Patient safety principles in family medicine residency accreditation standards and curriculum objectives

Implications for primary care

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Abstract

Objective To conduct a thematic analysis of the College of Family Physicians of Canada's (CFPC's) *Red Book* accreditation standards and the Triple C Competency-based Curriculum objectives with respect to patient safety principles.

Design Thematic content analysis of the CFPC's *Red Book* accreditation standards and the Triple C curriculum.

Setting Canada.

Main outcome measures Coding frequency of the patient safety principles (ie, patient engagement; respectful, transparent relationships; complex systems; a just and trusting culture; responsibility and accountability for actions; and continuous learning and improvement) found in the analyzed CFPC documents.

Results Within the analyzed CFPC documents, the most commonly found patient safety principle was patient engagement (n = 51 coding references); the least commonly found patient safety principles were a just and trusting culture (n = 5 coding references) and complex systems (n = 5 coding references). Other patient safety principles that were uncommon included responsibility and accountability for actions (n = 7 coding references) and continuous learning and improvement (n = 12 coding references).

Conclusion Explicit inclusion of patient safety content such as the use of patient safety principles is needed for residency training programs across Canada to ensure the full spectrum of care is addressed, from community-based care to acute hospital-based care. This will ensure a patient safety culture can be cultivated from residency and sustained into primary care practice.

EDITOR'S KEY POINTS

- Embedding patient safety content in residency program accreditation standards and curriculum objectives might help foster a patient safety culture within family resident training programs in Canada. The authors conducted a thematic analysis of Canadian accreditation standards to understand the degree to which patient safety principles are emphasized.
- Although there was an emphasis on patient engagement within the documents analyzed, other patient safety principles were not frequently found. The patient safety principles for which there was negligible content across all of the documents analyzed were complex systems, a just and trusting culture, and responsibility and accountability for actions, showing important gaps for training and practice.
- This study found that explicit patient safety content is missing from important curriculum objectives and accreditation standards. If residency programs follow only these objectives and standards, they might be working to minimal criteria for teaching patient safety to future family physicians.

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Les principes de la sécurité des patients dans les critères d'agrément et les objectifs du cursus des programmes de résidence en médecine familiale

Implications pour les soins primaires

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Résumé

Objectif Effectuer une analyse thématique des critères d'agrément dans le Livre rouge et des objectifs du cursus Triple C axé sur le développement des compétences du Collège des médecins de famille du Canada (CMFC) en ce qui a trait aux principes de la sécurité des patients.

Conception Analyse thématique des critères d'agrément dans le Livre rouge et du cursus Triple C.

Contexte Canada.

Principaux paramètres à l'étude La fréquence des codes attribués aux principes de la sécurité des patients (p. ex. engagement envers les patients, relations respectueuses et transparentes, complexité des systèmes, culture de justice et de confiance, responsabilité et imputabilité pour ses actes, apprentissage et amélioration continus) trouvés dans les documents du CMFC analysés.

Résultats Dans les documents du CMFC analysés, le principe de la sécurité des patients le plus souvent retrouvé était l'engagement envers les patients (n=51 références à ce code); les principes de la sécurité des patients les moins souvent repérés étaient une culture de la justice et de la confiance (n=5 références à ce code), et la complexité des systèmes (n=5 références à ce code). Parmi les autres principes de la sécurité des patients peu souvent trouvés figuraient la responsabilité et l'imputabilité pour ses actes (n=7 références à ce code), de même que l'apprentissage et l'amélioration continus (n=12 références à ce code).

Conclusion Il est nécessaire d'inclure explicitement un contenu concernant la sécurité des patients, comme l'utilisation des principes de la sécurité des patients, dans tous les programmes de formation postdoctorale au Canada pour faire en sorte que l'éventail complet des soins soit bien couvert, des soins communautaires aux soins aigus en milieu hospitalier. Une telle inclusion garantira qu'une culture de sécurité des patients sera alimentée durant la résidence et maintenue dans l'exercice des soins primaires.

POINTS DE REPÈRE DU RÉDACTEUR

- L'intégration d'un contenu concernant la sécurité des patients dans les critères d'agrément et les objectifs du cursus des programmes de résidence pourrait contribuer à inculquer une culture de la sécurité des patients dans la formation des résidents en médecine familiale au Canada. Les auteurs ont effectué une analyse thématique des normes canadiennes d'agrément pour comprendre la mesure dans laquelle les principes de la sécurité des patients sont mis en évidence.

