Satisfaction with civilian family medicine residency training

Perspectives from serving general duty medical officers in the Canadian Armed Forces

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Abstract

Objective To evaluate satisfaction with civilian residency training programs among serving general duty medical officers within the Canadian Armed Forces.

Design A 23-item, cross-sectional survey face-validated by the office of the Surgeon General of the Canadian Armed Forces.

Setting Canada.

Participants General duty medical officers serving in the Canadian Armed Forces as of February 2014 identified through the Directorate of Health Services Personnel of the Canadian Forces Health Services Group Headquarters.

Main outcome measures Satisfaction with and time spent in 7 domains of training: trauma, critical care, emergency medicine, psychiatry, occupational health, sports medicine, and base clinic training. Overall preparedness for leading a health care team, caring for a military population, working in isolated and challenging environments, and being deployed were evaluated on a 5-point Likert scale.

Results Among the survey respondents (n = 135, response rate 54%), 77% agreed or strongly agreed that their family medicine residency training was relevant to their role as a general duty medical officer. Most respondents were either satisfied or very satisfied with their emergency medicine training (77%) and psychiatry training (63%), while fewer were satisfied or very satisfied with their sports medicine (47%), base clinic (41%), and critical care (43%) training. Even fewer respondents were satisfied or very satisfied with their trauma (26%) and occupational health (12%) training. Regarding overall preparedness, 57% believed that they were adequately prepared to care for a military patient population, and 52% of respondents believed they were prepared for their first posting. Fewer respondents (38%) believed they were prepared to work in isolated, austere, or challenging environments, and even fewer (32%) believed that residency training prepared them to lead a health care team.

Conclusion General duty medical officers were satisfied with many aspects of their family medicine residency training; however, military-specific areas for improvement were identified. Many of these areas might be addressed within the context of a 2-year residency program without risking the generalist nature of family medicine training. These findings provide valuable data for residency programs that accept military trainees across the country.

EDITOR'S KEY POINTS

- Overall, general duty medical officers (GDMOs) are satisfied with their training; however, this study identified a number of military-specific areas for improvement, including trauma management, occupational health, and sports medicine.

- Most respondents thought that family medicine residency was relevant to their role as a GDMO. Most respondents were satisfied with their emergency medicine and psychiatry training, and some were satisfied with their sports medicine, base clinic, and critical care training. However, respondents were less satisfied with trauma and occupational health training.

- Although it is recognized that family medicine training is broad and care must be taken to avoid diluting other learning opportunities, it might be possible to address these areas of perceived training gaps with minor curriculum changes. Many civilian family medicine trainees would benefit from similar curricular refinements, as the associated skills are also relevant to many rural and remote areas of Canada.

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Satisfaction à l'égard du programme civil de résidence en médecine familiale

Ce qu'en pensent les médecins militaires qui dispensent des soins de santé primaires dans les forces armées canadiennes

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Résumé

Objectif Évaluer le degré de satisfaction des médecins généralistes pratiquant au sein des Forces armées canadiennes à l'égard des programmes civils de formation en résidence.

Type d'étude Une enquête transversale comportant 23 items et d'une validité apprente d'après le bureau du Médecin général des Forces armées canadiennes.

Contexte Le Canada.

Participants Les médecins généralistes qui pratiquaient au sein des Forces armées canadiennes en février 2014, selon le personnel de la direction des services de santé du quartier général du Groupe des services de santé des Forces canadiennes.

Principaux paramètres à l'étude La satisfaction à l'égard de la formation et du temps consacré aux 7 domaines suivants: traumatologie, soins intensifs, médecine d'urgence, psychiatrie, santé au travail, médecine du sport et médecine clinique de base. À l'aide d'une échelle de Likert de 5 points, on a évalué la préparation générale pour diriger une équipe de santé, pour soigner une population de militaires, pour travailler dans des environnements isolés et exigeants, et pour être assigné à un nouveau poste.

