



# Qualitative evaluation of the contribution of CanMEDS roles in the development of area of focused competence diplomas

## Évaluation qualitative de la contribution des rôles CanMEDS dans la création de diplômes de domaine de compétence ciblée

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Volume 14, numéro 1, 2023

CanMEDS 2025 Special Issue  
Numéro spécial CanMEDS 2025

URI : <https://id.erudit.org/iderudit/1099050ar>  
DOI : <https://doi.org/10.36834/cmej.75278>

[Aller au sommaire du numéro](#)

Éditeur(s)

Canadian Medical Education Journal

ISSN

1923-1202 (numérique)

[Découvrir la revue](#)

Citer cet article

Agarwal, T., Conejero Muller, M., Atkinson, A. & Bismilla, Z. (2023). Qualitative evaluation of the contribution of CanMEDS roles in the development of area of focused competence diplomas. *Canadian Medical Education Journal / Revue canadienne de l'éducation médicale*, 14(1), 101–107.  
<https://doi.org/10.36834/cmej.75278>

Résumé de l'article

**Contexte :** Bien que de nombreux diplômes de domaines de compétence ciblée (DCC) soient accessibles aux personnes ayant terminé leur résidence en pédiatrie, nous ne savons pas quelles sont les compétences qui sont approfondies dans chaque discipline de DCC. Notre objectif était de déterminer les rôles CanMEDS visés par les DCC actuellement accessibles aux personnes ayant terminé leur résidence en pédiatrie et de repérer les lacunes dans les rôles CanMEDS qui pourraient être comblées par l'élaboration de nouveaux DCC.

**Méthodes :** Nous avons réalisé une étude qualitative au moyen d'analyse de documents pour comparer les compétences CanMEDS dans les DCC ouverts aux personnes admissibles à l'examen du Collège royal ou ayant une certification en pédiatrie. Les documents sur les exigences de formation du CRMCC ont été utilisés pour comparer les compétences de chaque DCC et les compétences visées dans le cadre de la formation postdoctorale en pédiatrie. Les compétences clés et les compétences habilitantes ont été comparées pour chaque rôle CanMEDS afin de repérer les différences.

**Résultats :** Nous avons trouvé 10 DCC dont les conditions d'admissibilité comprennent l'admissibilité à l'examen du Collège royal ou la certification en pédiatrie. Chacun de ces 10 DCC comprenait au moins une nouvelle compétence d'expert médical et un total de 42 nouvelles compétences propres à ce rôle ont été répertoriées pour l'ensemble des DCC. Pour le rôle d'érudit, nous n'avons trouvé que 10 nouvelles compétences dans sept programmes de DCC, et pour celui de collaborateur, il n'y a qu'une nouvelle compétence dans un programme de DCC.

**Conclusions :** La majorité des nouvelles compétences développées dans les DCC relèvent du rôle CanMEDS d'expert médical. Les rôles d'érudit et de collaborateur présentent le moins de différences lorsqu'on compare les compétences ciblées dans les DCC existants et celles visées dans le cadre de la formation postdoctorale en pédiatrie. La création de DCC supplémentaires permettant l'acquisition de compétences plus poussées dans ces rôles pourrait contribuer à combler cette carence au sein de la discipline de la pédiatrie.

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# Qualitative evaluation of the contribution of CanMEDS roles in the development of area of focused competence diplomas

## Évaluation qualitative de la contribution des rôles CanMEDS dans la création de diplômes de domaine de compétence ciblée

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Published ahead of issue: Feb 13, 2023; published: Mar 21, 2023. CMEJ 2023, 14(1) Available at <https://doi.org/10.36834/cmej.75278>

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### Abstract

**Background:** While many Area of Focused Competency (AFC) Diplomas are available to those who have completed Pediatric residency training, it is not known which competencies are enhanced within each AFC discipline. Our objective was to determine which CanMEDS roles were targeted by existing AFCs available to those who have completed Pediatric residency training and identify gaps within CanMEDS roles that may be fulfilled by the development of new AFCs.

**Methods:** A qualitative study was undertaken using document analysis methodology to compare CanMEDS competencies across AFCs available to those with Royal College examination eligibility or certification in Pediatrics. RCPSC Competency Training Requirements documents were used to compare and contrast the competencies in each AFC with competencies established in Pediatric residency training. Key and Enabling Competencies were compared for each CanMEDS role to identify differences.