- Même si les documents analysés insistaient sur l'engagement envers les patients, d'autres principes de la sécurité des patients ne s'y trouvaient pas souvent. Les principes de la sécurité des patients sur lesquels le contenu était négligeable dans tous les documents analysés étaient la complexité des systèmes, une culture de la justice et de la confiance, la responsabilité et l'imputabilité pour ses actes, révélant ainsi des lacunes importantes pour la formation et la pratique.

- Dans cette étude, les auteurs ont constaté qu'un contenu explicite sur la sécurité des patients est absent des objectifs importants du cursus et des critères d'agrément. Si les programmes de résidence s'en tiennent seulement à ces objectifs et critères, ils pourraient ne suivre que des normes minimales dans l'enseignement de la sécurité des patients aux futurs médecins de famille.

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Patient safety is an important issue in primary care.[1-6] Several studies have shown that adverse events occur in family practice.[6-9] To date, there have been no studies that show how many of these events are preventable. Practice organization, culture, diagnostic errors, and medication safety have been found to be important areas for further improvement.[4,10,11] Strategies for patient safety improvement in family practice might benefit from training and research on implementing evidence-based practice.[4] Patient engagement and prospective risk analysis have been shown to be beneficial to enhancing patient safety in primary care.[4,9,10] However, a considerable challenge in tackling patient safety issues in general practice is establishing a culture for patient safety.[11,12] A *culture for patient safety* can be defined as "the product of individual and group values, attitudes, competencies, and patterns of behavior which in turn, influence an organization's commitment to safety, as well as the style and proficiency of safety management."[11,13]

Developing a culture for patient safety in general practice could begin as early as medical school or family medicine residency if patient safety issues are taught and made explicit to trainees. Studies of patient safety training and assessment in family practice residents are scarce. Much of the literature surrounds specific patient safety studies in family practice such as those looking at diagnostic test errors or medication errors.[7,8,14] Studies specific to family medicine residents focus on resident working conditions that might affect patient safety such as duty hours[15] and patient handover.[16] A 2013 study describing a formal patient safety curriculum being developed and implemented into 3 family medicine residency training programs[17] explains that barriers to sustainability include faculty and resident commitment to the program and competing time demands. Embedding patient safety content in residency program accreditation and curriculum standards might therefore help foster a patient safety culture across family resident training programs in Canada.

An analysis of the current College of Family Physicians of Canada (CFPC) documentation on accreditation standards and required curriculum objectives with respect to patient safety is needed to determine where content exists and where gaps might lie. This would allow for accreditation to drive the development of standardized patient safety training in family medicine curricula across Canada, which is important because the accreditation body for other Canadian specialties (ie, the Royal College of Physicians and Surgeons of Canada [RCPSC]) has work under way addressing patient safety in its training standards, objectives, and curricula,[18] whereas the CFPC does not. While family physicians were involved with each of the RCPSC working groups and a family physician sat on the advisory committee for the patient safety group—suggesting that the CFPC is interested in this area of patient safety—it is necessary to look at the CFPC accreditation standards and curriculum objectives for family medicine as opposed to other specialties that are under the jurisdiction of the RCPSC. Other countries have adopted the competency framework of the RCPSC[19] and might adopt that of the CFPC as well; hence, this is not only important for Canada but also for other countries.

The purpose of this study was to identify patient safety content in the CFPC's *Red Book*[20] accreditation standards and the Triple C Competency-based Curriculum[21,22] objectives, as well as outline gaps that might benefit future curriculum development pertaining to patient safety in family medicine. Given that the *Red Book*[20] and the Triple C curriculum might influence the design of family medicine residency training programs across the country, they have implications for primary care because the residents learning from these materials will be the Canadian family physicians of the future.