Résultats Parmi les répondants à l'enquête (n=135, taux de réponse de 54%), 77% se sont dit d'accord ou fortement d'accord avec le fait que la formation reçue comme résident en médecine familiale était appropriée à un rôle de médecin généraliste militaire. Ils étaient pour la plupart satisfaits ou très satisfaits de leur formation en médecine d'urgence (77%) et en psychiatrie (63%), tandis qu'un plus petit nombre étaient satisfaits ou très satisfaits de leur formation en médecine du sport (47%), en médecine clinique de base (41%) et en soins intensifs (43%). Un nombre encore moindre de répondants étaient satisfaits ou très satisfaits de la formation en traumatologie (26%) et en santé au travail (12%). Concernant leur préparation générale, 57% estimaient être adéquatement formés pour s'occuper d'une population de militaires et 52% pensaient être prêts à être affectés à leur premier poste. Moins de répondants (38%) croyaient être bien préparés pour travailler dans des environnements éloignés, pauvres ou exigeants, alors qu'un nombre encore moindre (32%) croyaient que la formation reçue en résidence les préparait à diriger une équipe de santé.

Conclusion Les médecins généralistes des Forces armées étaient satisfaits de plusieurs aspects de la formation reçue durant leur résidence en médecine familiale; toutefois, ils ont souligné que certains domaines, particulièrement dans le milieu militaire, pourraient être améliorés. Des correctifs pourraient être apportés dans plusieurs de ces domaines à l'intérieur d'un programme de résidence de 2 ans sans risquer d'affecter la nature générale de la formation en médecine familiale. Ces observations fournissent des données valables aux programmes de résidence qui acceptent des futurs médecins militaires au Canada.

POINTS DE REPÈRES DU RÉDACTEUR

- En général, les médecins généralistes militaires (MGM) sont satisfaits de leur formation; cette étude a toutefois identifié quelques domaines qui nécessitent des améliorations dans le milieu militaire, comme la traumatologie, la santé au travail et la médecine du sport.

- La plupart des répondants estimaient que la résidence en médecine familiale les préparait adéquatement à leur travail comme MGM. La plupart étaient également satisfaits de leur formation en médecine d'urgence et en psychiatrie, et certains étaient satisfaits de leur formation en médecine du sport, en clinique de base et en soins intensifs. Toutefois, les répondants étaient moins satisfaits de leur formation en traumatologie et en santé au travail.

- Même si on admet généralement que la formation en médecine familiale couvre un large domaine et qu'il faut être attentif pour ne pas manquer des possibilités d'apprentissage dans d'autres domaines, il pourrait être possible, par des modifications mineures au curriculum, d'apporter des correctifs dans les domaines où la formation semble incomplète. D'ailleurs, plusieurs étudiants en médecine familiale qui pratiqueront dans le civil pourraient bénéficier de telles modifications puisque les compétences qu'on y acquiert peuvent aussi être utiles dans plusieurs régions rurales et éloignées du Canada.

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In Canada, as is the case for many North Atlantic Treaty Organization nations, Canadian Armed Forces general duty medical officers (GDMOs) are trained within civilian medical schools and family medicine residency programs. These residency programs have an obligation to provide education and training in both general family medicine and in military-specific medicine. However, in most cases, there is no formal differentiation between the curricula delivered to military and civilian residents despite the fact that their scopes of practice and work environments might be vastly different after graduation.

It is suggested that incorporating military-specific curricular elements into residency education is increasingly important given the greater frequency with which military physicians are deployed to field and operational settings.[1] Although many of the necessary skills overlap, military-specific expertise, such as critical care, is not addressed in generalist training.[2] These curricular elements can better prepare residents to integrate with the military culture and better prepare them for the stress of deployment and practising in a war zone.[3] However, little evidence exists to guide Canadian residency programs in determining the ideal content for a military-tailored residency program,[3,4] ensuring that it does not negatively affect traditional family medicine training and the ability to acquire skills and competencies as required by the College of Family Physicians of Canada.[5]

As such, the purpose of this study is to understand the level of satisfaction among currently serving GDMOs within the Canadian Armed Forces with respect to the medical training they received and their perceived preparedness to practise in military settings. We were interested to learn about training gaps that might currently exist. The results of this study are subjective measures from GDMOs' perspectives; however, they can be used to guide family medicine residency programs that accept military trainees across the country to better prepare trainees for their unique work environments.

