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Original Article

Examining the status of rural post-graduate family medicine education

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Abstract

Introduction: Rural populations in Canada are generally in worse health when compared to their urban counterparts. In 2014, the College of Family Physicians of Canada and the Society of Rural Physicians of Canada formed a joint Task force to advocate for improved health in rural communities. As a task force, they developed the Rural Road Map for Action. This paper uses the Rural Road Map for Action as a framework to examine the current state of family medicine's Post-Graduate Medical Education (PGME) in Canada.

Methods: Surveys were sent to the programme directors of all English- and French-speaking post-graduate family medicine programmes. Both quantitative and qualitative methods were used to analyse survey responses.

Results: Thirteen of 17 respondents completed the questionnaire. Despite on-going efforts, our results suggest that few programmes have equity and diversity admission's policies for rural and Indigenous students; a gap exists between the number of residents who are educated in rural areas and those who end up practising in rural areas; residents lack skills in Indigenous health; and more funded professional development opportunities are needed for rural physicians.

Conclusion: Rural healthcare concerns are typically under-represented in PGME. The Rural Road Map for Action brings focus to the specific healthcare needs of rural areas, highlighting a recruitment and retention strategy that aligns education, practice, policy and research activities. Medical schools and national physician organisations need to continue to advocate for the health of rural communities through increasing the rural physician workforce and providing appropriate training for rural practice.

Keywords: Rural health, rural medical education, rural road map for action

Résumé

Introduction: Les populations rurales du Canada sont généralement en moins bonne santé que leurs homologues urbaines. En 2014, le Collège des médecins de famille du Canada et la Société de la médecine rurale du Canada ont formé un groupe de travail conjoint pour défendre l'amélioration de la santé dans les collectivités rurales. En tant que groupe de travail, ils ont élaboré le Plan d'action pour la médecine rurale. Le présent document utilise ce Plan comme cadre pour

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examiner l'état actuel de la formation médicale postuniversitaire (FMP) de la médecine familiale au Canada.
Méthodes: Les enquêtes ont été envoyées aux directeurs de programme de tous les programmes de médecine familiale postuniversitaire anglophones et francophones. Des méthodes quantitatives et qualitatives ont été utilisées pour analyser les réponses.
Résultats: Treize des 17 répondants ont rempli le questionnaire. Malgré les efforts en cours, nos résultats suggèrent que peu de programmes ont des politiques d'admission en matière d'équité et de diversité pour les étudiants ruraux et autochtones; un écart existe entre le nombre de résidents qui sont formés dans les zones rurales et ceux qui finissent par exercer dans ces zones; les résidents manquent de compétences en matière de santé autochtone et; que davantage d'opportunités de développement professionnel financées sont nécessaires pour les médecins ruraux.
Conclusion: Les préoccupations relatives aux soins de santé en milieu rural sont généralement sous-représentées dans la FMP. Le Plan d'action pour la médecine rurale met l'accent sur les besoins spécifiques des zones rurales en matière de soins de santé, en soulignant une stratégie de recrutement et de rétention qui aligne les activités d'éducation, de pratique, de politique et de recherche. Les facultés de médecine et les organisations nationales de médecins doivent continuer à défendre la santé des collectivités rurales en augmentant le nombre de médecins ruraux et en offrant une formation appropriée à la pratique rurale.

Mots-clés: éducation médicale rurale, plan d'action pour la médecine rurale, santé rurale

INTRODUCTION

People living in rural areas are commonly less healthy and experience worse health outcomes when compared to individuals residing in more urban settings. Such disproportionate health issues in rural areas include higher death rates from suicide, increased mortality from cardiorespiratory diseases and higher rates of smoking and obesity.[1] To improve these health-related outcomes, people living in rural areas must have access to healthcare professionals. However, rural areas in Canada continue to struggle with the recruitment and retention of these professionals.[2,3] With a significant proportion of Canadians living in rural areas, it is necessary that Canada continues to work towards a healthcare system which is founded on the principles of comprehensive, portable, universal, accessible and publicly administered care for all Canadians.[4]