Conceptualizing patient safety

There are various ways of conceptualizing patient safety; however, a distinction should be made between patient safety and quality improvement, as these terms might occur together. Patient safety does not equal quality improvement; rather it is a paradigm within quality improvement.[23,24] *Quality improvement* can be defined as systematic and continuous actions that lead to measurable improvement in health care; whereas *patient safety* can be defined as the prevention of errors and adverse events in patients associated with health care.[23,24] Patient safety therefore could occur through quality improvement. The Canadian Patient Safety Institute (CPSI)[25] has 6 main patient safety core competency domains; however, these are more amenable to acute hospital-based care as opposed to primary care. In 2009, the CPSI partnered with the British Columbia Patient Safety and Quality Council to commission a research report[26] on the current state of knowledge of patient safety in primary care to identify key issues for patient safety in primary care in Canada; however, this report does not provide patient safety principles as a guiding framework that would help residency programs and practising family physicians ensure they are practising safe care.

The Health Quality Council of Alberta (HQCA)[27] aims to promote and improve patient safety and health service quality at a provincial level in Canada. The HQCA's Healthcare Encounter Safety and Quality Model (HESQM) is a theory-based model that helps determine why failures of health care delivery occur. It was developed in response to the question, What do people need to understand and do to make health care safer?[27] The HESQM explains that both health care providers and patients are key players in the health care system and highlights 3 critical functions that take place in order to realize safer health care:

- designing health care delivery for optimal outcomes,
- delivering optimal care, and
- responding when health care delivery and outcomes are not optimal.

The HESQM highlights 6 fundamental principles that define the basic requirements for patient safety in relation to health care provision.[27] These 6 principles can be used as a starting point for applying patient safety in family medicine and making health care safer.

Patient engagement at all levels of health care provision. Family physicians must recognize that the provision of safe care in primary care must be patient-centred, and they must take into account patient values in the delivery of safe care. Family physicians are also encouraged to include patients in the decision-making processes that are related to safe care.

Respectful, transparent relationships between and among those who deliver and those who receive health care. To ensure safe care, family physicians need to recognize that they must have respectful and transparent relationships with their patients, as well as with other health care providers with whom they interact (eg, pharmacists, nurses, other specialists, and allied health care providers).

Recognition that health care providers work in a complex system to provide care. Family physicians must recognize that the care they deliver does not occur in isolation and that their dependency on and place in the greater health care system is vital for delivering safe care.

A just and trusting culture. A just and trusting a culture within the health care system and among health care providers is important. Family physicians must recognize that their practice environment should have an atmosphere of trust, where people are encouraged to provide safety-related information to ensure safe care. This would include effective reporting about safety issues.

Appropriate responsibility and accountability at all levels of a health care system. Family physicians must recognize that they are responsible and accountable for providing safe care. Additionally structures and processes that support safer care should be established.

Continuous learning and improvement. Continuous learning and improvement are required to maintain patient safety. Family physicians must recognize the importance of continuous monitoring of safety information for their practice that supports the delivery of safe care.

These 6 patient safety principles (ie, patient engagement; respectful, transparent relationships; complex systems; a just and trusting culture; responsibility and accountability of actions; and continuous learning and improvement) were used as a lens to explore the accreditation standards and curriculum objectives with respect to patient safety in the CFPC's *Red Book* and the Triple C curriculum, including its discussions on the 4 principles of family medicine and the CanMEDS–Family Medicine (CanMEDS-FM) framework, as well as its guide for translating the Triple C curriculum recommendations (**Table 1**).[20-22]

METHODS

Initial key word searches revealed little to no hits in the initial analysis of the CFPC documents, which would have led to biased results. As such, this study then applied thematic content analysis to the CFPC documents. Thematic content analysis is a process by which themes are identified across data sources[28] (ie, CFPC documents) that are important to the description of a phenomenon. In our study the phenomenon was the inclusion of patient safety content in national accreditation standards and curriculum objectives for family medicine residency programs. The CFPC documents that were examined for patient safety content are presented in **Table 1**.[20-22]

The documents used for analysis contained all of the main components of curriculum objectives and accreditation standards and were approved by key stakeholders. The stakeholders also approved the patient safety principles from the HQCA, which provided the themes for analysis. Stakeholder representatives were purposefully selected in an a priori manner to sit on an advisory committee for this study. The 3 members on the project advisory committee (N.S., M.H., M.O.) were from the following stakeholder organizations: the Office of Postgraduate Medical Education at the University of Calgary, the Department of Family Medicine at the University of Calgary, the HQCA, and the CPSI.