METHODS

A 23-item, electronic, cross-sectional, anonymous survey was developed by the authors, and was face-validated for content, relevance, and acceptability by officers with Certification in Family Medicine in the office of the Surgeon General of the Canadian Armed Forces.

Participants

A total of 249 serving regular force GDMOs within the Canadian Armed Forces were identified from the list of regular force family physicians of the Directorate of Health Services Personnel of the Canadian Forces Health Services Group Headquarters. They were all invited to participate in an online survey. This study received ethics approval from the Queen's University Health Sciences Ethics Review Board.

Data collection and analysis

The survey was distributed in an online format with 2 reminders over a convenient 5-month period. Data collected from the anonymous survey included demographic information; current posting and deployment histories and length (in number of weeks); satisfaction with training in sports medicine, occupational health, emergency medicine, psychiatry, critical care, trauma, and base clinic training (which refers to a rotation or an elective done on a Canadian Armed Forces base under the supervision of military personnel). Perceived levels of preparedness to lead a health care team; to care for a military population; to work in isolated, challenging, and austere environments; and for their first posting were also assessed. These specific areas of focus were selected based on the unique role of a GDMO as well as feedback obtained from current and past GDMOs. For the purposes of our study, *trauma training* refers to training in treating physical traumatic injuries only, with the assumption that psychological trauma training took place during psychiatry experiences. A 5-point Likert scale was used to rate respondents' satisfaction (very unsatisfied, unsatisfied, neutral, satisfied, very satisfied) and preparedness (not at all, somewhat, neutral, well prepared, very well prepared). Frequencies were calculated for survey questions regarding participants' length of training in particular rotations, overall satisfaction with domains of training, and preparedness to practise. Answers were stratified using participants' demographic characteristics to explore potential associations based on those who had done a rotation on a base and those who were first deployed as a medical professional to trauma-heavy locations (such as Afghanistan). In general, Likert-scale outcomes were analyzed using Wilcoxon signed rank nonparametric tests in SPSS, version 22. Themes and ideas were pulled from the open-ended questions and free text regarding gaps in family medicine residency training.

RESULTS

A total of 135 of 249 GDMOs (54% response rate) participated in the survey, with a completion rate of 78%. Demographic characteristics of the respondents are summarized in **Table 1**. The median age of the respondents was 40 years, with 69% being male and 31% being female. All but 1 respondent graduated from a Canadian medical school and a Canadian family medicine residency program or clinical practice, with most completing training between 2003 and 2013. All Canadian medical schools

were represented by study participants, and all but 3 family medicine residency programs (University of Ottawa in Ontario, University of Calgary in Alberta, and University of Montreal in Quebec) were represented. A total of 106 (91%) respondents had Certification in Family Medicine from the College of Family Physicians of Canada. Overall, 74% of respondents believed that Certification was important or very important for their role as a GDMO, and 83% of the respondents believed that Certification was important or very important to them personally.

Table 1. Demographic characteristics of survey respondents

CHARACTERISTIC	N (%)*
Sex (n = 118)	
• Female	36 (31)
• Male	82 (69)
Age, y (n = 116)	
• 25-29	6 (5)
• 30-39	57 (49)
• 40-49	40 (34)
• ≥ 50	13 (11)
Date of residency graduation (n = 114)	
• Before 1990	6 (5)
• 1991-2000	19 (17)
• 2001-2005	10 (9)
• 2006-2010	33 (29)
• 2011-2014	46 (40)
Military position at first posting (n = 103)	
• Medical†	81 (79)
• Nonmedical	22 (21)
Certification in Family Medicine (n = 117)	
• Yes	106 (91)
• No	11 (9)

*Those who did not select an answer were omitted, and percentages for individual questions were calculated with the documented n value.
†General duty medical officer, family physician, surgeon, etc.

