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Insights on Preparedness for Practice From Family Medicine Longitudinal Survey Data: An Outcomes of Training Project evidence summary

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Background

The goal of the Triple C Competency-Based Curriculum (Triple C) is to ensure graduates are prepared to enter and adapt to the practice of comprehensive family medicine in any community in Canada.¹ As part of the Outcomes of Training Project, the College of Family Physicians of Canada (CFPC) commissioned a rapid literature review on the definition of preparedness for practice.² The review concluded that preparedness for practice involves the interplay of four constructs: competence, capability, confidence, and adaptability.²

A number of factors influence learners' feelings related to being prepared, such as the inclusion of experiential learning or exposure to training opportunities,³ the vertical integration of the curriculum,^{4,5} the use of problem-based learning courses,⁶ appropriate supervision, positive feedback from supervisors,⁷ and the availability of mentorship. A lack of exposure to opportunities or gaps in experience have been found to have a negative impact and result in feelings of being less prepared.⁸

As part of the evaluation of the implementation of the Triple C, the CFPC created the Family Medicine Longitudinal Survey (FMLS), which is administered to family medicine residents/graduates at three points in time: entry to residency (T1), exit from residency (T2), and three years into practice (T3). It was designed to explore respondents' demographics, attitudes related to family medicine, exposure to Triple C, and practice intentions. For this review, perspectives of family medicine residents and early-career family physicians about their exposure to comprehensive care and their feelings related to preparedness for practice were explored. The relationships between exposure, preparedness for practice, and intention to practise comprehensive care are reported in this summary.

The definition of comprehensive care that is used in the FMLS is:

Comprehensive care is the type of care family physicians provide (either on their own or with a team) to a defined population of patients across the life cycle, in multiple

clinical settings, addressing a spectrum of clinical issues (from prevention to acute to chronic disease and palliative care).⁹

This definition was used before the Family Medicine Professional Profile was developed describing the collective contributions, capabilities, and commitments that reflect the potential comprehensive scope of practice of family physicians approved by the CFPC Board.¹⁰

Objective

The objectives of this study were to examine these two questions:

- What is the perception of family medicine graduates with respect to their preparedness for practice in relation to exposure to certain domains, practice settings, and populations at the end of residency that reflect the comprehensive scope of practice of family physicians?
- How does the perception of preparedness for practice of family medicine graduates compare with that of early-career family physicians?

Methods

For this study we analyzed data from the FMLST2 results of all participating family medicine residents who completed residency in 2015 (from 15 programs), 2016 (from 16 programs), and 2017, 2018, and 2019 (from 17 programs). We then analyzed responses from available FMLS T3 data from fall 2018 and 2019 (collected from graduates who had exited residency in 2015 and 2016 and had been in practice for three years; this included data from 15 and 17 programs, respectively).

We examined certain relationships between exposure and preparedness for practising comprehensive family medicine and between preparedness and practice intentions related to comprehensive family medicine. We used two cohorts of family medicine residents (2018 and 2019). Chi-square tests were used to examine statistically significant differences for most comparisons; however, Fisher tests were used when cell sizes were too small. The level of significance was initially set at 0.05;

a Bonferroni correction was then applied to reduce the risk of type I error. To account for differences in response rates, the data were weighted by residency program. All statistical analyses were completed using the statistical software package SPSS version 27. This research was approved by the human research ethics board at each of the 17 participating institutions.