**Results:** Ten AFCs were identified with eligibility requirements including Royal College examination eligibility or certification in Pediatrics. All 10 AFCs included at least one new Medical Expert competency, for a total of 42 unique competencies in this role across all AFCs. The Scholar role had only 10 new competencies across seven AFCs, while only one AFC added a single unique competency in the Collaborator role.

**Conclusions:** The majority of new competencies contributed by AFCs lie within the CanMEDS role of Medical Expert. The Scholar and Collaborator roles have the least differences when comparing competencies of existing AFCs to those competencies established in Pediatric residency training. Developing additional AFCs that offer advanced skills in these roles may help close this gap within the discipline of Pediatrics.

### Résumé

**Contexte :** Bien que de nombreux diplômes de domaines de compétence ciblée (DCC) soient accessibles aux personnes ayant terminé leur résidence en pédiatrie, nous ne savons pas quelles sont les compétences qui sont approfondies dans chaque discipline de DCC. Notre objectif était de déterminer les rôles CanMEDS visés par les DCC actuellement accessibles aux personnes ayant terminé leur résidence en pédiatrie et de repérer les lacunes dans les rôles CanMEDS qui pourraient être comblées par l'élaboration de nouveaux DCC.

**Méthodes :** Nous avons réalisé une étude qualitative au moyen d'analyse de documents pour comparer les compétences CanMEDS dans les DCC ouverts aux personnes admissibles à l'examen du Collège royal ou ayant une certification en pédiatrie. Les documents sur les exigences de formation du CRMCC ont été utilisés pour comparer les compétences de chaque DCC et les compétences visées dans le cadre de la formation postdoctorale en pédiatrie. Les compétences clés et les compétences habilitantes ont été comparées pour chaque rôle CanMEDS afin de repérer les différences.

**Résultats :** Nous avons trouvé 10 DCC dont les conditions d'admissibilité comprennent l'admissibilité à l'examen du Collège royal ou la certification en pédiatrie. Chacun de ces 10 DCC comprenait au moins une nouvelle compétence d'expert médical et un total de 42 nouvelles compétences propres à ce rôle ont été répertoriées pour l'ensemble des DCC. Pour le rôle d'érudit, nous n'avons trouvé que 10 nouvelles compétences dans sept programmes de DCC, et pour celui de collaborateur, il n'y a qu'une nouvelle compétence dans un programme de DCC.

**Conclusions :** La majorité des nouvelles compétences développées dans les DCC relèvent du rôle CanMEDS d'expert médical. Les rôles d'érudit et de collaborateur présentent le moins de différences lorsqu'on compare les compétences ciblées dans les DCC existants et celles visées dans le cadre de la formation postdoctorale en pédiatrie. La création de DCC supplémentaires permettant l'acquisition de compétences plus poussées dans ces rôles pourrait contribuer à combler cette carence au sein de la discipline de la pédiatrie.

## Introduction

The Royal College of Physicians and Surgeons of Canada (RCPSC) recognizes an Area of Focused Competence (AFC) Diploma as a discipline of specialty medicine that addresses a societal need. Despite not meeting the RCPSC's criteria for a specialty or subspecialty, AFC Diplomas have an extremely specialized scope of practice or enhance a physician's practice in an existing discipline.<sup>1</sup> Like postgraduate residency training or clinical fellowship programs, AFC Diplomas offer advanced training to build upon a physician's specialty or subspecialty certification without replacing the physician's existing certifications.<sup>2</sup>

With up to two years of additional training, AFC Diplomas make several valuable contributions. They help to establish national standards for specialist competence, and concurrently enable physicians to avail themselves of additional opportunities to obtain DRCPS (Diploma of RCPSC) credentials that are beneficial nationally and internationally in terms of recognition within a specific field.<sup>3</sup> Moreover, AFC Diplomas help to improve patient safety and quality of care, while avoiding the need to further fragment specialty training.<sup>3</sup> Given these advantages and their potential to address genuine societal needs, it is no surprise that AFC programs have been growing in number and now have their own national accreditation standards that align with the CanERA (Canadian Excellence in Residency Accreditation) system for residency program accreditation.<sup>1,4</sup>

Each AFC outlines competency training requirements based on the RCPSC's CanMEDS roles of Medical Expert (ME), Communicator, Collaborator, Leader, Health Advocate, Scholar, and Professional.<sup>5</sup> At the present time, physicians who have completed residency training in Pediatrics who wish to further specialize their scope are eligible to apply to a selection of AFC Diploma Programs in Canada (Table 1). It is not known which CanMEDS roles are specifically enhanced in each of these programs. Our objective was to evaluate which CanMEDS competencies were enhanced by current AFC Diplomas available to graduates of Pediatric residency training and identify gaps within CanMEDS roles that may be fulfilled by the development of new AFCs.