In 1999, a report was authored by the College of Family Physicians of Canada (CFPC) on Post-graduate Education for Rural Family Practice that advised on what needed to be done to prepare physicians for the challenges of rural practice.[5] The report focused on core post-graduate education, special rural family medicine skills and advanced family medicine skills. Recognizing that challenges with rural health persisted, the CFPC and the Society of Rural Physicians of Canada (SRPC) formed a joint Task force focused on increasing the number of family physicians practising in rural communities and improving the health of rural Canadians.[6] As part of this work, the CFPC and SRPC commissioned a background paper to provide an overview on the implementation of the 1999 report. The background paper suggested that some strides have been made but more could be done to support and train rural family physicians.[7]

Medical schools have demonstrated a growing commitment towards social accountability to address population need and to support equity, diversity and inclusion for those entering medical school. This is evidenced in the vision statement for social accountability released by the Associations of Faculties of Medicine of Canada (AFMC) in 2001 and later in the commitment made by a consortium of medical organizations working with the AFMC in the Future of Medical Education in Canada MD and post-graduate medical education (PGME).[8-10] The CFPC and SRPC felt an important step in advancing the social accountability mandate of medical schools for rural Canadians was to explore the role of educational levers to support rural physician recruitment and retention. In 2017, the CFPC and SRPC produced T*he Rural Road Map (RRM) for Action* that laid out a strategy for multi-stakeholder collaboration.[6] The framework consists of four primary directions with 20 specific sub-directions or actions for each, all with the overarching goal of improving the health of rural Canadians.

The RRM has influenced progress in raising awareness across Canada about the need for

improved access to rural health care. These include recommendations for the establishment of admissions criteria to enhance the recruitment of rural and Indigenous students, calling for rural training requirements for rural specialists, cultural safety training at all levels of medical education, defining training profiles for family medicine in the rural context and developing an evaluation framework with learners to get a better understanding of practice patterns and the distribution of family physician resources.[6,11]

Our paper examines the current state of PGME in Canada and the implementation of the RRM actions 1–5, 7 and 8 in Canadian PGME [Table 1]. These actions focus on admissions policies, curriculum design using the CFPC Rural Priority Topics for Assessment,[12] Indigenous health and support for rural medical education infrastructure and leadership. The results from this study can help PGME reflect upon what yet needs to be done to optimise the education levers as part of an overall rural recruitment and retention strategy. Now more than ever medical schools must take up these actions as COVID-19 has exacerbated the inequitable distribution of rural healthcare services and magnified the stress and pressures on an already exhausted rural healthcare workforce.

METHODS

Study design

The programme directors of all 17 English- and French-speaking post-graduate family medicine programmes in Canada were invited to participate in an online survey from 7 October 2020 to 13 November 2020. The survey link was E-mailed to the programme directors along with a letter of information. The RRM Implementation Committee co-directors provided reminder communication with programme directors to improve response rates.

The questions in the current survey were developed around the specific educationally-based actions in the RRM. Actions 1–2 introduced the social accountability framework by mandating policies in the admissions process to increase rural and Indigenous representation in family medicine residency programmes.[13] It is essential to understand how schools define rural and if they have selection criteria that reflect rurality or Indigenous backgrounds. This not only helps support a school's response to increasing diversity in their medical schools but also reflects research that recognises that learners who come from rural and remote communities have a higher tendency to choose family medicine and rural practice and hence is helpful for rural

Table 1: Actions 1 to 5 and 7 and 8 from the Rural Road Map for action[6]
Direction 1: Reinforce the social accountability mandate of medical schools and residency programmes to address health care needs of rural and Indigenous communities
Action 1: Develop and include criteria that reflect affinity and suitability for rural practice in admission processes for medical school and family medicine residency programmes
Action 2: Establish and strengthen specific policies and programmes to enable successful recruitment of Indigenous and rural students to medical school and family medicine residency training, with established targets and measures of effectiveness
Action 3: Support extended competency-based generalist training in rural communities to prepare medical students and residents to be capable of and confident in providing broad-based generalist care in these settings
Action 4: Provide high-quality rural clinical and educational experiences to all medical students and family medicine residents that support experiential learning, enabling medical learners to feel comfortable with uncertainty and gain clinical courage
Action 5: Educate medical students and residents about the health and social issues facing Indigenous peoples, and ensure they attain competencies to provide culturally safe care
Direction 2: Implement policy interventions that align medical education with workforce planning
Action 7: Establish government and university partnerships with rural physicians, rural communities, and regional health authorities that include formal agreements to strengthen the delivery of medical education in rural communities by developing and implementing specific visible rural generalist education pathways led by rural academics and rural physicians. Provide substantial ongoing funding required to support rural faculty engagement, faculty development, research, administration and community engagement
Action 8: Establish programmes with targeted funding from federal, provincial, and territorial governments to enable rural family physicians and other specialists, predominantly those already in practice, to obtain additional or enhanced skills training to improve access to health care services in rural communities