Findings

Preparedness by career stage

We compared the reported preparedness of family medicine graduates (T2) from 2015 and 2016 with the reported preparedness of early-career (T3) family physicians in 2018 and 2019 in relation to the various comprehensive care domains defined in the survey. Only one statistically significant difference was found in responses between these career points for the domains; in **preparedness to provide care for a full range of health problems, there was a decline to 86 per cent at three years into practice in 2019 from 92 per cent at the end of residency in 2016.**

Family medicine graduates' preparedness for practice by exit year

At the end of residency more than 85 per cent of respondents agreed or strongly agreed that residency had prepared them to treat a full range of health problems, provide care for patients at all life stages, provide care for patients in a range of clinical settings, and address a broad spectrum of illness presentations (source: FMLS T2 respondents from 2015, 2016, 2017, 2018, and 2019). In addition, most respondents agreed or strongly agreed that residency prepared them for using electronic medical and health records, working as part of a team, and evaluating and improving the quality of patient care. Across the five years reported, about three-quarters (77 per cent) of respondents felt prepared to care for a range of populations and approximately two-thirds (63 per cent) felt prepared to teach health professionals.

Family medicine graduates' exposure by exit year

At the end of residency, few respondents in 2018 and 2019 reported having received no or minimal exposure

to care across the life cycle, intrapartum care, mental health care, chronic disease management, palliative care, office-based clinical procedures, emergency department and in-hospital care, rural populations, and elderly populations. However, in both cohorts, large percentages of respondents in 2018 and 2019 reported no or minimal exposure to marginalized/disadvantaged/vulnerable populations (35 per cent and 35 per cent, respectively), long-term care facilities (38 per cent and 38 per cent, respectively), and care in the home (45 per cent and 53 per cent, respectively). More than half of respondents reported no or minimal exposure to Indigenous populations (59 per cent and 57 per cent, respectively) or to in-hospital clinical procedures (65 per cent and 71 per cent, respectively).

Preparedness for practice related to exposure to curriculum design elements

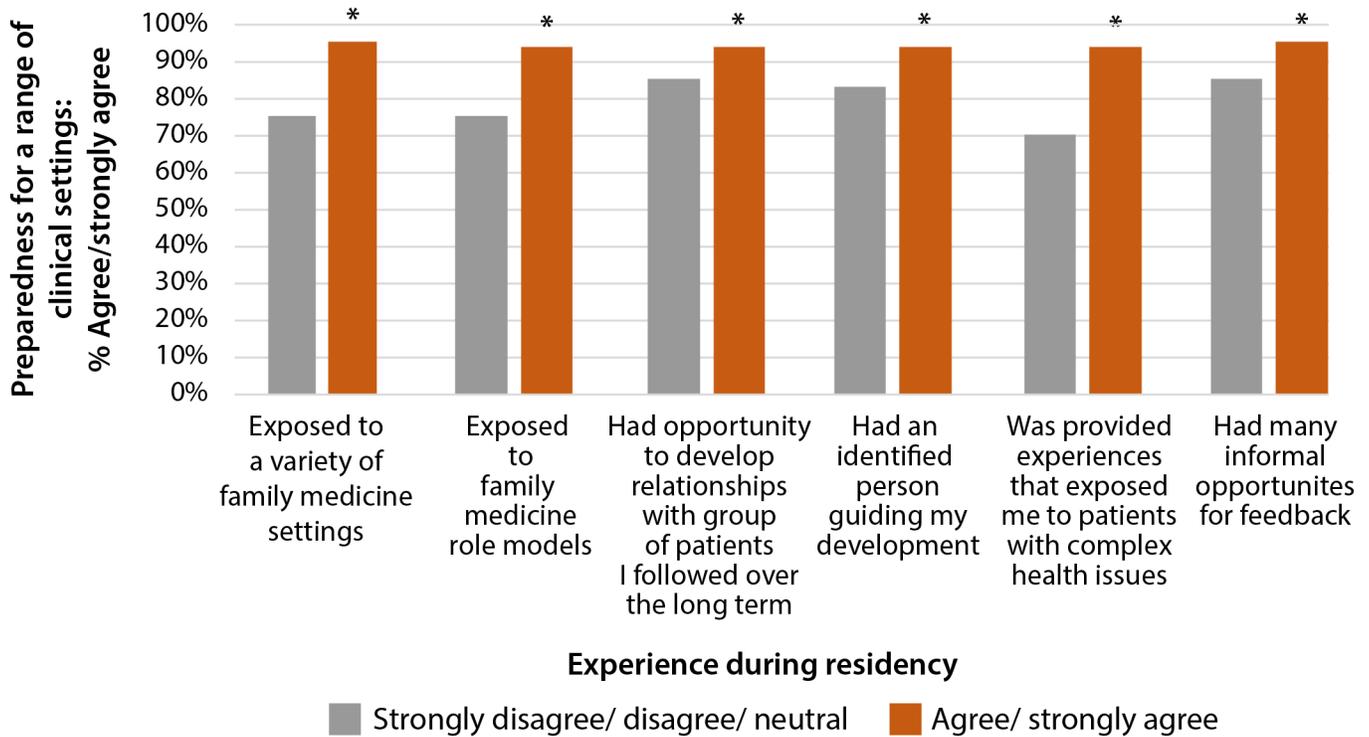
Survey respondents who agreed or strongly agreed with having had exposure to six specific curriculum design elements were more likely to agree or strongly agree that they felt prepared to provide care in a range of clinical settings. The effects were modest, as the comparisons frequently resulted in small cell sizes. The largest effects were found for exposure to a variety of family medicine settings and exposure to family medicine role models (**Figure 1**).