## Methods

We undertook a qualitative study using document analysis methodology situated in a constructivist paradigm to better understand which CanMEDS roles were targeted for enhancement across AFC Diplomas.<sup>6</sup> Document analysis is the systematic procedure for reviewing or evaluating documents with the objective of identifying categories for analysis and then interpretation of that information.<sup>7</sup> Document analysis takes the document themselves as the raw base of the analysis. This methodology has traditionally been applied to curricular analysis policy research.<sup>8</sup> An adaptation of the READ approach of document analysis was extrapolated to complete the qualitative analysis, using the AFC documents as akin to "educational policy documents."<sup>9</sup>

Study team members included a Pediatric Hospital Medicine (PHM) Fellow, recent PHM fellowship graduate and practicing pediatric hospitalist, a Program Director for a PHM Fellowship Program, and a Pediatrics Residency Program Director and RCPSC Pediatric Specialty Committee Chair. Members of the team are involved with the development of PHM Fellowship training programs in Canada, and the potential development of PHM as an AFC Diploma in Canada. Authors acknowledged their reflexivity and propensity to find both value in AFC training and unmet need, given their interest in creation of PHM as an AFC. Triangulation by multiple authors not involved in AFC or PHM training was helpful to reduce any impact on credibility of the analysis.

All AFC diploma documents available on the RCPSC website were reviewed to assess which AFCs would be available to a physician who has graduated from a RCPSC accredited Pediatric residency program (and therefore met the Pediatric competencies as outlined in the RCPSC Pediatrics Competencies document). Those AFCs with eligibility criteria including A) a physician licensed to practice Pediatrics in Canada, or B) being Royal College certified in any primary specialty (including Pediatrics), or C) being eligible for the RCPSC certification examination in a primary specialty (including Pediatrics) were included in the analysis. Review of eligibility resulted in 10 AFC diplomas ( $n = 10$ ) for further analysis (see Table 1). Of note, of the 10 AFC Programs, only Child Maltreatment Pediatrics is specific to Pediatrics eligible or certified physicians. All other AFC programs are open to physicians in specialties other than Pediatrics.

Table 1 Area of Focused Competence (AFC) Diploma available to those Royal College certified or eligible for the RCPSC certification examination in Pediatrics

Area of Focused Competence Diploma	Eligibility requirements
<b>Acute Care POCUS</b>	Royal College certification in any primary specialty providing management in the acute care setting, or College of Family Physicians of Canada certification, or equivalent. OR Eligibility for the Royal College certification examination in any primary specialty, or eligibility for the College of Family Physicians of Canada certification examination. OR Registration in a Royal College-accredited residency program in any primary specialty. (See requirements for these qualifications.)
<b>Addiction Medicine</b>	Royal College certification in any primary specialty, or College of Family Physicians of Canada (CFPC) certification, or equivalent OR Eligibility for the Royal College certification examination in any primary specialty OR Registration in a residency training program leading to certification by the Royal College or CFPC (see requirements for these qualifications)
<b>Aerospace Medicine</b>	The Area of Focused Competence (AFC) trainee must be a physician licensed to practice in Canada, with two years of clinical experience post-certification in a primary specialty.
<b>Child Maltreatment Pediatrics</b>	The Area of Focused Competence (AFC) trainee must have Royal College or Collège des Médecins du Québec certification in Pediatrics, or enrolment in a Royal College accredited residency program in Pediatrics (see requirements for relevant qualifications).
<b>Clinician Educator</b>	To be eligible to apply for the Royal College diploma for Clinician Educators, candidates must be physicians, currently in practice or enrolled in postgraduate training, with demonstrated proficiency in teaching and engagement or experience in local or national medical education activities.
<b>Hyperbaric Medicine*: a) Hyperbaric Medicine, b) Diving Medicine</b>	The Area of Focused Competence (AFC) trainee must have Royal College certification, or equivalent, in any primary specialty or College of Family Physicians Canada (CFPC) certification, or equivalent, or enrolment in a residency training program leading to certification by one of these bodies (see requirements for these qualifications). All trainees must be certified in their primary specialty in order to be eligible to submit a Royal College certification portfolio in Hyperbaric Medicine. Family physicians who obtained their medical license in Canada prior to 1992 are also eligible for the certification portfolio in Hyperbaric Medicine and are exempt from the requirement for certification by CFPC.
<b>Patient safety and quality improvement</b>	Royal College certification in any primary specialty or College of Family Physicians of Canada (CFPC) certification, or equivalent. OR Eligibility for the Royal College certification examination in any primary specialty, or eligibility for CFPC certification. OR Registration in a residency training program leading to certification by the Royal College or CFPC. (See requirements for these qualifications.)
<b>Sport and Exercise Medicine</b>	The Area of Focused Competence (AFC) trainee must have Royal College certification in Emergency Medicine, Internal Medicine, Orthopedic Surgery, Pediatrics, Physical Medicine and Rehabilitation or Rheumatology, or be enrolled in a Royal College accredited residency program leading to certification in one of those disciplines (see requirements for individual program qualifications).
<b>Transfusion Medicine</b>	The Area of Focused Competence (AFC) trainee must have Royal College certification, or equivalent, in Internal Medicine, Hematology, Pediatrics, Hematological Pathology, Anesthesiology, or General Pathology, or enrolment in a Royal College accredited residency program in these areas (see requirements for these qualifications).

