Biopsy of Canada’s family physician shortage

Kaiyang Li 1, Anna Frumkin, Wei Guang Bi, Jamie Magrill, Christie Newton

ABSTRACT

Family physicians provide comprehensive care for the community and are an integral part of the healthcare system. Canada is experiencing a shortage of family physicians, driven in part by overbearing expectations of family physicians, limited support and resources, antiquated physician compensation, and high clinic operating costs. An additional factor contributing to this scarcity is the shortage of medical school and family medicine residency spots, which have not kept pace with population demand. We analysed and compared data on provincial populations and numbers of physicians, residency spots and medical school seats across Canada. Family physician shortages are the highest in the territories (>55%), Quebec (21.5%) and British Columbia (17.7%). Among the provinces, Ontario, Manitoba, Saskatchewan and British Columbia have the fewest family physicians per 100 000 persons in the population. Among the provinces that offer medical education, British Columbia and Ontario have the fewest medical school seats per population, while Quebec has the most. British Columbia has the smallest medical class size and the least number of family medicine residency spots as a function of population, and one of the highest percentages of provincial residents without family doctors. Paradoxically, Quebec has a relatively large medical class size and a high number of family medicine residency spots as a function of population, but also one of the highest percentages of provincial residents without family doctors. Possible strategies to improve the current shortage include encouraging Canadian medical students and international medical graduates to consider family medicine, and reducing administrative burdens for current physicians. Other steps include creating a national data framework, understanding physician needs to guide effective policy changes, increasing seats in medical schools and family residency programmes, providing financial incentives and facilitating entry into family medicine for international medical graduates.

BACKGROUND

Family physicians (FPs) provide high-quality, comprehensive and continuous care often as the first point of contact for members of the community. FPs improve population mortality by providing crucial preventive care, screening and monitoring. Every additional FP per 10 000 people increases life expectancy 51.5 days and reduces cardiovascular, cancer and respiratory mortality by 0.9%, 1% and 1.4%, respectively. Although FPs constitute a central role in the healthcare system, there is a significant shortage of FPs in Canada: one in five Canadians does not have a regular FP, and according to the Canadian Medical Association, Canada’s physician-to-population ratio ranks 29th out of 36 high-income nations. In this analysis, we evaluate the scope of the disparity across Canadian provinces and territories, using a quantitative approach with qualitative strategies and insights to stimulate discussion and spur action.

Provincial government decisions in the 1990s, when politicians reacted to the 1991 Barer-Stoddart Report, coupled with the erroneous belief that a surplus of FPs with overly generous wages was wasting taxpayer dollars, have served to shape the current Canadian healthcare crisis. These policies led to the curtailing of medical school seats, reduced family medicine (FM) residency positions and a dramatic increase in barriers to access for international medical graduates (IMGs) aiming to practice in Canada. This reduction of the workforce, compounded by the stagnation of wages, inflation and a decrease in government investment in primary care at the federal and provincial levels, have all contributed to today’s shortage of FPs in Canada.

Fewer FPs to care for our growing and ageing population, coupled with increased patient care complexity and a higher prevalence of chronic health issues, will result in reduced patient access to care, worse patient outcomes and further stressors on our healthcare system. Without timely access to community care, patients often resort to more costly emergency departments, straining these resources further, which leads to an overwhelmed healthcare system that exacerbates physician burn-out and encourages early exit from the workforce. Of further concern, a significant percentage of Canada’s ageing workforce of FPs is nearing retirement, with up to 20% of FPs planning to retire in the next 5 years. With fewer medical graduates choosing FM, this trend will only serve to further exacerbate the FP shortage. More FPs...
are also abandoning traditional community care—with its high overhead costs and administrative burdens—and instead tailoring their practices to focused areas, higher-income fields, or hospital work with better compensation, lower or no overhead and team infrastructure, which consequently removes them from the front lines of community-based primary care.

METHODS
The latest data for all metrics was used and tabulated by province and territory in Table 1 and Figure 1. Statistics Canada was used to identify populations (2022 Q3) across Canadian jurisdictions and the percentage of provincial residents without a family doctor. The Canadian Physician Demographics and Supply Archive was used to identify the number of FPs per province (2019). The Association of Faculties of Medicine of Canada—Canadian Medical Education Statistics report (2020–2021 cycle) was used to identify the number of seats for medical schools across Canada. Canadian Residency Match Services 2022 R1 match data report was used to identify the number of FM residency spots in different provinces.