In terms of exposure to military settings during residency training, only 15 of 108 (14%) respondents completed a portion of their residency training on a Canadian Armed Forces base or under the direct supervision of a member of the Canadian Armed Forces. This group of participants perceived their residency training to be in appropriate areas of focus more so than the other participants did ($P=.02$) and on average spent more time participating in occupational health training ($P=.001$).

In terms of military duties in their GDMO careers, 71 of 110 (64%) respondents reported having 1 or more deployments. Among all 135 respondents, there were 143 deployments, including 6 domestic operations and 137 international operations. Deployments ranged in length from 1 to 9 months, with a median length of 3.6 months. Of note, 66 reported deployments (46%) were to Afghanistan, an area of particularly high trauma. Those participants who had their first deployment as a GDMO in a high-trauma area perceived their residency training to be more relevant to their role as a GDMO than the other participants did ($P=.03$), and they were more satisfied with their base clinic training than other participants were ($P=.03$).

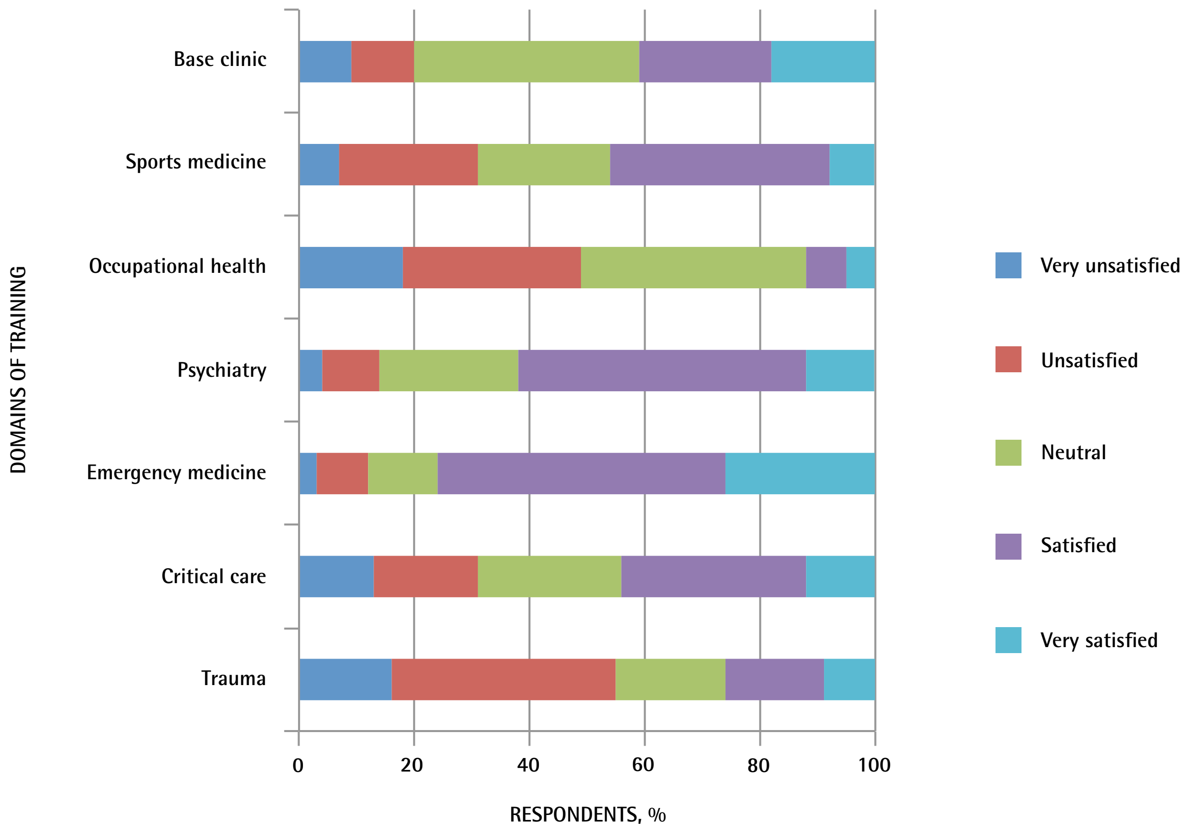
The length of time spent on 7 specific domains of care relevant to military medicine, as well as overall satisfaction with training received in those domains during residency, was reported by 106 respondents. On average the respondents spent comparatively more time training in emergency medicine and psychiatry (an average of 8.4 weeks and 5.3 weeks, respectively) compared with trauma training and occupational health (an average of 2.5 weeks and 0.2 weeks, respectively) (**Table 2**). On average respondents were most satisfied with their emergency medicine training, with 77% being satisfied or very satisfied, while fewer were satisfied or very satisfied with their psychiatry (63%), sports medicine (47%), base clinic (41%), and critical care (43%) training. Very few respondents were satisfied or very satisfied with their trauma (26%) and occupational health (12%) training (**Figure 1**).

