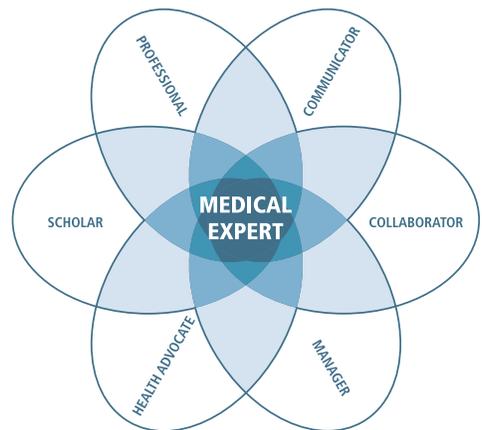

The CanMEDS 2015

Patient Safety and Quality Improvement Expert Working Group Report

Chair
Brian M Wong



**Competence
by Design**

CanMEDS 2015

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The CanMEDS 2015 Patient Safety and Quality Improvement Expert Working Group Report

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CanMEDS 2015

PATIENT SAFETY AND QUALITY IMPROVEMENT

The CanMEDS 2015 Expert Working Groups

Since its origins in the 1990s, the CanMEDS Project has been a grand collaborative effort of hundreds if not thousands of educators, Royal College Fellows, family physicians, and other experts. Its development has involved countless hours devoted to literature reviews, stakeholder surveys, focus groups, interviews, consultations, consensus-building, debate, and educational design. As a result, CanMEDS has been heralded worldwide for its utility as a framework to anchor physician competence in the service of patients.

In early 2013, the Royal College, along with key partners, assembled a series of [Expert Working Groups](#) (EWGs) organized around the seven core CanMEDS domains. In addition, two EWGs were organized to examine cross-cutting concepts in Patient Safety and Quality Improvement (PS/QI) and in eHealth. As of January 2014, more than 100 people were involved in updating one or more CanMEDS 2015 subdomains. Each EWG is composed of medical educators and practising physicians from a range of specialties and locations. All participants have contributed their expertise to develop a first draft of the revised framework. Their role is to:

Patient Safety and Quality Improvement Expert Working Group

Chair: Brian M Wong

Core members: Stacy Ackroyd-Stolarz, Meri Bukowskyj, Lisa Calder, Amir Ginzburg, Sherissa Micros, Antonia Stang, Gordon Wallace

Advisory members: Ward Flemons, Abigail Hain, Karen Hall Barber, Amy Nakajima, Kaveh Shojania, Roger Wong, Philip Ellison

- review the CanMEDS 2005 Framework to identify potential concepts requiring clarification or modification, as well as any gaps or redundancies in the existing CanMEDS competencies
- incorporate new themes such as patient safety and intraprofessionalism into the framework
- ensure that the framework is practical and useful for education across the continuum

This report is meant to complement the current working draft of the CanMEDS 2015 Framework—the [Series I draft](#)—and to provide information and context for readers who may wish to delve into the rationale and work of the PS/QI EWG. The report is organized into two sections. The first section summarizes our methods and principles. The second section contains notes and suggested entry-to-practice competencies for each of the seven CanMEDS Roles.

The PS/QI review: objectives, principles, and methods

The CanMEDS 2015 PS/QI EWG members adopted the following principles as foundational to their work:

- The process is one of revision and renewal: improvement, not reinvention, is the goal.
- The primary target audience is the users of the framework: trainees, front-line teachers, program directors, and Clinician Educators who design programs.
- The constructs of CanMEDS Framework need to be grounded in theory and best practices, while their presentation should be practical and related to the daily practice of any physician.
- Generic competencies related to PS/QI should be articulated for all specialties.
- Concepts that are relevant to multiple Roles should be articulated in the Role where they are the most

prominent. Although redundancy and overlap are accepted, and even expected, in practice, the framework itself should avoid repetition while ensuring the appropriate integration of Roles.