When examining the relationships between the six residency curriculum learning experiences and exposure to the various family medicine clinical domains (including exposure to patients with complex health issues, role models providing informal feedback, and relationships fostered with patients over the long term), it was found that those who agreed or strongly agreed that they were prepared to provide care for a range of populations and agreed or strongly agreed that they had exposure during residency were more likely to agree or strongly agree that they felt prepared to provide care for a range of populations. The largest effect was for exposure to a variety of family medicine settings (**Figure 2**).

Comparing exposure to a range of clinical settings and preparedness to provide care

When comparing the relationship between the reported exposure of family medicine graduates from 2018

Figure 1. Reported preparedness of family medicine graduates for a range of clinical settings in relation to residency experiences



*Significant difference
 $P \leq 0.05$ and adjusted using Bonferroni correction

and 2019 to six different settings (office-based clinical procedures, in-hospital clinical procedures, emergency departments, hospital, care in the home, and long-term care facilities) and their reported preparedness in relation to providing care in a range of clinical settings, we found all relationships were significant except for that with long-term care (**Figure 3**). Those with at least adequate exposure to settings were more likely to agree or strongly agree that they were prepared to care for patients in a range of clinical settings.

Comparing preparedness with intention to provide care in a range of clinical settings

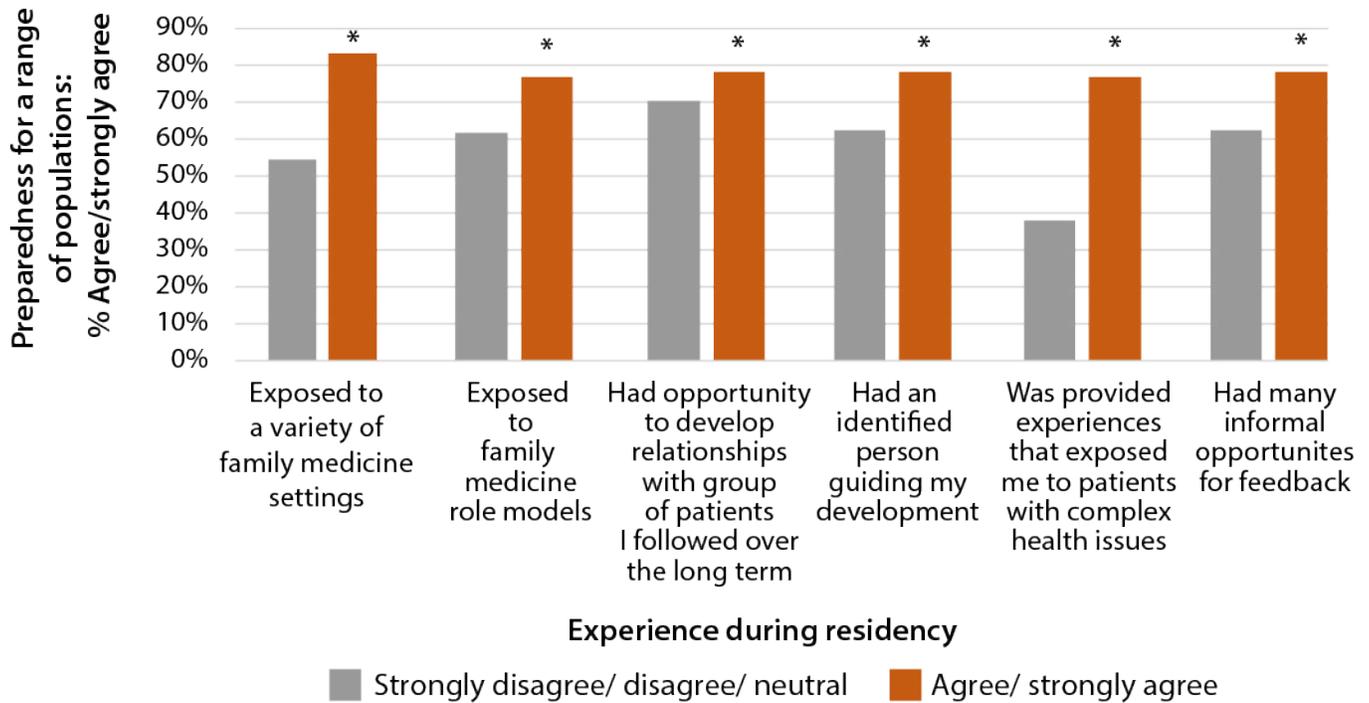
When comparing the relationship between the reported preparedness of family medicine graduates from 2018 and 2019 to provide care to patients in a range of clinical settings with their intention to practise in the same six settings (office-based clinical procedures, in-hospital

clinical procedures, emergency departments, hospital, care in the home, and long-term care facilities), all relationships were statistically significant except those for home care and long-term care. Those who agreed or strongly agreed that they were prepared to care for patients in a range of clinical settings were more likely to intend to provide care in the settings (**Figure 4**). Survey administration errors in three programs in 2018 and four programs in the 2019 resulted in data from these programs being excluded from all questions in this comparison. In cases where domains, settings, or populations had few family medicine graduates who reported no or minimal exposure, Fisher tests were used in lieu of chi-square tests.