Table 2. Average length of time spent training in 7 different domains related to military medicine

	RESPONDENTS,* %							
DOMAIN	0 WK	1-4 WK	5-8 WK	9-12 WK	13-16 WK	17-20 WK	≥21 WK	AVERAGE, WK
Trauma†	44	41	14	0	0	0	1	2.5
Critical care	24	51	20	4	0	0	0	3.7
Emergency medicine	0	15	38	29	9	2	8	8.4
Psychiatry	6	59	31	3	1	0	1	5.3
Occupational health	93	6	1	0	0	0	0	0.2
Sports medicine	33	61	5	1	0	0	0	2.5
Base clinic training	82	6	3	1	2	1	5	2.5

*Not all percentages add to 100 owing to rounding.
†For the purpose of this study, *trauma* refers to physical trauma only.

Figure 1. Satisfaction with training in 7 domains related to military medicine out of those who took each type of training



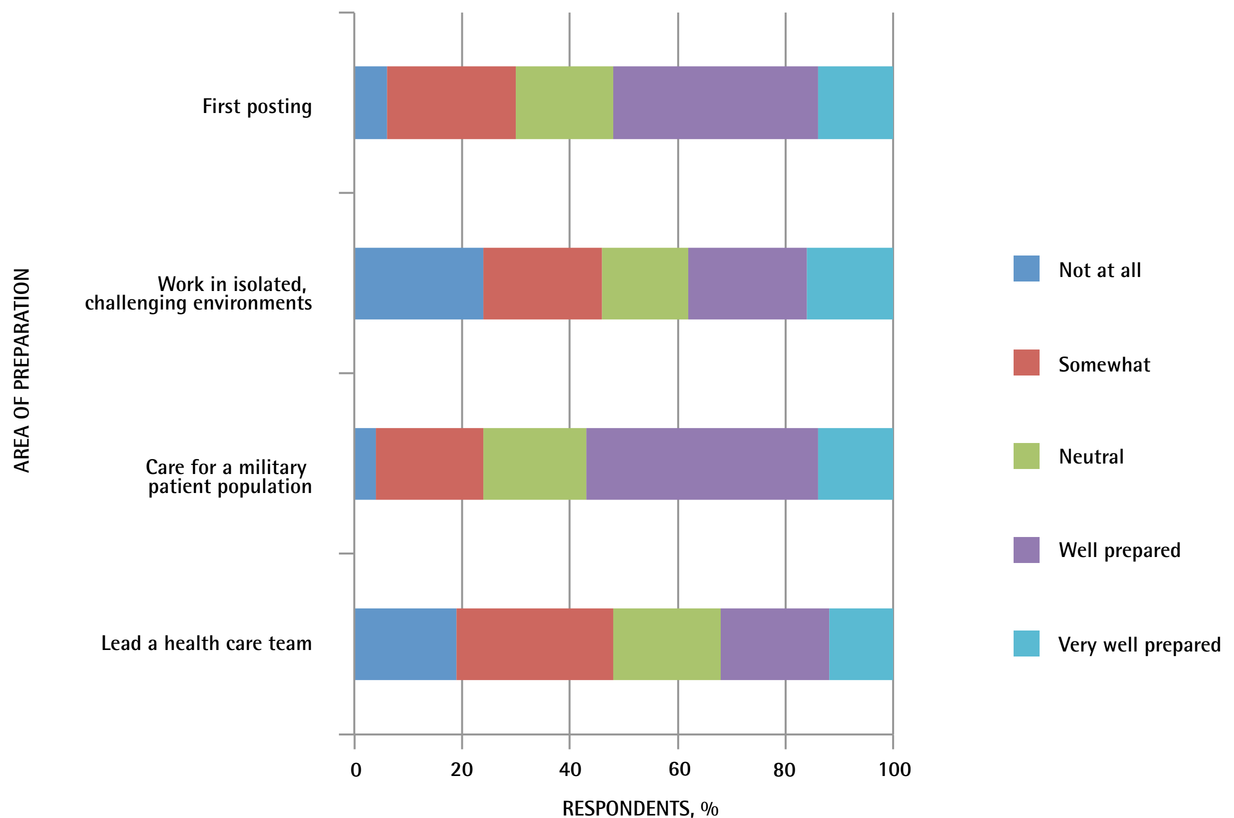
Overall, 108 (80%) respondents reflected on the relevance of family medicine residency training to GDMO needs. A total of 83 (77%) respondents agreed or strongly agreed that family medicine residency training was relevant to their role as GDMO; 67 (62%) agreed or strongly agreed that family medicine residency training afforded adequate flexibility to accommodate their needs to prepare them for a career in the Canadian Armed Forces; and 72 (67%) agreed or strongly agreed that the residency training was appropriate in areas of focus related to GDMOs. Of 105 respondents, 34 (32%) believed that residency training prepared them to lead a health care team; 60 (57%) believed they were prepared to care for a military patient population; 40 (38%) believed they were prepared to work in isolated, austere, or challenging environments; and 55 (52%) believed they were prepared for their first posting (**Figure 2**).