\*Hyperbaric Medicine is composed of Hyperbaric Medicine and Diving medicine, with different CanMEDS roles, so they were analyzed as separate AFCs. The eligibility requirements are not differentiated.

The 10 AFC programs were compared using the READ approach to analyze the Competency Training Requirements document available on the RCPSC website (Figure 2).<sup>2,9</sup> The four steps of the READ approach include: (1) reading the material, (2) extracting data, (3) analysing data and (4) distilling findings to analyse this documents.<sup>9</sup> For each CanMEDS role, differences in Key and Enabling Competencies between the Competencies of the AFC

Diploma and those of the Core Pediatrics residency program were systematically identified. A competency was defined as unique if its meaning and not phrasing alone was qualitatively identified as being different. Differences were first identified at the level of Key and Enabling Competencies. If no difference was found at this level, comparison of the first tier of sub-competencies was completed. If still no difference was found, comparison of

the second tier of sub-competencies was completed and so on. To ensure rigor, the above comparison and analysis was performed by two members of the research team (TA and MJC) and findings compared until any discrepancies were resolved. Results were then further reviewed by two authors (AA and ZB). Microsoft Excel® was used to input data during review and analysis of the study documents.

The Standards for Reporting Qualitative Research recommendations were followed (Table 2).<sup>10</sup> This project was deemed exempt from ethical review since it was an analysis of previously published documents, no personal or identifying information was collected or analyzed, and data security and integrity were not applicable to the study.

Table 2. Standards for reporting qualitative research recommendations

Title	Includes identification of the qualitative approach used along with description of the nature and topic of study.
Abstract	Summarizes key elements of the study using the required format.
Problem formulation	Problem description and significance, empirical knowledge, and problem statement included in Introduction section.
Purpose	Study objective outlined in Introduction section.
Qualitative approach and research paradigm	We undertook a qualitative study using document analysis methodology to compare CanMEDS competencies across AFC programs with the parent discipline of Paediatrics. This was in keeping with the constructivist paradigm, as the methodology enabled us to understand and interpret the meaning attached to such a comparison.
Researcher characteristics and reflexivity	All authors have had personal experiences and expertise relating to the field of Pediatric Hospital Medicine (PHM). Given our background as it relates to PHM, we were well suited to review the available documents and contextualize them to extrapolate the value of the study findings to PHM. While the analysis may have been impacted by our subjective experiences and implicit biases about PHM training, triangulation by multiple authors was helpful to reduce any impact on credibility of the analysis.
Context	Same as above.
Sampling strategy	The Competency Training Documents of nine AFCs under the parent discipline of Pediatrics were sampled and reviewed as they met the inclusion criteria for the study (see Figure 1)
Ethical issues pertaining to human subjects	Not applicable. There were no human subjects included in the study.
Data collection methods	As outlined in the PRISMA diagram above, the Competency Training Documents of nine AFCs under the parent discipline of Pediatrics were used for data collection. These were accessed multiple times in March 2022, which was also the period of data analysis. Triangulation of sources and methods was performed by all authors to ensure credibility of the resulting analysis.
Data collection and instruments	Microsoft Excel was used to input data during review and analysis of the study documents. The data collection instrument did not change during the study.
Units of study	Described and then further clarified in the Figure 1.
Data processing	As there was no personal or identifying information collected or analyzed, data security and integrity were not applicable to the study.
Data analysis	Document analysis methodology within a constructivist paradigm was used to identify themes when comparing AFCs, as described above.
Techniques to enhance trustworthiness	To ensure rigor, data review and comparison of CanMEDS roles between AFCs was performed by two members of the research team. Data was analyzed by all authors until any discrepancies were resolved. Triangulation in this manner enabled trustworthiness and credibility of findings.
Synthesis and interpretation	Well established in our Results.
Links to empirical data	Please see manuscript Table 2 for evidence and summary of analytic findings.
Integration with prior work, implications, transferability, and contribution(s) to the field	Well established in our Discussion section.
Limitations	The methods used are an adaptation of document analysis methodology. The nature of the comparisons made remain subjective and not bereft of bias despite resolving inter-comparator variability.
Conflicts of interest	The authors have no conflicts of interest to declare.
Funding	No funding was required or obtained for the study.