Comparing exposure to feeling prepared to provide care to a range of populations

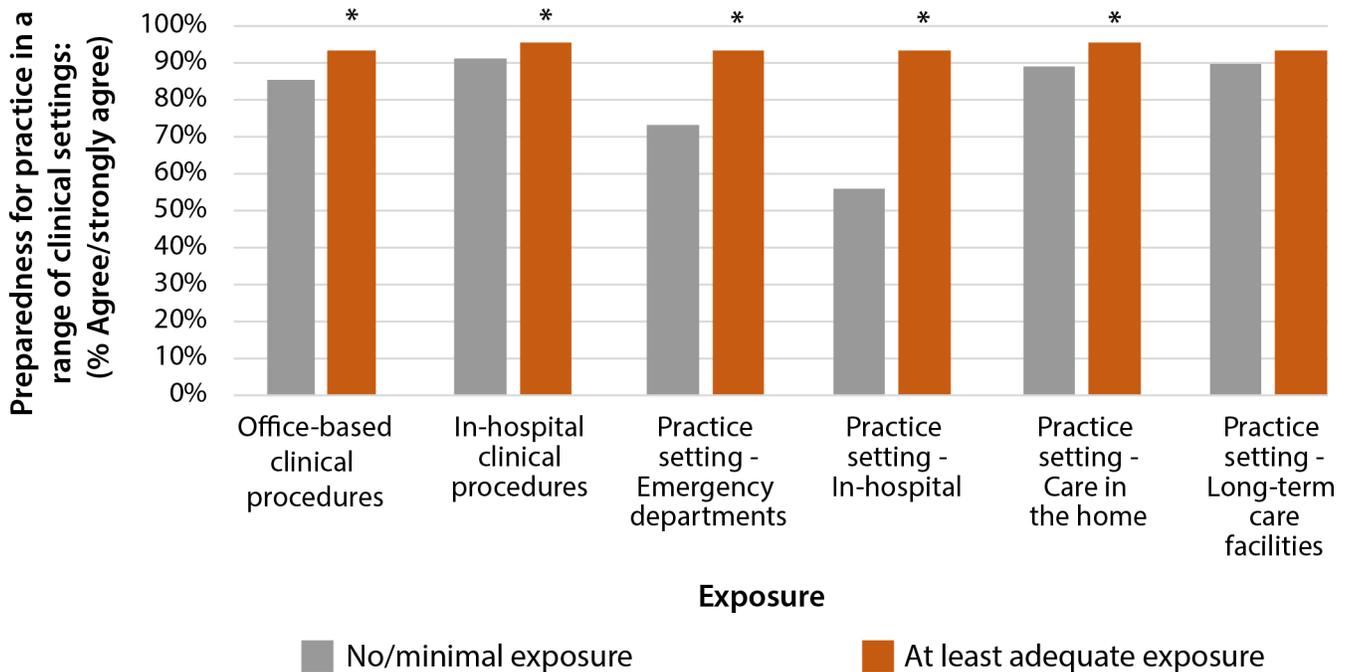
When comparing the relationship between 2018 and 2019 family medicine graduates' reported exposure