Both stakeholders from the Office of Postgraduate Medical Education and the Department of Family Medicine at the University of Calgary are practising family physicians and thus members of the CFPC (M.O. and M.T). There were 2 coders (A.K. and N.S.) who independently analyzed the *Red Book*[20] and the Triple C Competency-based Curriculum.[21] Text was analyzed and coded as constituting 1 or more of the 6 patient safety learning principles. After independent coding, both coders met and made comparisons by analyzing common coding decisions. Where discrepancies were detected, discussions took place at stakeholder meetings to clarify coding decisions until consensus was achieved. Stakeholder meetings were held throughout the project.

For thematic content analysis of the *Red Book,*[20] coding was categorized for the B1 to B6 standards and the standards for each of the 6 enhanced skills training programs (**Figure 1**).[20]

Table 1. Descriptions of the materials that were analyzed for patient safety principles

ANALYSIS COMPONENT	DESCRIPTION	WEB LINK	PAGES CODED FOR THEMATIC ANALYSIS USING HQCA PATIENT SAFETY PRINCIPLES
The Red Book[20]	This document outlines the standards used by the CFPC to accredit family medicine residency programs and enhanced skills residency programs. "The general standards for the accreditation of postgraduate training programs, commonly known as the *B standards*, define the standards common to all postgraduate training in Canada"[20]	**www.cfpc.ca/uploadedFiles/Red%20Book%20English.pdf**	p. 7-53
Triple C Competency-based Curriculum[21]	The Triple C curriculum implemented by the CFPC is a competency-based curriculum that is *comprehensive*, focused on *continuity* of education and patient care, and *centred* in family medicine (ie, the 3 *C*'s). This curriculum uses specific milestones to achieve explicit outcomes. It is still in its early stages of implementation	**www.cfpc.ca/uploadedFiles/Education/_PDFs/WGCR_TripleC_Report_English_Final_18Mar11.pdf**	p. 13-15
The 4 principles of family medicine[21]	In the mid-1980s, the CFPC embraced 4 principles of family medicine to provide guidance for family physicians, residency programs, and the CFPC when making educational policy decisions. The principles are as follows: the family physician is a skilled clinician, family medicine is community-based, the family physician is a resource to a defined practice population, and the doctor-patient relationship is central to the role of the family physician	**www.cfpc.ca/uploadedFiles/Education/_PDFs/WGCR_TripleC_Report_English_Final_18Mar11.pdf**	p. 94-95
CanMEDS-FM[21]	The Triple C curriculum includes the CFPC-approved CanMEDS-FM roles as the official competency framework. CanMEDS-FM is a modified version of the CanMEDS roles developed by the RCPSC and reflects family physicians' general competencies in their work with patients, families, other health professionals, and communities. The family medicine expert is expected to integrate all the intrinsic roles (nonmedical expert roles of CanMEDS-FM). Intrinsic roles include communicator, manager, health advocate, scholar, professional, and collaborator	**www.cfpc.ca/uploadedFiles/Education/_PDFs/WGCR_TripleC_Report_English_Final_18Mar11.pdf**	p. 65-86
A guide for translating the Triple C Competency-based recommendations into a residency curriculum[22]	Two reports have been released by the CFPC (2011[21] and 2013[22]); the latter report includes an implementation guide with key curriculum objectives, descriptions, and their relevance to the 3 *C*'s	**www.cfpc.ca/uploadedFiles/Education/_PDFs/TripleC_Report_pt2.pdf**	p. 65-75

CanMEDS-FM—CanMEDS–Family Medicine, CFPC—College of Family Physicians of Canada, HQCA—Health Quality Council of Alberta, RCPSC—Royal College of Physicians and Surgeons of Canada.

For thematic content analysis of the Triple C curriculum, coding took place for the CanMEDS-FM key and enabling competencies,[21] the 4 principles of family medicine descriptions,[21] and the Triple C curriculum guide,[22] which contained the key characteristics of the curriculum (the 3 *C*'s). **Figure 2** shows the categorization of the Triple C data sources.[21,22] The data sources were coded for multiple patient safety principles where applicable.

NVivo[28,29] qualitative software was used for thematic content analysis of the curriculum and standards in family medicine. Here are 2 coding examples of the materials analyzed.