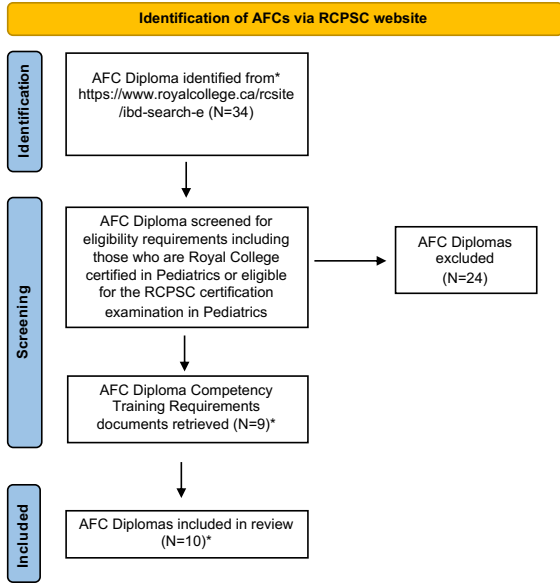


Figure 1 PRISMA diagram<sup>12</sup> for identification of AFCs via RCPSC website

\*Hyperbaric Medicine is composed of Hyperbaric Medicine and Diving medicine, with different competencies, so they were analyzed as separate AFC Diplomas.

## Results

The highest number of unique competencies were found in the Medical Expert (ME) CanMEDS role (Figure 2). All 10 AFCs included at least one new ME competency (range 1-6 per AFC) for a total of 42 unique competencies in the ME role across all AFCs (Table 3). For example, the first ME competency for the Child Maltreatment Pediatrics AFC is defined as “Function effectively as consultants in Child Maltreatment Pediatrics, integrating all of the CanMEDS Roles to provide optimal, ethical, and patient-centred medical care”; this was considered unique compared to the first competency in Pediatrics of “Practice medicine within their defined scope of practice and expertise.”<sup>2</sup> The next

most frequent role to include unique competencies was Communicator. Nine of the 10 AFC’s had new competencies in this domain, for a total of 32 unique competencies (range 1-6 per AFC). In the middle were the roles of Leader, with 27 new competencies across 8 AFCs (range 1-4 per AFC); Health Advocate, with 20 new competencies across seven AFCs (range 1-4 per AFC); and Professional, with 19 new competencies across seven AFCs (range 1-3 per AFC). Limited unique competencies were found in the Role of Scholar, with a total of 10 new competencies across seven AFCs (range 1-3 per AFC).

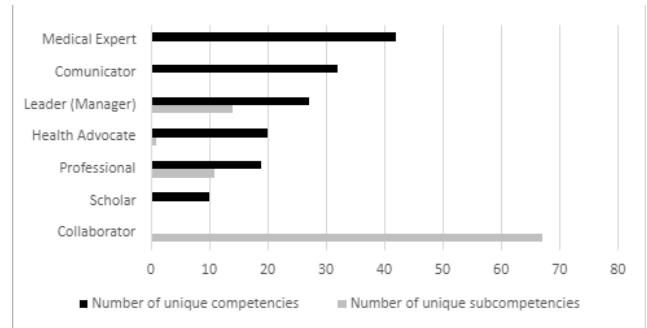


Figure 2. Number of unique AFC competencies by CanMEDS role  
The fewest unique competencies were found in the Collaborator Role, with only one AFC adding a single unique competency in this role. This unique competency is “Work effectively with physicians and colleagues in other health care professions and related fields to carry out PS/QI activities” from the Patient Safety and Quality Improvement AFC.<sup>2</sup> However, when examined at the level of sub-competencies, all but one AFC included unique items and 76 unique Collaborator sub-competencies were found. This far exceeded the number of unique sub-competencies in any other role (15 in Leader, 11 in Professional, one in Health Advocate) (Table 3).