Our report was developed by means of the following activities and approaches:

- a review of recent literature (2005–2013)
- a review of the “[Emerging Concepts](#)” consultation document
- recruitment of working-group members that represent an interdisciplinary group of PS/QI leaders and educators from across Canada, from a broad spectrum of practice backgrounds and geographic regions. Many participated in the design and delivery of the Advancing Safety for Patients in Residency Education (ASPIRE) train-the-trainer faculty development program.
- specific recruitment of participants (learners and faculty) as ePanel members, to achieve further breadth in consultation
- review of [formal stakeholder consultation](#) (including the CanMEDS 2013 survey and the ICRE 2013 Town Hall)

The core members of the PS/QI EWG are each representatives on one of the CanMEDS Roles 2015 EWGs, and act as advisors on their assigned EWG. After convening our initial teleconference to set the stage, we tasked each of the core members with considering the original CanMEDS 2005 Physician Competency Framework and answering the following questions:

- Which of the existing competencies already reflect core patient safety or quality improvement competencies and require little or no modification?
- Which of the existing competencies speak to a core patient safety or quality improvement competency, but require significant modification in its wording to place greater emphasis on patient safety and/or quality improvement?
- What core patient safety or quality improvement competencies are not currently included?

This report summarizes the Patient Safety and Quality Improvement Expert Working Group (PS/QI EWG) recommendations for the integration of core patient safety and quality improvement concepts into the seven CanMEDS Roles. Our intention was to provide CanMEDS EWG chairs with both a high-level overview to provide context for our recommendations, as well as specific suggestions that pertain to their respective CanMEDS Roles. This report represents our recommendations as of December 2013.

Key guiding documents

- ACGME Outcome Project, Competency descriptions. Accreditation Council for Graduate Medical Education. Available at: www.acgme.org/outcome/comp/GeneralCompetenciesStandards21307.pdf.
- Frank JR, Brien S, eds., on behalf of The Safety Competencies Steering Committee. *The safety competencies: enhancing patient safety across the health professions*. Ottawa: Canadian Patient Safety Institute; 2008.
- National Steering Committee on Resident Duty Hours. *Fatigue, risk and excellence: towards a pan-Canadian consensus on resident duty hours*. Ottawa: Royal College of Physicians and Surgeons of Canada; 2013.
- US Institute of Medicine. *Crossing the quality chasm: a new health system for the 21st century*. Washington (DC): National Academies Press; 2001.
- US Institute of Medicine. *Resident Duty Hours: Enhancing Sleep, Supervision, and Safety*. Washington (DC): National Academies Press; 2009.

Recommended competencies for the CanMEDS Roles

PS/QI: background and key definitions

For the purposes of establishing the physician competencies that relate to patient safety and quality improvement, we must first clearly define what is meant by these terms and how they were applied to guide the PS/QI EWG's work.

In 2001 the US Institute of Medicine published *Crossing the Quality Chasm*,¹ which identified the six attributes of quality in health care: safe, timely, effective, efficient, equitable, and patient-centred. Patient safety—"freedom from harm related to health care"—has received sufficient attention, such that it is often considered separately, as a concept interrelated with quality. Thus, health care quality and patient safety are desired states or the outcomes that we strive to achieve.

However, patient safety and quality improvement can also be viewed as *processes*. For example, the Canadian Patient Safety Institute (CPSI) defines patient safety as "the pursuit of the reduction and mitigation of unsafe acts within the health care system."² Batalden and Davidoff define quality improvement (i.e., the process by which we achieve optimal quality) as "the systematic approach to making changes involving rapid cycles of change that lead to better patient outcomes and stronger system performance."³ In other words, both patient safety and quality improvement are about identifying opportunities for improvement, prioritizing these opportunities, and developing plans to introduce interventions that will improve the current state.