RESULTS
As the Canadian medical system is primarily administered provincially, shortages of FPs vary dramatically by jurisdiction, and these shortages are partially related to regional numbers of medical student seats and unfilled FM residency positions. The latest data on the distributions of FPs (2019), medical school seats (2020) and FM residency spots (2022) are demonstrated by province and territory in Figure 1 and Table 1. Together, the Prairie and Atlantic provinces trend close to the national average for the numbers of FPs and medical school seats per capita. By contrast, the rural Canadian Territories have the highest percentage of the population without access to a regular medical practitioner (defined as an FP, a nurse or a medical specialist).

British Columbia (BC), one of the most populous provinces in Canada with only one medical school, has one of the highest rates of provincial residents without FPs, and only offers 5 medical school seats per 100 000 provincial residents, with 40 new seats to be instated in 2023. However, despite adding these seats, BC will still have the least seats per capita among provinces that administer medical education. BC also has the least FM residency positions per capita, and these spots are among the highest in demand in Canada: in

Table 1  Distribution of FP, MS spots (per year), medical school enrolment by the province of residence (per year), FMR positions (per year) by province and territories in Canada (2019)

<table>
<thead>
<tr>
<th>Province or territory</th>
<th>Population</th>
<th>Without FP (%)</th>
<th>No of FP</th>
<th>Population per FP</th>
<th>No of MS spots</th>
<th>Population per MS spot</th>
<th>FMR positions offered (vs unfilled)</th>
<th>Population per FMR position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>38 929 902</td>
<td>14.5</td>
<td>44 584</td>
<td>873</td>
<td>2972</td>
<td>13 099</td>
<td>1399 (219)</td>
<td>27 827</td>
</tr>
<tr>
<td>AB</td>
<td>4 543 111</td>
<td>14.9</td>
<td>5758</td>
<td>789</td>
<td>338</td>
<td>13 441</td>
<td>139 (32)</td>
<td>32 684</td>
</tr>
<tr>
<td>BC</td>
<td>5 319 324</td>
<td>17.7</td>
<td>6366</td>
<td>836</td>
<td>288</td>
<td>18 470</td>
<td>122 (1)</td>
<td>34 601</td>
</tr>
<tr>
<td>MB</td>
<td>1 409 223</td>
<td>15.8</td>
<td>1519</td>
<td>928</td>
<td>110</td>
<td>12 811</td>
<td>42 (5)</td>
<td>33 553</td>
</tr>
<tr>
<td>NB</td>
<td>812 061</td>
<td>10.2</td>
<td>1153</td>
<td>704</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>NL</td>
<td>525 972</td>
<td>12.5</td>
<td>927</td>
<td>567</td>
<td>80</td>
<td>6575</td>
<td>35 (2)</td>
<td>15 028</td>
</tr>
<tr>
<td>NS</td>
<td>1 019 725</td>
<td>14.4</td>
<td>1292</td>
<td>789</td>
<td>125</td>
<td>8158</td>
<td>58 (8)</td>
<td>17 581</td>
</tr>
<tr>
<td>PE</td>
<td>170 688</td>
<td>14.9</td>
<td>174</td>
<td>981</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>ON</td>
<td>15,109,41</td>
<td>9.4</td>
<td>14 962</td>
<td>1010</td>
<td>988</td>
<td>15 293</td>
<td>440 (59)</td>
<td>34 340</td>
</tr>
<tr>
<td>QC</td>
<td>8 695 659</td>
<td>21.5</td>
<td>10 909</td>
<td>797</td>
<td>943</td>
<td>9221</td>
<td>511 (99)</td>
<td>17 017</td>
</tr>
<tr>
<td>SK</td>
<td>1 194 803</td>
<td>17.2</td>
<td>1395</td>
<td>856</td>
<td>100</td>
<td>11 948</td>
<td>52 (13)</td>
<td>22 977</td>
</tr>
<tr>
<td>YK</td>
<td>43 789</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>NT</td>
<td>45 605</td>
<td>55*</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>NU</td>
<td>40 526</td>
<td>75*</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>Territories†</td>
<td>129 920</td>
<td>NA</td>
<td>129</td>
<td>1007</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
</tbody>
</table>

Cells coloured in red represent data that reflect the worst patient burden or FP shortage. Cells coloured in gray represent data that are not available (NA), or provinces/territories that do not administer medical education programs (NP).

*Without access to a regular medical practitioner (either a family physician, a nurse or a medical specialist).
†Data on the Canadian territories (YK, NT, NU) are limited due to their dispersed population and the harsh and remote geographic environment situated in the northern region of Canada; some measures are only available for the three jurisdictions combined.