Figure 2. Reported preparedness of family medicine graduates for a range of populations by residency experience in relation to exposure to curriculum learning experiences



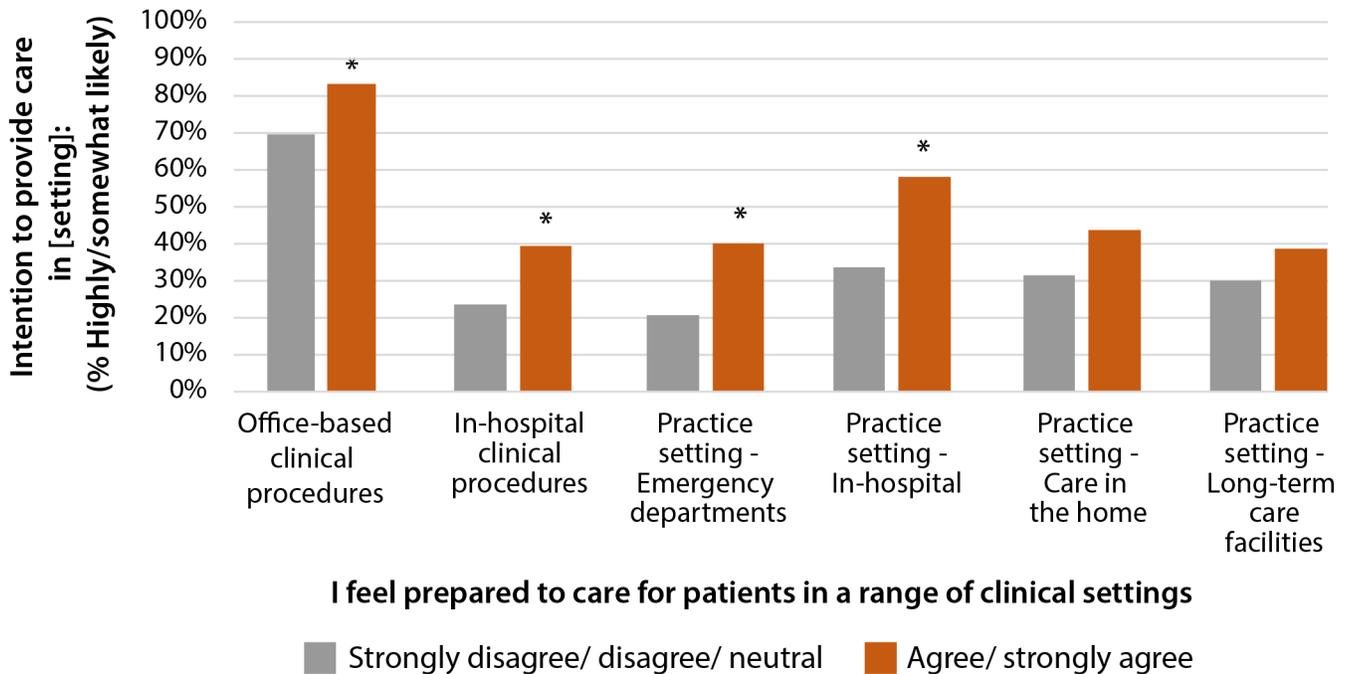
*Significant difference
 $P \leq 0.05$ and adjusted using Bonferroni correction