Importantly, we distinguish *quality improvement* from *quality assurance*: the latter is a process that determines a "pass/fail" assessment of compliance against a minimum standard (e.g., hospital accreditation) rather than measuring where you are and figuring out ways to make things better. The 2005 CanMEDS Framework refers to quality improvement and quality assurance interchangeably; we recommend that the term "assurance" be abandoned in the 2015 Framework and that only the term "quality improvement" be used instead.

For the purpose of making recommendations for updates to the CanMEDS Framework, the PS/QI EWG focused on identifying the key processes and practices that underlie the continuous improvement of health care quality and patient safety, and on defining the necessary physician competencies (i.e., knowledge, skills, and attitudes) that allow physicians to contribute to these processes and practices and incorporate continuous improvement principles into their day-to-day work.

PS/QI as a core competency

"Everyone in healthcare has two jobs when they come to work every day: to do their work and to improve it."
Batalden and Davidoff (2007)³

Active engagement in the continuous improvement of quality and safety is core to what it is to be a physician.⁴ This statement is grounded in the belief that physicians require both medical and "health-systems-improvement" knowledge to provide high-quality, safe, and patient-centred care. Thus, quality and patient safety should feature prominently within the Medical Expert Role.

In the 2005 iteration of the CanMEDS Framework,⁵ enabling competency 2.4 already highlights the importance of this knowledge of patient safety and quality: "Contribute to the enhancement of quality care and patient safety in their practice, integrating the available best evidence and best practices."

However, we recommend that the Medical Expert Role be expanded to include a key competency, with associated enabling competencies, dedicated solely to expertise in PS/QI (see Box 1 and Table 1). This would better reflect current thinking about the importance of physician engagement in the continuous improvement of health care quality and patient safety as a core activity.

It is important to distinguish the competencies listed under the Medical Expert role from those listed under the Manager Role. Although these competencies are related, we recommend that the PS/QI concepts within the Medical Expert Role focus on improving health care quality and patient safety at the level of the individual patient, whereas those concepts that focus on continuous improvement at the level of the system should reside within the Manager Role.

Box 1

Situating Patient Safety and Quality Improvement in the Medical Expert Role

Proposed key competency within the Medical Expert Role:

- Provide high-quality, safe care to patients as an individual and as a member of a team

Proposed enabling competencies:

- Recognize and respond to adverse events and near misses
- Seek opportunities to provide high-quality care
- Contribute to a culture that promotes the continuous improvement of health care quality and patient safety
- Describe how human and system factors influence decision-making and provision of patient care
- Engage patients and their families in the continuous improvement of health care quality and patient safety

PS/QI competencies within the Medical Expert Role

1. Recognizing and responding to adverse events and near misses. This enabling competency provides specificity to the knowledge and skills that physicians need when adverse events occur. Specific competencies to emphasize in the 2015 Framework include foundational knowledge of key patient safety terms and definitions (e.g., recognizing adverse events as harms related to health care and distinguishing them from the natural progression of disease) and managing adverse events and patient safety hazards as they arise in day-to-day patient care (e.g., recognizing unsafe situations, meeting

patients' and families' emotional needs, and mitigating harms that result from adverse events). The Manager Role will focus on competencies related to responding to adverse events, near misses, and patient safety hazards, particularly at a system level (e.g., incident reporting).

2. Seeking opportunities to provide high-quality care. This enabling competency provides specificity to the knowledge and skills that physicians need in order to seek out opportunities to provide high-quality care in their day-to-day clinical practices. Specific competencies include being able to describe the domains of health care quality¹ and apply them to identify gaps in care delivery; integrate quality improvement principles into daily clinical practice; and recognize and seek opportunities to improve quality on the basis of self-reflection and measured performance. The Manager Role will focus more on the application of quality improvement methodologies at the system level.

3. Contributing to a culture that promotes patient safety and quality improvement. An institutional culture conducive to safety and quality has been reported to be associated with improved patient safety.⁶ This pertains to the attitudinal competencies that physicians must demonstrate in order to promote a culture that supports PS/QI practices. Examples of such attitudes include adopting a fair and non-punitive approach to addressing patient safety problems and adverse events,⁷ promoting behaviours in others that contribute to improved health care quality and patient safety, and identifying patient safety and quality improvement as key professional values and essential components of daily practice.

