in medical education, etc.
(3) Faculty overload. In the current era of a shortage of health professionals, tight budgets, and rising accountability, the Royal College has encountered medical teachers who have accepted CanMEDS, but feel too overwhelmed or intellectually exhausted to implement anything different.
(4) Resources. Some stakeholders have decried the potential financial costs to imparting competence beyond Medical Expert.
(5) Service. More than a few clinical teachers have worried that CanMEDS-based education would negatively impact on trainees' time to see patients and do the work of health care.

(D) Essential ingredients for outcomes-based education. After 11 years implementing CanMEDS, the Royal College has identified some essential elements to successfully implementing outcomes-based education on such a large scale. These include:

(1) Change management. Any change in curriculum or process in medical education requires effective, systematic, and deliberate change management strategies a priori.
(2) Mindfulness of medicine's culture. Outcomes-based education is nothing short of a paradigm shift for 21st century medicine. Those who are its stewards must be patient and mindful of the magnitude of the change, as subtle as it sometimes appears.
(3) Faculty development. Supporting front-line teachers as well as researchers and educational leaders is absolutely critical.

(4) Educational resources. Stakeholders have been very clear that they have an enormous appetite for practical, concrete resources to assist them in adopting and adapting CanMEDS, and have responded enthusiastically to the CanMEDS publications.

Conclusions

The RCPSC CanMEDS initiative has employed a large-scale competency-based curriculum change to achieve outcomes-oriented education. Using a multifaceted implementation strategy, CanMEDS has been disseminated widely. Nearly two decades after its inception, CanMEDS is widely adopted in Canada, and has been adapted around the world. CanMEDS is a recent chapter in the long story of the evolution of competency based education. It built upon the visionary work of others, including the Educating Future Physicians for Ontario Project, and was nurtured by the dedication and talent of all those who have contributed to its legacy.

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