Figure 3. Reported preparedness of family medicine graduates to provide care in a range of clinical settings in relation to exposure to particular settings



*Significant difference
 $P \leq 0.05$ and adjusted using Bonferroni correction

Figure 4. Family medicine graduates' reported intentions to provide care in a range of clinical settings in relation to their preparedness for those settings



*Significant difference
 $P \leq 0.05$ and adjusted using Bonferroni correction

to four types of patient populations (marginalized/disadvantaged/vulnerable, rural, elderly, and Indigenous) and their reported preparedness for a range of populations, all relationships were statistically significant except for that with elderly populations (Figure 5). Those with at least adequate exposure to those population groups were more likely to agree or strongly agree that they were prepared to care for a range of populations.

Comparing preparedness with intention to provide care for a range of populations

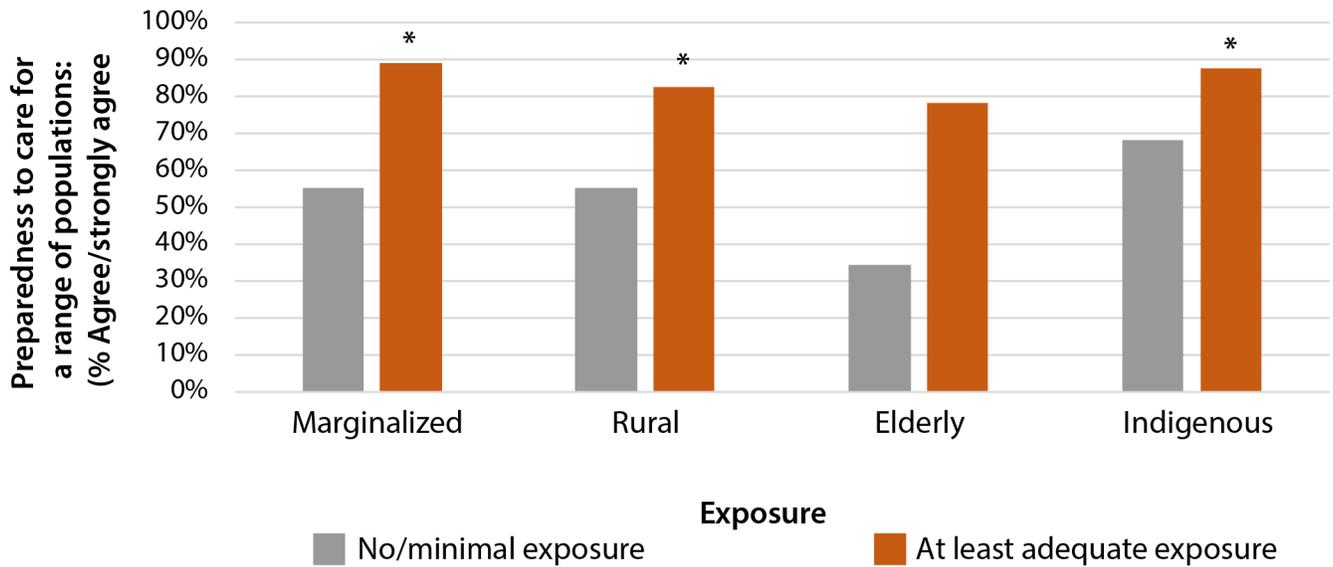
When comparing the relationship between 2018 and 2019 family medicine graduates' reported preparedness to care for a range of populations with their practice intentions to provide care for the same four population groups (marginalized/disadvantaged/vulnerable, rural, elderly, and Indigenous), all relationships were statistically significant except for that with elderly populations (Figure 6). Those who agreed or strongly