physician recruitment.[14] Questions 1–3 [Table 2] were developed to address these two actions. Actions 3–5 recommend the need for well-trained generalist physicians.[15] It is known that there have been increases in the number of rural training sites, but what remains unaddressed is how effective these training sites are in providing adequate rural exposure and competencies to attract and retain future physicians. Recognising that rural practice requires specific skillsets, the CFPC developed rural-specific priority topics defined as foci for curriculum and assessment for trainees with residency programme expectations that trainees have exposure to and demonstrate competence in the competencies required to be ready to practice rural family medicine. Evaluating the programme's perception of whether the priority topics were taught and assessed is critical for success. Questions 4–7 were developed to assess actions illustrating the need for formal funding and support for rural faculty. Questions 8–12 were developed to explore rural physician representation in academic leadership positions and to explore rural-specific continuing professional development opportunities as both are known to influence rural recruitment and retention.[16] Questions 12–14 and 17 focused on Action 8 considering the availability of enhanced skills and added competencies to support physicians in meeting the specific needs of rural communities even before the completion of training and while already in practice. Additional questions were included in the survey to help further investigate the rural medical education landscape in Canada. A mix of quantitative and qualitative questions were used, including Likert response scale questions, select all that apply, and open-ended questions. Because the study was envisioned as an evaluation of residency programme design, this study did not seek/require ethical approval as it falls under article 2.5 of Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.[17]

Quantitative analysis

All data analyses were performed in SPSS 24 (IBM Corp. Armonk, NY, USA). Descriptive statistics, including frequencies and percentages, were calculated for appropriate questions: For specifics refer to Table 2. A set of questions based on the programme directors' opinions using a 5-point Likert scale gauging rural stream residents' versus all residents' readiness for practice was dichotomised as *prepared*, which included 'very well prepared, well prepared and adequately prepared' and *not prepared*, which included 'somewhat prepared and unprepared'. This decision was based *a priori* on the expert opinion of the RRM for Action Implementation Committee to ease interpretation and for potential statistical analysis. The results of these specific questions are in Table 2.

Qualitative analysis

Two members of the research team independently reviewed all qualitative responses. Responses were analysed and grouped together where appropriate, and the team identified themes across all surveys. If there was any disagreement between reviewers, the entire team was brought in.

RESULTS

In total, 13 (76%) programme directors agreed to participate in the study, 2 from French speaking schools and 11 from English speaking schools. The following results are broken up into three separate sections to correspond with specific actions from The RRM for Action and the questions designed to address those actions.

Section 1: Action 1 and Action 2 [Table 1]

At the post-graduate level, 5 responding family medicine programme directors stated that their programmes had specific definitions on what was considered rural. However, no consistent definition across post-graduate programmes in Canada could be found. Definitions of rural included towns <30,000 or a site at least 50 km away from the resident's home site. Only three programmes (23%) indicated that they have admission policies for equity and diversity; from those three, only one programme indicated that applicants' Indigenous background was considered in the admissions process. One programme shared that Indigenous interviewers were included in the admission interview process if an applicant disclosed their Indigenous heritage. Two programmes took