4. Awareness of human and system factors. Physicians' performance, including their diagnostic decision-making, is heavily influenced by human factors (e.g., fatigue, stress, cognitive biases) and environmental factors (e.g., work interruptions, equipment, technology). To optimize their performance, physicians need to recognize these factors and employ strategies to mitigate their negative effects. Specific emphasis should be placed on clinical decision-making, including diagnostic reasoning. Although the 2005 Framework speaks to

this (particularly enabling competency 3.5), delay in diagnosis and diagnostic error are emerging topics in the patient safety literature,⁸ and the role of clinical decision-making, and in particular diagnostic reasoning,⁹ has garnered significant attention. Specific language should refer to the importance of recognizing the influence of cognitive and affective biases and, where appropriate, mitigating their negative impact on the diagnostic reasoning process.

5. Engaging patients and their families in the continuous improvement of health care quality and patient safety. It is important to highlight the appropriate inclusion of patients and their families* as partners in PS/QI processes, as this often leads to more successful recommendations and improvements.¹⁰ The concept of the “patient voice” and its role in contributing to daily PS/QI practices¹¹ is not sufficiently prominent in the 2005 CanMEDS Framework and should be emphasized in the 2015 revision.

6. Ensuring safety in diagnostic and therapeutic procedures. The 2005 Framework includes language that speaks to performing diagnostic (enabling competency 5.1) and therapeutic (enabling competency 5.2) procedures effectively, appropriately, and in a timely manner. However, it is critical that these procedures be performed safely as well, since procedural complications are an important cause of preventable adverse events.¹² Also, it would be important to consider how advances in procedural safety (e.g., simulation training,¹³ checklists,^{14,15} point-of-care ultrasound guidance,^{16,17} teamwork training, and fatigue management) might factor into the development of the accompanying milestones.

* Throughout the Series I draft of the CanMEDS 2015 Framework, the phrase “patient and their families” is intended to include all those who are personally significant to the patient and are concerned with his or her care, including, according to the patient’s circumstances, family members, partners, caregivers, legal guardians, and substitute decision-makers.

PS/QI competencies within the Intrinsic CanMEDS Roles: supporting the core

Establishing expertise in patient safety and quality improvement will require that physicians develop competencies situated in the six remaining Intrinsic CanMEDS Roles. These would ideally “feed into the core expertise” and, together with that core expertise, enable physicians to meaningfully improve health care quality and patient safety.

Mapping the key patient PS/QI domains to the Intrinsic Roles is not without its challenges. There is considerable overlap for a number of these domains. For example, disclosure of adverse events could be viewed as a competency within the Professional Role (as it was in the 2005 CanMEDS Framework), but there are also clear links to the Communicator and Health Advocate Roles.

To minimize redundancy, this report situates each of the key PS/QI domains primarily within one of the Intrinsic CanMEDS Roles (e.g., we recommend that disclosure of medical error be situated within the Communicator Role). To the best extent possible, we have aligned this categorization with the work of the CanMEDS EWGs. To acknowledge the overlap and provide specific examples for where they occur, we provide a matrix that maps PS/QI domains to the various CanMEDS Roles (see Table 2).

Communicator Role

1. Patient-centred communication. The 2005 CanMEDS Framework already highlights a number of elements related to patient-centred communication in key competency 4 within the Communicator Role. Specific competencies related to shared-decision making,¹⁸ informed consent,¹⁹ informed discharge²⁰ (including educating the patient to recognize the symptoms and signs that should alert them to seek further medical care), establishing and respecting cultural sensitivity/safety, and health literacy should be emphasized in the 2015 Framework within the Communicator Role.