agreed that they were prepared to care for a range of populations were more likely to intend to provide care to those population groups. Again, because of survey errors and the change in the exposure question language used in 2018, data reported for 2018 and 2019 hold limitations and the use of the Fisher test should be noted in lieu of chi-square for comparisons.

Limitations

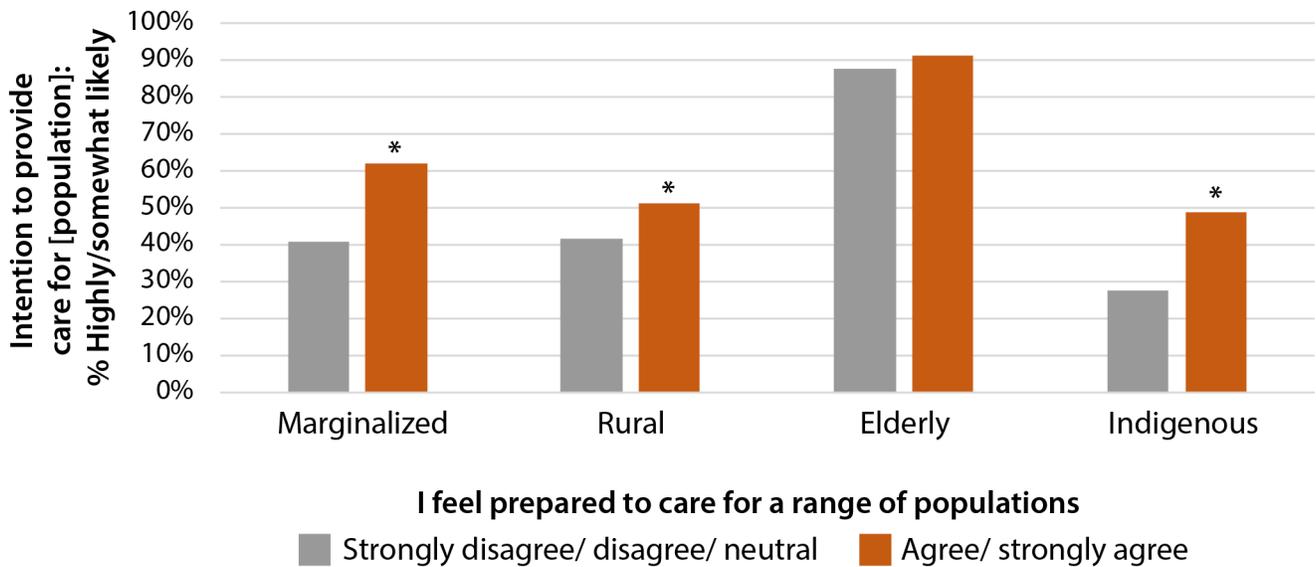
For several cohorts of potential survey respondents, not all residency programs in Canada participated. Survey administration errors in three programs in 2018 and four programs in the 2019 resulted in data from these programs being excluded from all questions concerning exposure in this comparison. In addition, the response rate from T3 participants in FMLS was on average only 21 per cent. While we acknowledge the limitations in this study and the limitations associated with self-reported data, we still see the methods used