Table 3. AFC Competencies by CanMeds Role

	Acute Care POCUS	Addiction Medicine	Aerospace Medicine	Child Maltreatment Pediatrics	Clinician Educator	Hyperbaric Medicine	Diving Medicine	Patient Safety and Quality Improvement	Sport and Exercise Medicine	Transfusion Medicine	Number of Unique Competencies	Number of Unique Sub-Competencies
Medical Expert	1	1	6	6	3	6	3	4	6	6	42	n/a
Communicator	1	1	5	6	0	6	2	2	3	6	32	n/a
Collaborator	0 (2)	0 (7)	0 (11)	0 (13)	0 (4)	0 (16)	0	1	0 (7)	0 (16)	0	76
Leader	0 (1)	0 (14)	4	4	3	4	1	4	3	4	27	15
Health Advocate	0	0 (1)	3	4	0	4	1	2	3	3	20	1
Scholar	1	0	1	1	3	1	0	1	1	1	10	n/a
Professional	0 (1)	0 (10)	3	3	3	3	0	1	3	3	19	11

Note: Numbers in brackets refer to sub-competencies.

## Discussion

Many differences exist between the Key and Enabling competencies of most examined AFC Diplomas compared with those of core Pediatrics. Varying degrees of differences can be found across the RCPSC CanMEDS roles. Not surprisingly, the ME role is where most of the unique competencies are found. This speaks to the focus of the majority of AFCs, which have niche areas of ME content. Communicator, Leader, Health Advocate, and Professional roles also have significant differences appreciable in the Key and Enabling competencies. The differences speak to the utility and focus of these AFC programs in intentionally offering highly specialized training to support expansion of a physician's scope of practice to provide enhanced care to complex populations, as well as enhance skills in interactions with the medical system and specific patient communities.

An understanding of the competencies included in the current AFCs that are offered to pediatric trained physicians is important to understand the gaps that any additional AFC may offer to the discipline of Pediatrics. The Collaborator and Scholar roles, unlike the other CanMEDS roles, have the least number of differences when comparing existing AFCs with the parent discipline of Pediatrics. This finding supports the development of additional AFC programs available to those who are Royal College certified or eligible in Pediatrics, that could help close this gap by offering advanced training pertaining to the Scholar and/or Collaborator roles. One area that has had increasing interest lately is Pediatric Hospital Medicine (PHM), which is currently being offered through an increasing number of non-RCPSC accredited fellowship programs across Canada.<sup>11</sup> Current fellowship programs vary in their content and structure, however, have in common an enhanced focus on scholarship.<sup>11</sup> Given the lack of AFC programs that differentiate themselves significantly from Core Pediatrics in the scholar CanMEDS role, an AFC in PHM may add value in this area. Collaborator competencies might be another unique contribution of an AFC in PHM, given the role of hospitalists in leading a care team through collaboration with multi-disciplinary professionals. It is worth noting that two AFCs were examined that relate to specific areas of scholarship: Clinician Educator, and Patient Safety and Quality Improvement. Additional AFCs focusing on scholarship would need to outline the unique benefits in the role of scholar above and beyond these two AFCs.

The above findings, albeit important considerations for the development of future training programs, arise in the context of study limitations. The methods used are a novel use of the qualitative method of document analysis. This particular method has not been previously described and validated in the way used in our study, but has similarities to other published works.<sup>8</sup> In our study, we use the READ approach used for policy documents to the analysis of education documents. Further, the authors acknowledge their reflexivity and the effects this may have had on the study; the nature of the comparisons made remain subjective despite resolving inter-comparator variability within the author group.

## Conclusions and future directions

The 10 AFC diploma programs available to those Royal College eligible or certified in Pediatrics offer many unique competencies. Most unique competencies exist in the CanMEDS role of Medical Expert. The fewest unique competencies are available in the Scholar and Collaborator roles. Developing AFCs that enhance the role of Scholar and Collaborator for those who are trained in Pediatrics may be of value to the field and fulfill a societal need of Pediatricians that enhance care by bringing further specialization in these two roles.

**Conflicts of Interest:** None of the authors have any conflicts of interest due to financial or personal relationships that could potentially bias their work.

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