Table 2: Questions and results from the post-graduate medical education survey

Question	Results (%)
Q1. Do your admission policies address equity and diversity in your prospective resident cohort?	No=10 (77) Yes=3 (23)
1a. If so, do they reflect residents' Rural representation	No=1 (33) Yes=2 (67)
If yes, please describe them and share a resource link	Basic content analysis*
1b. If so, do they reflect residents' Indigenous backgrounds	No=2 (67) Yes=1 (33)
If yes, please describe them and share a resource link	Basic content analysis
2. Does your family medicine residency programme have an agreed-upon definition of or description for "rural" clinical teaching sites, tracks, and programmes?	No=8 (62) Yes=5 (38)
If yes, please describe it. Share a reference or link if applicable	Basic content analysis
3. Outside of the Canadian Resident Matching Service process, does your family medicine residency programme conduct an internal match for its residents to assign them to rural or remote primary clinical teaching sites?	No=12 (92) Yes=1 (8)
If yes, please list the names of these teaching sites, their locations, and the numbers of R1s and R2s per site	Basic content analysis
4. Across the 2 years residency programme, how many weeks, on average, do all residents have learning situated within rural or remote communities?	1 week=1 school; 8 weeks=6; 12 weeks=2; 20 weeks=1; 24 weeks=1; 70 weeks=1; 90 weeks=1
5. What are the total numbers of residents in your residency programme and the approximate number of residents (R1s and R2s) that spend the majority of their clinical learning time in rural or remote communities? Total number of residents	R1=1054; R2=1070
5. What are the total numbers of residents in your residency programme and the approximate number of residents (R1s and R2s) that spend the majority of their clinical learning time in rural or remote communities? Approximate number of residents learning in rural or remote communities	R1=274; R2=291
6. Does your family medicine residency programme use the CFPC's priority topics for rural and remote medicine?	No=4 (31); Yes=9 (69)
If yes, how does your family medicine residency programme use the CFPC's priority topics for rural and remote family medicine? Please describe	Basic content analysis
7. To what extent do you feel all residents are prepared for the following priority topics upon completing your overall residency programme?	Refer to Table 3
8. To what extent do you feel residents in your programme in a rural-specific stream are prepared for the following priority topics upon completing their residency?	Refer to Table 3
9. Does your family medicine residency programme offer extended learning opportunities (either a third year of training or a partial year) to help residents meet the needs of the rural communities in which they plan to work?	No=4 (31); yes=9 (69)
10. How is supplementary learning funded?	R3 funding=9; ministry=3; other=2; none=2
11. Does your department of family medicine offer formal mentorship opportunities to support physicians who are new to practising in rural communities?	No=12 (92) Yes=1 (8)
12. Does your department of family medicine or faculty of medicine's continuing professional development office offer learning opportunities to help practising physicians feel more prepared to work in rural or remote communities?	No=7 (54) Yes=6 (46)
If yes, please describe them and include how these opportunities are funded	Basic content analysis
13. Please describe any in-person faculty development offered locally in rural teaching settings	Basic content analysis
14. Please list the rural specific funded leadership positions in PGME	Basic content analysis
15. In addition to the above, please list funded leadership positions that are currently held by rural physicians	Basic content analysis
16. To what extent do major decision-making educational committees of your residency programme require rural educator representation in the terms of reference?	All=8; most=2; some=1; very few=1; none=1
17. Please describe the types of residency education committees that specially ask physicians in rural settings to participate	Basic content analysis
18. Please describe the ways in which rural communities have participated in your residency programme (e.g., providing housing, hosting visits with community leaders, offering invitations to events)	Basic content analysis

Contd...

Table 2: Contd...	
Question	Results (%)
19. What challenges or barriers have affected your residency programme's ability to provide rural learning experiences for its residents?	Basic content analysis
20. Over the past 5 years, what has been a source of pride for your residency programme in advancing rural medical education?	Basic content analysis
21. Please share feedback on other ways you think the CFPC could help your residency programme advance the role of education as a way to prepare family medicine learners to practise in rural and remote communities	Basic content analysis

**Basic content analysis=Open-ended answers. CFPC: College of Family Physicians of Canada, PGME: Post-graduate medical education

rural backgrounds into consideration, but no specific details were provided on what or how the admission policies where shifted based on a student's rural background.