2. Disclosure of adverse events to patients and families. In the 2005 Framework, both the Communicator and Professional Roles list adverse event disclosure to patients and families as one of the key elements, but neither includes specific language in either the key or the enabling competencies. Given the importance of increased transparency in health care delivery and the development of disclosure frameworks to guide the communication that should take place when adverse events occur,^{21,22} we recommend that the communication elements related to adverse event disclosure (e.g., discussing the facts, prevention of future events, apology) receive greater emphasis in the 2015 Framework within the Communicator Role.

3. Effective clinical documentation. Although the 2005 CanMEDS Framework includes a key competency related to conveying effective written information about a medical encounter, expectations and obligations regarding maintaining the confidentiality and privacy of patients' personal health information have increased since then. Thus, the 2015 Framework could emphasize specific patient safety elements related to clinical documentation, such as preparing comprehensive and timely discharge summaries, legibility, maintaining privacy and confidentiality, providing better clarity of responsibilities for ongoing care in the written consultative process, and proficiency in the use of electronic medical records.

Collaborator Role

1. Teamwork. Teamwork is already significantly represented in the 2005 Framework, and there have been noteworthy advances in recent years in our understanding of how the functioning of teams influences patient safety^{23,24} as well as significant work in the development of teamwork training programs that have the potential to decrease adverse events.²⁵ Although some elements from the 2005 Framework reflect these developments (see enabling competency 1.8), we recommend updating the language to integrate the following concepts

into the 2015 Framework: leadership, mutual support (e.g., graded assertiveness), situational awareness and monitoring (e.g., cross-monitoring, shared mental model), and communication across teams (e.g., call-outs, check-backs).²⁶

2. Working in teams to continuously improve health care quality and patient safety. Beyond developing competencies in teamwork skills as applied to the clinical setting, physicians need to work with other health care professionals when they engage in PS/QI activities.²⁷ Therefore, physicians need to engage others in contributing to health care system improvement at the level of both the larger system and of local practice, and to work collaboratively to continuously improve health care quality and patient safety.

3. Handover between providers on a health care team. In view of the reduction in resident duty hours and the resulting increase in shiftwork seen over the past decade,^{28,29} physicians need to develop competence in the handover process, which includes the transfer of necessary clinical information and of responsibility for patient care. Although this is a specific element of communication across teams, it is such an important emerging concept that we feel it warrants specific attention. Physicians should be able to utilize structured communication skills and employ strategies (e.g., effectively use written handover; verify roles and responsibilities; develop a shared understanding of the patient's condition, care plan, and anticipated problems and possible solutions) to reliably hand over patient care to colleagues.³⁰

4. Care transitions. Patients receive care in multiple care settings and under multiple providers, and the increasingly fragmented nature of our health care system potentially threatens the quality and safety of care provided to patients at points of transition (e.g., transfer from the emergency department to the hospital ward, discharge from the acute care setting to the ambulatory care setting).^{31–34} Physicians need to develop competencies in working effectively and collaboratively with other providers and with patients to maintain patient safety at these high-risk transition points. This concept did not exist in the 2005 CanMEDS Framework and has been added to

the draft 2015 Framework.

5. Consultations and referrals. Consultations and referrals are among the most common methods of collaboration between physicians. Poor collaboration between physicians related to the consultation and referral process can result in delayed diagnoses, unnecessary testing, provider frustration, and patient dissatisfaction, and can ultimately contribute to adverse events.^{35–37} Physicians need to establish effective and safe practices related to consultations and referrals. The 2005 Framework includes language related to consultations and referrals in the Medical Expert Role, but we recommend strengthening the elements related to carrying out this process safely and integrating some of the important patient safety concepts into the Collaborator role.

Scholar

Scholar—Lifelong Learning

1. Integrating continuous quality improvement with continuous professional development and lifelong learning. There is an emerging recognition that improvements in health outcomes for patients rely on both better professional development and better system performance.³ Physicians need to align their lifelong learning practices with continuous quality and patient safety improvement practices³⁸ (including the ongoing development of skills in quality improvement) in order to optimize outcomes for patients.