Finally, participants listed what they would like to have had included in their postgraduate training. Responses included dedicated trauma training (33 responses); more critical care and airway management training (22 responses); more exposure to sports medicine (21 responses); more exposure to emergency medicine (15 responses); more occupational health training (12 responses); and more psychiatry training with a focus on issues that are very important in managing mental health problems in military personnel such as posttraumatic stress disorder and depression (11 responses). Many respondents also indicated that they would have liked more military-specific training in leadership, command structure, and the role of the medic. Conversely, some respondents suggested that a highly focused military medicine curriculum risked diluting other vital family medicine training.

DISCUSSION

The results of this study showed that GDMOs were satisfied with many aspects of their family medicine residency training; however, a number of military-specific areas for improvement were identified. This might provide valuable data for family medicine residency

Figure 2. Perceived preparedness for roles related to military medicine



programs that accept trainees from the Medical Officer Training Program or the Military Medical Training Program. After completion of a family medicine training program, Canadian Armed Forces GDMOs require not only the broad and generalist skill sets of their civilian counterparts, but are also expected to practise in difficult environments, often with little colleague support. Additionally, GDMOs care for a diverse population comprising soldiers and, when deployed, wounded or ill combatants and indigenous civilians. Therefore, this study aimed to determine how satisfied GDMOs were with their training and how prepared GDMOs felt for practice after completing their residency in a civilian family medicine training program.