For the *Red Book*'s B3 standard called *Learning Environment*, the following statement was coded by both coders as constituting the patient safety principles a just and trusting culture, and responsibility and accountability for actions: "An accessible and non-threatening mechanism must be in place to ensure that allegations of unprofessional behaviour hindering the learning environment can be investigated impartially."[20]

For the first of the 4 principles of family medicine (ie, the family physician is a skilled clinician) the following statement was coded by both coders as constituting the patient safety principle complex systems:

> Family physicians are skilled at dealing with ambiguity and uncertainty. The family physician will see

Figure 1. Categorization of the *Red Book*[20] accreditation standards for thematic content analysis

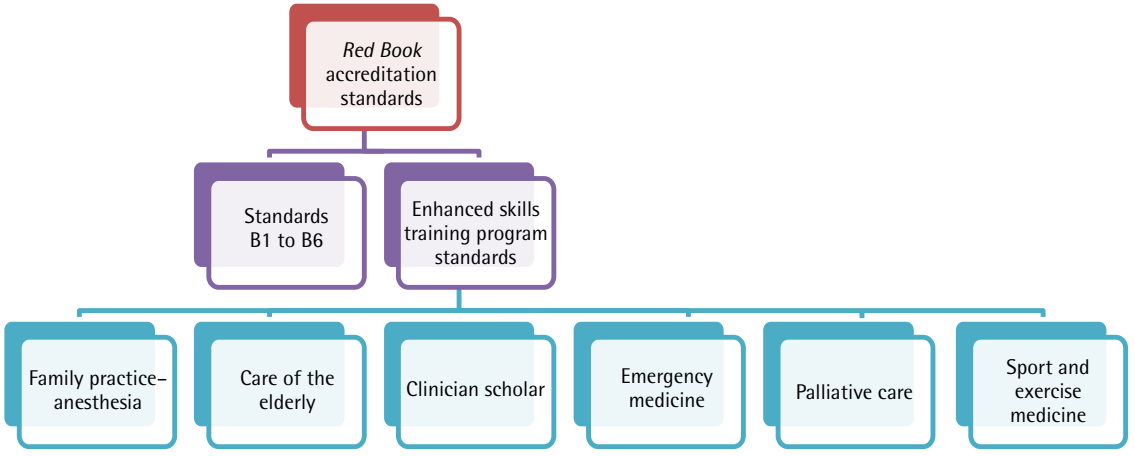
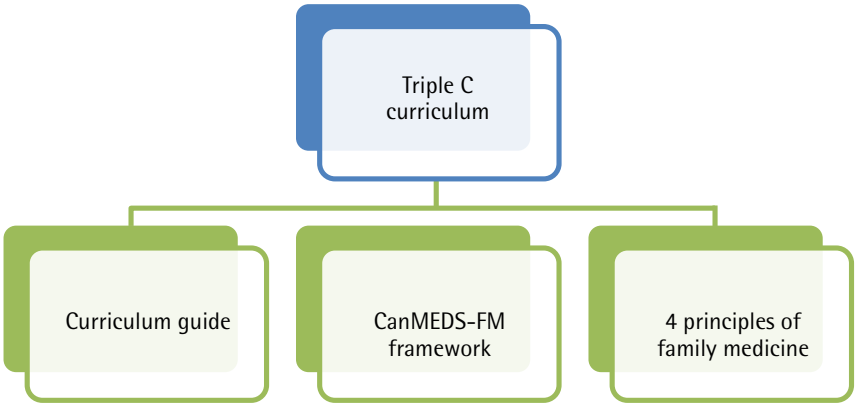


Figure 2. Categorization of the Triple C Competency-based Curriculum[21,22] for thematic content analysis



CanMEDS-FM—CanMEDS–Family Medicine.

patients with chronic diseases; emotional problems; acute disorders, ranging from those that are minor and self-limiting to those that are life-threatening; and complex bio-psychosocial problems.[21]