2. Using quality outcomes to guide development of personal learning plans. In developing their personal learning plans, physicians should ideally use quality outcomes for their “gap analyses” and “needs assessments.” One tangible skill listed as enabling competency 1.4 within the 2005 Scholar Role—“conduct a personal practice audit”—speaks to this, but greater specificity that will integrate the six aims of quality (i.e., safety, timeliness, effectiveness, efficiency, equity, and patient-centredness)¹ should be considered for the 2015 framework.

Scholar—Critical Appraisal

1. Critical appraisal of patient safety and quality improvement literature. Many general medical journals now publish research in PS/QI, and there are now journals dedicated specifically to publishing reports on patient safety and quality improvement initiatives. A recent *JAMA* “Users’ Guide to the Medical Literature” supports the critical appraisal of quality improvement literature.³⁹ The 2005 Framework includes clear language related to critical appraisal in general, and the 2015 version should make specific reference to the need for physicians to expand their critical appraisal skills to include the published PS/QI literature.

2. Knowledge translation. Although knowledge translation was already an established field in 2005, better knowledge translation practices have emerged recently to address the lack of uptake in health care of evidence-based practices published in the form of primary research and clinical practice guidelines. The 2005 Framework includes within the Scholar role enabling competency 2.3—“integrate critical appraisal conclusions into clinical care”—which should be expanded in the 2015 Framework to clearly indicate the need for physicians to be able to translate clinical evidence into practice. This competency, which speaks primarily to the “effectiveness” aim of quality, should be adapted to the local context using established knowledge translation frameworks (e.g., the knowledge-to-action cycle).⁴⁰

Scholar—Research

1. Recognizing quality improvement and patient safety as legitimate forms of scholarly activity. In addition to conducting research on PS/QI topics, a strong case can be made for considering PS/QI work within what Boyer defines as the scholarship of application (which involves the rigour and application of disciplinary expertise with results that can be shared and/or evaluated by peers).⁴¹ There is also a growing attention to the ethical aspects of quality improvement projects,⁴² and an increasing number of journals devoted to publishing PS/QI initiatives (including the development of

the Standards for Quality Improvement Reporting Excellence (SQUIRE) publication guidelines⁴³ to ensure methodological rigour). As a result, it will be important to be able to describe the scientific basis for quality improvement in health care and to discuss the contribution of innovative approaches to quality improvement and the generation of new knowledge.

Scholar—Teacher

1. Ensuring that patient safety is maintained throughout the learning experience, particularly in the context of clinical teaching.

Specific concepts that should be integrated into the 2015 Framework include safe clinical supervision practices (including how to appropriately delegate and supervise, instructing trainees to recognize their limits, and seeking greater supervision when appropriate), progressive independence, clinical autonomy, and role-modelling safe and respectful practices.

Professional

Professional—Physician Health

- 1. Fatigue management.** A considerable body of research has linked fatigue and sleep deprivation to poor physician performance of cognitive and technical skills and to potential adverse outcomes for patients.⁴⁴ Especially in light of the recent National Steering Committee pan-Canadian duty hour recommendations, physicians need to develop fatigue management strategies to ensure safe patient care.⁴⁵ A competency in fatigue management should be added to the 2015 Framework.
- 2. Coping with adverse events and outcomes.** This important topic is frequently overlooked, despite the fact that physicians involved in adverse events often themselves suffer negative emotional and health consequences. A growing body of literature

has highlighted the need for health care providers involved in adverse events to recognize the potential impact of these events on their own well-being,⁴⁶ to develop resilience, and to apply effective and constructive coping strategies to combat potentially long-standing negative effects (including increased risk of depression and substance abuse). These concepts do not exist in the 2005 CanMEDS framework and should be added to the 2015 Framework.