Figure 5. Reported preparedness of family medicine graduates to care for a range of populations in relation to their level of exposure to those populations



*Significant difference
 $P \leq 0.05$ and adjusted using Bonferroni correction

Figure 6. Reported intentions of family medicine graduates to care for a range of populations in relation to their feelings of preparedness to do so



*Significant difference
 $P \leq 0.05$ and adjusted using Bonferroni correction

and these data to be of value as this study is unique to the Canadian family medicine residency experience. Also, the use of self-perceptions is the most efficient way to gather information on personal perceptions related to preparedness and practice intentions.

Discussion

The goal of Triple C is to ensure graduates are prepared to enter and adapt to the practice of comprehensive family medicine in any community in Canada.¹ As part of the Outcomes of Training Project, understanding factors that influence preparedness for practice from an educational perspective is important for considering recommendations for enhancing residency education. With the findings from this analysis of the FMLS, the CFPC aimed to answer several key questions:

- Were learners prepared at the end of residency?
- How did their perceptions of preparedness change as early-career family physicians?
- Were learners provided adequate exposure to learning related to the potential comprehensive scope of practice of family medicine?
- Is there a relationship between exposure and the feeling of being prepared to practise comprehensive care?
- Is there a relationship between the feeling of being prepared and a graduate's intention to practise comprehensive family medicine?

Note again that the definition of comprehensive care used in the FMLS reflects the notion of a family physician working on one's own or with a team to provide care to a defined population of patients across the life cycle, in multiple clinical settings, addressing a spectrum of clinical issues (from preventive to acute to chronic disease to palliative care).

With respect to preparedness, the results indicated the majority of graduates felt their residencies prepared

them to provide care for a full range of health problems and patient populations in a variety of clinical settings and to use electronic medical and health records, work in teams, and engage in quality improvement. Fewer graduates reported feeling prepared to provide care to a range of populations and to teach health professionals. With the exception of providing care for a full range of health problems, this perception of preparedness did not change significantly at three years into practice.

With respect to the question of exposure, the analysis indicated that family medicine graduates felt they had the least exposure during training to marginalized/disadvantaged/vulnerable populations, long-term care facilities, care in the home, Indigenous populations, and in-hospital clinical procedures of the domains identified by the CFPC. These findings were relatively consistent over the five-year reporting period for T2 data. Family medicine graduates who'd had exposure to a variety of family medicine settings, to patients with a variety of health issues, to patients across the life cycle, to role models and guidance, and to opportunities for informal feedback, along with the establishment of long-term relationships with patients, felt more prepared to provide care in a range of clinical settings and for a range of populations.

The study also found that graduates who reported having at least adequate exposure to patients across the life cycle, to different family medicine practice settings, to patients with a variety of health issues, and to diverse populations were more likely to feel prepared to provide care across care settings and to a range of populations than graduates who reported having no or minimal exposure. One exception to this was related to exposure to elderly populations, as those who reported having had no or minimal exposure were still highly likely to feel prepared to provide care to this population. In addition, graduates who reported feeling prepared were more likely to provide care across settings and to a range of populations.

Conclusion

As part of the Outcomes of Training Project, recommendations are being considered for how to improve family medicine residency education. Based

on findings from the FMLS, clinical exposure influences graduates' feelings of preparedness for practice and subsequent practice intentions. These findings have implications for recommendations being made as part of the Outcomes of Training Project.

Further information

To read the full report—*Preparing Our Future Family Physicians: An educational prescription for strengthening health care in changing times*—and related evidence and scholarship, please visit <https://www.cfpc.ca/futurefp>.

To request de-identified Family Medicine Longitudinal Survey data please contact the Education Evaluation and Research Unit (eeru@cfpc.ca).

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