Section 2: Actions 3, 4, and 5 [Table 1]

At the post-graduate level, 9 programmes use the CFPC priority topics for rural and remote medicine in the curriculum and programmatic assessment design of their residency programmes. In all instances, post-graduate directors ranked their rural-specific stream residents to be equally or more likely to be adequately prepared than all residents across the CFPC's rural priority topics [Table 3]. For example, when comparing all residents versus residents in a programme's rural-specific residency stream, only 11 (85%) programme directors responded that all of their family medicine residents were adequately prepared for managing trauma, whereas all 13 (100%) programme directors ranked their rural-specific stream of residents as being prepared. Eighty-five per cent of programme directors reported that they felt all residents in their programme were adequately prepared in cultural safety, but only 62% felt they were competent to address Indigenous health issues [Table 3].

Among the 13 participating post-graduate directors, the median percentage of residents in Family Medicine programmes (1st and 2nd year combined) who spent most of their clinical learning time in rural or remote communities was 32% (custom analysis). Some respondents suggested that lack of preceptors and lack of funding were the largest barriers affecting a residency programme's ability to provide the desired level of immersive rural learning experiences for residents.

Section 3: Actions 7 and 8 [Table 1]

Respondents indicated that there are funded rural-specific leadership positions, suggesting that resources are being allocated by medical schools to support the delivery of education in rural contexts. Specifically, programme directors indicated that they do have budget to fund rural specific leadership positions for their faculty. In addition, 10 programme directors indicated that most or all of their decision-making educational committees required rural physician representation. Nine programme directors responded that R3-designated funding was available from a provincial or ministry of health and 3 programme directors responded that special funding from the Ministry of Health, specific for preparation to practise in rural/remote locations, was accessible.

Only 6 programme directors stated that they offer learning opportunities to help practising physicians feel more prepared to work in rural or remote communities. For example, some programmes offer rural retreats, faculty development sessions, funding to support rural teaching and professional development sessions. However, few programme directors responded that they were able to elaborate on the funding behind these programmes.

DISCUSSION

The aim of this paper was to use the RRM for Action as a framework to examine the current state of rural PGME in Canada by surveying programme directors. Research has shown that factors related to PGME can significantly impact practice location and the health of rural communities and can demonstrate a faculty's progress on their social accountability journey.[18] The results of this study suggest that there is still work to do.

Table 3: Perceptions of family medicine programme directors of preparedness for rural-priority topics of residents in the rural-specific stream versus all residents

Prepared for rural priority topic	Number of programme directors perception of their residents (all), *n* (%)	Number of programme directors' perception of their rural stream specific residents only, *n* (%)
Trauma	11 (85)	13 (100)
Patient transfer	10 (77)	11 (85)
Septicaemia	13 (100)	13 (100)
Paediatric emergencies	11 (85)	11 (85)
Acute cardiac presentations	13 (100)	13 (100)
Psychiatric emergencies	12 (92)	13 (100)
Diabetic emergencies	12 (92)	12 (92)
Active airway management	9 (69)	13 (100)
Urgent respiratory presentation	13 (100)	13 (100)
Fracture and dislocation management	10 (77)	13 (100)
Intrapartum care	13 (100)	13 (100)
Altered level of consciousness	13 (100)	13 (100)
Procedural sedation	7 (54)	12 (92)
Chronic pain	13 (100)	13 (100)
Indigenous health	8 (62)	11 (85)
Clinical courage	11 (85)	13 (100)
Adapting to rural life	9 (69)	13 (100)
Cultural safety and sensitivity	11 (85)	12 (92)

A recurring issue across most rural research is the lack of a consistent definition of rural.[19-21] In the absence of an agreed upon designation, it will be difficult to determine if medical schools, programmes, or health education policies have made objective strides in increasing the number of Canadian rural physicians. For instance, one school had a definition that included towns <30,000, while another used a definition of a site at least 50 km away from the resident's home site. These definitions would capture two very different rural populations. Rural physicians, researchers, and health care administrators must begin to formalize discussions for a standard designation of rural to be used across Canadian residency programmes. Without it, evaluations will be limited with lack of comparable data to inform educational policy reform.