AB, Alberta; BC, British Columbia; FMR, family medicine residency; FP, family physician; MB, Manitoba; MS, medical student; NA, not available; NB, New Brunswick; NL, Newfoundland; NP, no programme; NS, Nova Scotia; NT, Northwest Territories; NU, Nunavut; ON, Ontario; PE, Prince Edward Island; SK, Saskatchewan; Territories, Yukon, Northwest Territories, Nunavut; YK, Yukon.
2022, only 1 FM spot of 122 in BC went unfilled. In contrast, Ontario and New Brunswick have the lowest percentage of provincial residents without FPs. Ontario and Quebec offer the highest number of medical school seats, and have the highest absolute number of FM residency positions per year, although a significant percentage go unfilled each year. The lack of access to community FPs in QC is the most prominent in Canada, with more than one in five Quebecers without a regular FP. Finally, the Canadian Territories of Nunavut, Northwest Territories and Yukon, face significant challenges in accessing healthcare due to their isolated geography and dispersed population, resulting in the highest percentage of the population without access to a regular medical professional.

**DISCUSSION**

Short-term solutions to the FP shortage in Canada include reducing barriers to practice for IMGs to bridge critical gaps in FP coverage, applying financial incentives to attract new graduates to FM, and providing much-needed administrative support to current physicians. Encouraging IMGs to apply for FM residencies, while opening additional IMG-specific FM residency slots and new pathways for IMG entry to practice, could reduce the backlog of more than 1200 IMGs living in Canada in 2022, waiting to practice medicine and serve the Canadian populace. Mobilising IMGs to quickly enter the medical workforce via streamlining certification requirements, supervised practice agreements, physician-assistant training programmes or medical officer roles, similar to the IMG-entry system in Australia, could potentially help alleviate the shortage of available FP labour in Canada. In addition, adding financial incentives may attract medical graduates to FM: BC recently implemented incentives for new FM practices—including guaranteed starting pay, signing bonuses and loan forgiveness—and announced a new payment model to better compensate case complexity, time demand, patient load and administrative burden.
In particular, billing for administrative work may financially incentivise physicians, who spend up to 2 hours on administrative work for every hour spent on direct patient care.3 5

Long-term strategies include increasing the number of medical graduates and FM residency slots, mobilising FPs to underserved regions, and establishing FM-specific entry streams. In 2022, BC and ON announced small increases in medical school seats and FM residency slots; however, recent projections suggest they may not be sufficient to compensate for the expected increases in retiring FPs.3 Plans for a new medical school at Simon Fraser University, in BC, have stalled and are unlikely to produce graduates before 2030.6 To increase the numbers of FM-interested medical graduates, provinces might consider FM-specific streams within pre-existing medical schools, or FM-focused medical schools, similar to Jichi Medical School in Japan, which trains FPs with a focus on underserved and rural areas, and offers competitive financial aid and student loan forgiveness programmes to encourage students to follow a career in FM.7

Finally, the creation of a national data collection framework is needed to quantify the need for, and facilitate the distribution and mobility of, FPs across the country. Currently, no such national data system exists to track the location and scope of FPs, making it difficult to precisely appraise the extent of the problem and create evidence-based policy changes. This may involve (1) surveying and interviewing FPs to identify barriers, administrative burdens and inefficiencies in providing patient care, (2) monitoring FP burn-out and workload to prioritise areas for support and resources and (3) evaluating the effectiveness of interventions to improve patient access to care and support for FPs. A national data collection framework would also help appropriately allocate limited resources and policy-maker attention to the most at-risk areas.

CONCLUSION
The latest data and trends clearly suggest that the FP shortage will continue to worsen accessibility to FPs and specialists, resulting in longer delays and an increased burden on our healthcare system. Rising burn-out and retirement of FPs will further exacerbate the current FM crisis until significant changes are made to the system. The FP shortage must be addressed both by provincial and federal governments as well as medical faculties and FP organisations, by increasing access to careers in FM for Canadian MDs and IMGs, and overhauling outdated administrative and physician compensation models to better support FPs. For Canadian provinces with high numbers of provincial residents without FPs, revisiting increases in medical school seats and FM residency slots to achieve parity with the Canadian average may also be necessary to alleviate long-term stresses in the healthcare sector. Most importantly, concrete action plans involving timelines, outcome measures and milestones need to be implemented to ensure these strategies are successful, which will require engagement with government, policymakers, patients and front-line healthcare workers.

Contributors JM contributed to the conception of the analysis. KL and WGB extracted and analysed the data, and composed the manuscript; AF and JM composed and revised the manuscript. CN verified the content and critically revised the manuscript. All authors approved the final version.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Map disclaimer The depiction of boundaries on this map does not imply the expression of any opinion whatsoever on the part of BMJ (or any member of its group) concerning the legal status of any country, territory, jurisdiction or area or of its authorities. This map is provided without any warranty of any kind, either express or implied.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

ORCID iD
Kaiyang Li http://orcid.org/0000-0001-8557-166X

REFERENCES