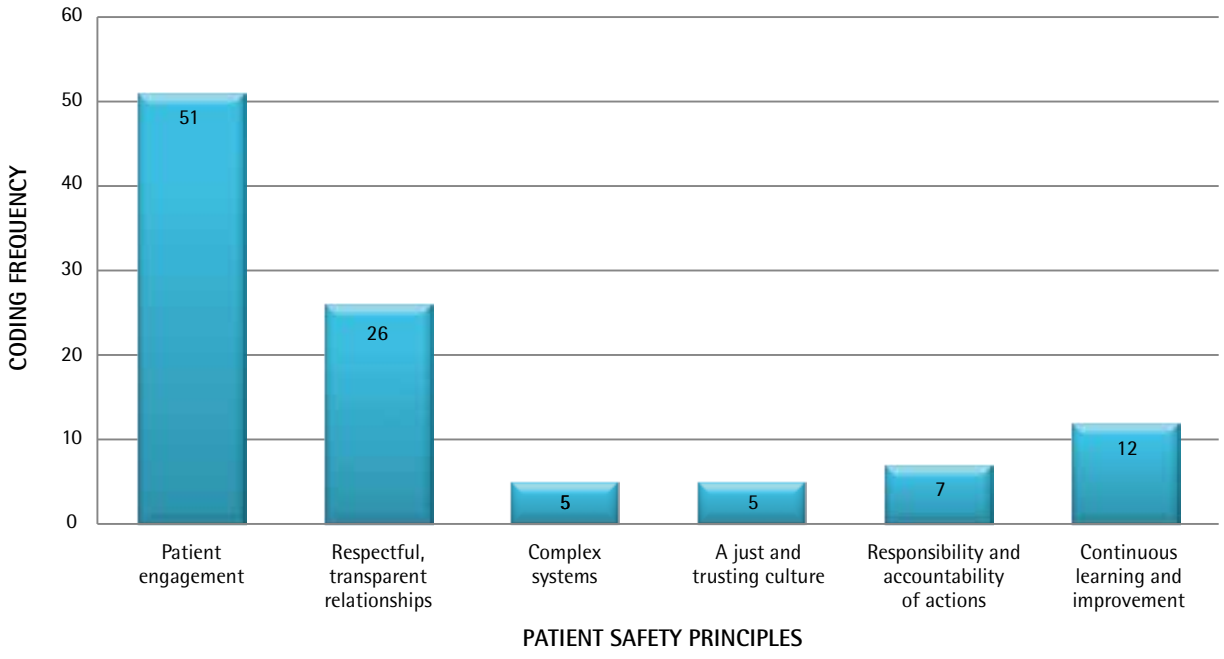
RESULTS

Within the CFPC documents we analyzed,[20-22] the most commonly found patient safety principle was patient engagement (n=51 coding references), whereas the least commonly found patient safety principles were a just and trusting culture (n=5 coding references) and complex systems (n=5 coding references). The patient safety principle responsibility and accountability for actions was also uncommon (n=7 coding references), as was continuous learning and improvement (n=12 coding references). **Figure 3** shows coding frequency of the patient safety learning principles across all of the documents we analyzed with respect to the Triple C curriculum[21,22] and the *Red Book*[20] accreditation standards. The most coding frequencies related to patient safety principles were found in the enhanced skills training objectives.

DISCUSSION

This study provides preliminary evidence that explicit patient safety content is missing from important Canadian curriculum objectives and accreditation standards.

Figure 3. Coding frequency of patient safety principles found in the *Red Book*[20] and the Triple C curriculum[21,22]



If residency programs follow only what is stated in these objectives and standards, they might be working to minimal criteria for teaching patient safety to future Canadian family physicians. The absence of a patient safety culture in residency and into practice might thus ensue.

Although there was a heavy emphasis on patient engagement, other patient safety principles were not commonly found during our analysis. The patient safety principles complex systems, a just culture and trusting culture, and responsibility and accountability for actions had negligible content across all of the documentation, showing important gaps for training and practice. These omissions might be a cause for concern given that practice in family medicine occurs in a complex system that takes place in the community where different threats to patient safety might exist. In a complex system, for example, a family physician relies on accurate and timely laboratory results, coordination with specialist physicians, and the filling of prescriptions by pharmacists, which are all in the normal range of treatment of each patient. In viewing primary care as a complex system, problems in these areas could compromise patient safety. In a just and trusting culture, failure in the delivery of care is interpreted fairly and without consideration of the patient's outcome. System-level learning from human error occurs within a just culture without blame. The principle of responsibility and accountability for actions recognizes that the design and implementation of improvements to support safer delivery of care needs to be assigned to specific and appropriate individuals.

There might be an assumption on the part of the CFPC that patient safety principles are implicit in the training of family medicine residents and that these will transfer into practice. However, given the complexity of family practice, the incidence of adverse events in primary care, and the results from our study, there might be benefits to revisiting the content and application of patient safety in these documents. The understanding of patient safety principles while trainees are within the clinical environment could enhance recognition and understanding of the importance of patient safety in the delivery of care.