Unlike some Canadian undergraduate medical education programmes, which have designated student seats for rural and Indigenous students, this study shows that there is no evidence that similar structures exist in PGME. When schools did have equity and diversity policies at the post-graduate level, they typically consisted of score adjustments or the inclusion of Indigenous members on the interview committee, rather than the direct seat allocation used in the undergraduate system. Increased resources are needed to help ensure that once a student interested in rural medicine enters their medical education, they are adequately supported throughout their education and career as a rural physician. To achieve the desired diversity in the physician workforce and work towards Actions 1 and 2 in the RRM, faculties must support a representative mix of medical students, including ethnicity and geographic origin beyond undergraduate medical education and into post-graduate training.

Previous research has indicated that the location of medical training and the length of medical training is associated with the location of practice upon graduation.[22] Since the results of this study suggest that almost one-third of all residents spend most of their clinical training time in rural or remote communities, one would expect to see a greater proportion of physicians practising in rural areas. Future research is needed that focuses on action 3 and 4 to understand ways to mitigate or help students and residents adapt to the uniqueness of rural practice and improve upon the 8% of family doctors practising in rural and remote regions.[23]

The prevalence of arthritis, asthmas, diabetes, obesity and tuberculosis are all higher in the Indigenous populations in Canada than in non-Indigenous populations.[24] This study found that only 62% of residents were rated as

adequately prepared to care for Indigenous health issues meaning there is much work to be done on action 5. Multiple complex factors drive the health of Indigenous people, and specialised training for physicians is needed to provide better care for them. Medical institutions have a significant role to play in decreasing the health inequities between Indigenous and non-Indigenous populations, especially in rural locations and the results suggest that this is a much needed area of improvement. In keeping with the calls to action from the Truth and Reconciliation Committee, specifically Actions 18–24, healthcare educational institutions are called on to provide cultural training and skills-based training as part of a national strategy to identify and close the gaps in health outcomes for Indigenous people.[25]

In a study published in 2003, rural physicians ranked advanced skills training as one of the top six medical education training solutions to recruit and retain rural physicians.[26] This finding was supported by another more recent study that suggested one of the most significant issues for rural physicians is the challenge in participating in continuing medical education for their skills training.[27] The combination of these studies highlights the importance of having accessible rural-specific enhanced skills training, but this study found that only 46% of schools offer learning opportunities to help practising physicians feel more prepared to work in rural or remote communities. In correspondence with action 7, to help support rural physicians, publicly funded collaborative networks between schools and communities need to be formed so that more learning opportunities are available for rural physicians.

The results from this study can help PGME reflect upon what yet needs to be done to optimise the education levers as part of an overall rural recruitment and retention strategy. Now more than ever medical schools must take up these actions as COVID-19 has exacerbated the inequitable distribution of rural health care services, and magnified the stress and pressures on an already exhausted rural healthcare workforce.

Limitations

One key limitation of this study is the survey relies on the knowledge of one person in the programme. It is possible that there are components or nuances of the residency programme that the survey taker might not have been aware of. Future research in this area might use targeted surveys to get a broader picture of the entire programme.

Despite efforts over the last decades to identify and respond to the needs of Canada's rural physician workforce, there is still work to be accomplished on a national scale. The RRM was conceived to harness government, academia, communities and rural physicians in concert to develop a national strategy for rural physician workforce planning. There is evidence that these collective efforts have had results, most notably in specific programmes and schools (Northern Ontario School of Medicine University, rural dedicated pathways and programmes in UME and PGME) dedicated to providing competent rural physicians. However, the reality is that making efforts in this area needs to be at the national level with the understanding that this work is about marathons, not sprints. With universal healthcare being a defining national value, it is essential that healthcare programmes are frequently assessed to ensure that healthcare remains accessible to all Canadians, including those in the rural and remote locations.[28]

CONCLUSION

With the continual push towards social accountability and equity, diversity and inclusion, the results from our study have laid the foundation for understanding the current state of PGME in Canada and identified opportunities to move forward. Our study identified a lack of policies to help rural and Indigenous students enter desired placements, residents must receive more training in Indigenous health issues, and more rural specific skills training is needed. In agreeance with other research, educational initiatives, human workforce planning for rural healthcare and support for rural practice networks are warranted.[29]

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