Professional—Professionalism

- 1. A commitment to continuously improve health care quality and patient safety.** Physicians need to champion and demonstrate commitment to active participation in initiatives aimed at improving health care quality and patient safety.⁴⁷ This commitment includes being receptive to and supportive of PS/QI initiatives, participating actively in systems-oriented quality improvement activities, and encouraging the sharing of lessons learned both within and among health care institutions. They must also role-model appropriate positive behaviours to address the hidden curriculum related to quality and patient safety. Enabling competency 1.2 in the 2005 Professional Role speaks generically to this need, but requires updating with specific language in the 2015 Framework.
- 2. Professional accountability to uphold patient safety.** In the 2005 Framework, enabling competency 3.3 states that physicians should “recognize other professionals in need and respond appropriately.” Also relevant, but not unique to patient safety, is the need for physicians to report unprofessional conduct by colleagues to the appropriate authority. Physicians may also have reporting obligations related to colleagues whose mental or physical health, conduct, or behaviour poses a risk to patients or the public, or raises reasonable concerns about their ability to practise. Explicit language should be included in the 2015 Framework, particularly given the link between unprofessional behaviours and poor patient outcomes described in the literature.^{48,49}

Health Advocate

1. Promoting health equity. This value relates to one of the six core aims of quality, which is to promote equity in health care.¹ Some of the language within the Health Advocate Role in the 2005 Framework, particularly key competency 3—“identify barriers to access to care and resources” and “identify vulnerable and marginalized populations”—speaks implicitly about the need to promote health equity. The 2015 Framework should include stronger language that specifically highlights the physician’s responsibility to advocate for equitable access to health care resources to serve all populations.

2. Advocating for continuous improvement of health care quality and patient safety. Many PS/QI efforts stall if they lack physician support and engagement. Thus, physician advocacy for systems-level changes to continuous improvement of health care quality and patient safety is critical. Enabling competency 4.6 within the 2005 version of the Health Advocate Role includes language that supports this notion: “Describe the role of the medical profession in advocating collectively for health and patient safety.” This language should be updated and modernized to more clearly state the importance of physician advocacy for patient safety and quality improvement.

Manager

1. Quality improvement methodologies. The 2005 Framework includes, as enabling competency 1.2, the physician’s ability to “participate in systemic quality process evaluation and improvement, such as patient safety initiatives.” This requires updating and should be expanded to include specific language about learning to use one or more of the quality improvement methodologies. Several approaches exist, such as the Model for Improvement (i.e., Plan-Do-Study-Act (PDSA) cycles)⁵⁰ or “lean methodologies.” Training and proficiency in these foundational methodologies is critical for active engagement in continuous quality improvement, and so the 2015 Framework should be updated with specific language to reflect this need.

2. Analyze and change the system in response to adverse events, near misses, and patient safety hazards. The 2005 Framework lists patient safety as a broad concept within the Manager and Health Advocate Roles, but does not specify how physicians should respond when adverse events occur. Specific emphases in the 2015 Framework within the Manager Role should include taking part in adverse event reporting as well as participating in the analysis of systems to understand and change underlying processes that potentially lead to adverse events and near misses.

3. The role of clinical informatics and health technology. Increasingly, clinical informatics and new technologies are being used as tools to improve health care quality and patient safety (e.g., computerized provider order entry systems, electronic medical records). Physicians need to recognize the potential advantages, limitations, and unintended consequences⁵¹ associated with the use of clinical informatics on patient safety and quality improvement. There is also a desire to manipulate electronic health records to extract useful performance data to support improvement efforts. Physicians must be able to identify individuals with clinical informatics expertise and engage them in their efforts to measure their system performance to support quality improvement efforts.