Enhanced skills training programs

While there is more coverage of patient safety principles in the enhanced skills program standards, all the subject areas of these programs have opportunities to be far more explicit with specific patient safety principles. For example, what would patient engagement in end-of-life care mean to a family medicine resident in a palliative medicine program? Or how might a family medicine resident conduct a quality improvement project to enhance patient safety in the clinical scholar program?

There are many patient safety principles that could be addressed in the enhanced skills training program standards for family practice—anesthesia, care of the elderly, and emergency medicine, especially those standards pertaining to complex systems, responsibility and accountability for actions, and a just and trusting culture. However, references to these principles are scarce

in the *Red Book*[20] and the documents with respect to the Triple C curriculum.[21,22] It might be advisable, therefore, to investigate the curricula of such enhanced skills training programs across Canada to determine whether there is patient safety teaching and assessment within the local context of residency programs and affiliated sites. To ensure an appropriate focus on patient safety, however, inclusion of specific curricular requirements should be embedded in accreditation and curriculum documents establishing requirements for all programs across Canada. Only in doing so can a patient safety culture be fostered for family medicine.

Limitations

It can be argued that we might have missed certain key components of the CFPC documents in our analysis, despite key stakeholder review of and agreement on the chosen documents for analysis. Of note, the section titled "The Scope of Training for Family Medicine Residency" in the Triple C curriculum[22] was not analyzed in our study but it had a brief statement with regard to patient safety initiatives and error disclosure with respect to being a manager in the context of the CanMEDS-FM roles that would have been accounted for in our analysis of the CanMEDS-FM framework. Interestingly, the entire part 2 report of the Triple C curriculum had only one other reference to a key word search of the term *patient safety* in a statement about resident duty hours.[22]

Another limitation of our study was the framework that was used for coding the documents. The HQCA patient safety principles were developed regionally without wider application, and this might affect the generalizability for use as a framework. However, having reviewed the CPSI framework and the literature on patient safety in primary care, we believe that the HQCA patient safety principles are generalizable to all of Canada and other countries despite being developed within Alberta.

Given that the documents we analyzed were at the level of accreditation and the recommendations for curriculum development, including the implementation of Triple C, which is still in its infancy, our results might not reflect the individual practice of family medicine resident training programs across the country. However, assuming that individual training programs look to the CFPC documentation for guidance on their own programs would be worrisome given what our study has found with respect to patient safety content. Further studies could include conducting an environmental scan that assesses the current usefulness of safety-related content within current educational curricula and examines the existing gap between need (perhaps within expectations as to competencies) and what is being supplied in local training programs. This could be followed by a needs assessment of family medicine residency training programs with regard to patient safety content teaching, assessment, and research.

Strengths

There are several strengths to this study. First, it creates an opportunity for dialogue between the stakeholders about how to include patient safety education in family medicine residency training programs. Second, it calls for the CFPC to revisit its documentation for accreditation and its curriculum in order to ensure adequate representation of essential patient safety principles in the training of family medicine residents. Third, it demonstrates that collaboration between stakeholders such as postgraduate medical education offices, governmental agencies such as the HQCA, and the CFPC might create synergies for teaching patient safety in family medicine. Fourth, this study will add new information with respect to content for both curriculum and assessment tool development in order for training programs to prepare their residents to be competent in the areas of patient safety as they transition into practice. Finally, with regard to primary care, family physicians could also use our study as a tool to help apply patient safety principles to their own practices. For example, ideas from family physicians and educators on how to include more patient safety topics in the family medicine residency curriculum could be the basis of another paper—one that references the findings of this study.

Conclusion

Medical educators and practising family physicians must recognize that patient safety is important to primary care. They must make explicit attempts to maintain patient safety and carry out activities for the improvement of safer care. Explicit inclusion of patient safety content such as the use of patient safety principles are needed for residency training programs across Canada to ensure the full spectrum of care is addressed, from community-based care to acute hospital-based care. This will ensure that a patient safety culture can be cultivated from residency and sustained into primary care practice.

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Contributors
All authors contributed to the concept and design of the study; data gathering, analysis, and interpretation; and preparing the manuscript for submission.

Competing interests
None declared

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