Most respondents thought that family medicine residency was relevant to their role as a GDMO. The degree to which GDMOs were satisfied with training depended on the domain of training. Specifically, most respondents were satisfied with their emergency medicine and psychiatry training, and some were satisfied with their sports medicine, base clinic, and critical care training. However, respondents were less satisfied with trauma and occupational health training. These results are similar to studies from other residency programs in the United States. Specifically, LeClair et al showed that in the United States Army, family physicians did not believe that their residency programs prepared them for military-specific practice management.[6] Additionally, military residents were surveyed regarding their preparedness for deployment; DeZee et al found that military-trained internists required additional training in military-specific areas of practice such as humanitarian assistance medicine.[7] Our results indicated that the GDMOs' satisfaction with domains of training was related to the length of time spent on those areas of training. The GDMO participants reported higher satisfaction with emergency medicine and psychiatry, for which the average lengths of training were 8.4 weeks and 5.3 weeks, respectively. They reported lower satisfaction with training in occupational health, trauma, and sports medicine, for which the lengths of training were 0.2 weeks, 2.5 weeks, and 2.5 weeks, respectively.

Not surprisingly, those who completed a portion of their training on a Canadian Armed Forces base perceived their residency training to be in appropriate areas of focus more than the other participants did and on

average spent more time in occupational health training. These results indicated that a rotation on a base would likely be heavily slanted toward occupational health and that occupational health would be immediately relevant to GDMOs' future practice.

It is noteworthy that a substantial number of the study participants' first postings were to 1 of the 4 large military bases of the Canadian Armed Forces. These bases often provide the bulk of the expeditionary forces deploying to austere locations and 3 of the 4 bases also house large medical units focused on front-line health care. Of the 143 reported deployments, 66 (46%) were to Afghanistan, a mission with a heavy burden of physical trauma. This context might explain the low level of satisfaction with residency training in the domains of trauma, sports medicine, and occupational health. Compared with other participants, those who deployed first to Afghanistan were more satisfied with their residency training in terms of relevance to their role as a GDMO.

In terms of preparedness to practise, less than half of the GDMO participants believed their training prepared them to lead a health care team and work in austere environments. While it is not the purview of family medicine training programs to specifically prepare residents for work in a military environment, the fact that only 32% of respondents believed they were prepared to lead a health care team might represent an area for improvement in family medicine training in general. These leadership skill sets are vital not only to GDMOs but also to family physicians in general. Indeed, the importance of these skills has recently been highlighted in the CanMEDS 2015 framework, with *manager* being replaced by *leader* as 1 of the 7 core physician roles.[8]

The findings of this survey might inform a modified training program for GDMOs, specifically with an increased focus on trauma management, occupational health, and sports medicine. In the United States some programs have attempted to incorporate military-specific education into training programs, such as deployment courses[2] and implementation of operational medicine rotations[9] and curricula,[10] which have generally been well received and led to improved skills in their trainees. Although it is recognized that family medicine training is broad and care must be taken to avoid diluting other learning opportunities, it might be possible to address these areas of perceived training gaps with minor curriculum changes. It is also likely that many civilian family medicine trainees would benefit from similar curricular refinements, as the skills associated are also relevant to many rural and remote areas of Canada.

Limitations

One limitation of this study relates to the cross-sectional survey method, as recent graduates might remember aspects of their training better than earlier graduates do. Also, this study might be limited by the small number of participants; however, these findings represent the views of a substantial number of Canadian Armed Forces GDMOs. As well, given the heterogeneity within the GDMO role and the effect on that role precipitated by the changing developments in the Canadian Armed Forces, it is possible that our data might not be sufficient to identify all GDMOs' needs for training in Canadian family medicine institutes.

Conclusion

This survey indicates that, overall, GDMOs are satisfied with their training; however, a number of military-specific areas for improvement were identified. It is conceivable that some of these areas might be addressed within the context of a 2-year residency program without risking the generalist nature of family medicine training. Indeed, many of the areas noted for possible improvement would be of benefit for family physicians in general. Future studies should look at the development of military medicine electives and the feasibility of incorporating them within Canadian postgraduate family medicine programs. The results of this survey will inform the Canadian Armed Forces and family medicine residency programs and trainees about the unique needs and areas for improvement in the training of military physicians.

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Contributors
All authors contributed to the design of the study; data collection, analysis, and interpretation; and preparation and editing of the manuscript.

Competing interests
None declared

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