4. Resource stewardship. Increasing attention has been paid in recent years to costs, efficiency, appropriateness of care, and value. Most recently, the Choosing Wisely campaign in the United States⁵² (soon to come to Canada) highlighted the need for physicians to take an evidence-based approach and avoid unnecessary overuse of finite health care resources to ensure the sustainability of our health care system. The Manager Role’s key competency 3 speaks to this need in the 2005 Framework, and we recommend again emphasizing its importance in the 2015 revision. In particular, physicians need to be able to articulate the concept of value in health care, employ strategies to overcome personal and organization factors influencing resource overuse, and improve care delivery processes to support high-value care.

5. Engaging others in the process of continuous improvement of health care quality and patient safety, including though working in teams.

Beyond developing competencies in teamwork skills as applied to the clinical setting, physicians need to work with other health care professionals when they engage in quality improvement and patient safety activities.

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Table 1
Core Patient Safety and Quality Improvement competencies

Patient Safety/Quality Improvement competency	CanMEDS Role										
	Scholar					Professional					
	Medical Expert	Communicator	Collaborator	Lifelong Learning	Critical Appraisal (Information literacy)	Research	Teacher	Physician Health	Professionalism	Health Advocate	Manager
Contribute to a culture that promotes the continuous improvement of health care quality and patient safety	1							2	2	2	
Recognize and respond to patient safety hazards, near misses and adverse events	1							2	2		2
Seek opportunities to provide high-quality care	1			2				2	2		2
Describe how human and system factors influence decision-making and provision of patient care	1							2			2
Engage patients and families in continuous improvement of health care quality and patient safety	1	2									2
Technical procedural skill (both diagnostic and therapeutic) safety	1							2	2		

Note that the number 1 refers to the Role where we recommend that the patient safety/quality improvement competency primarily resides, and that 2 refers to the other roles that contribute to that patient safety/quality improvement competency. For example, disclosing adverse events should reside primarily in the Communicator Role, but overlaps with the Professional and Health Advocate Roles.

Table 2
Intrinsic Patient Safety and Quality Improvement competencies

	CanMEDS Competency										
	Medical Expert	Communicator	Collaborator	Lifelong Learning	Critical appraisal	Research	Teacher	Physician Health	Professionalism	Health Advocate	Manager
Patient Safety / Quality Improvement competency											
Patient-centred communication	1									2	
Disclosure of adverse events to patients and families	2	1							2	2	
Effective clinical documentation	1								2		2
Teamwork (mutual support, communication, leadership, situation monitoring)	2	1	1						2		
Working in teams to continuously improve quality and patient safety			1						2		
Handover (between within-team providers)		2	1						2		
Care transitions (patients moving across the system)	2	2	1								2
Consultations and referrals		2	1								
Integrating continuous quality improvement with continuous professional development / lifelong learning (including seeking ongoing opportunities to develop knowledge and skills in quality improvement and patient safety)				1							
Use of quality outcomes to guide development of personal learning plans				1							
Critical appraisal of patient safety and quality improvement literature	2				1	2					
Knowledge translation	2				1	2					
Recognizing quality improvement and patient safety as legitimate forms of scholarly activity					2	1					
Ensuring that patient safety is maintained throughout the learning experience (including safe clinical supervision)			2				1		2		
Fatigue management								1	2		
Coping with adverse events and outcomes								1			
Demonstrate a commitment to continuously improve health care quality and patient safety (including role modeling behaviours to address the hidden curriculum related to quality and patient safety)	2	2	2				2	2	1		2
Demonstrate professional accountability to uphold patient safety											
Promoting health equity										2	1
Advocating for continuous improvement of health care quality and patient safety	2								2	1	
Quality improvement methodologies	2										1
Respond to adverse events and patient safety hazards (informing, reporting, support to providers and patients, system analysis)	2								2		1
The role of clinical informatics and health technology											1
Resource stewardship	2									2	1

Note that the number 1 refers to the role where we recommend that the patient safety/quality improvement competency primarily reside, and that 2 refers to the other roles that contribute to that patient safety/quality improvement competency. For example, disclosing adverse events should reside primarily in the Communicator Role, but overlaps with the Professional and Health Advocate Roles.