

Data-Driven Insights and Solutions for the Health and Human Resource Crisis in Canada

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Abstract

Canada's healthcare system is experiencing a health and human resource (HHR) crisis. The available evidence of the scope of the problem and potential solutions, however, is not commensurate with the scale and urgency of the crisis. The use of linked health administrative data to study the health, well-being and work patterns of the health workforce offers critical insights into how the workforce is functioning at a population level. Efforts to rapidly expand the use of these data are needed to understand the scope of the HHR crisis, find opportunities for improvement and drive change.

Introduction

Canada is in the midst of a health and human resource (HHR) crisis with record numbers of Canadians without timely access to primary care and widespread burnout reported among healthcare providers (CMA 2022; Kiran 2022). At present, 15% of Canadians are without a primary care provider, a problem that is anticipated to grow as two-thirds of family physicians are expected to reduce their practice or retire within the next five years (Kiran 2022).

Contributing to this challenge is an estimated 53% of Canadian physicians who report experiencing symptoms of burnout (CMA 2022). Burnout has critical implications for workforce sustainability and has been found to contribute to reductions in the scope and volume of practice, increased risk of medical errors and early exits from practice (Duong and Vogel 2023b). Ongoing individual and system-level pressures have contributed to the high prevalence of burnout and adverse mental health, many of which were exacerbated during the COVID-19 pandemic (Maunder et al. 2021). While Canada has entered a post-pandemic period, high levels of burnout and mental health concerns continue to be reported by healthcare providers, and increasing shortages in primary care are placing growing strains on the healthcare system (Duong and Vogel 2023a).

While efforts to improve the Canadian HHR crisis are urgently needed, higher-quality data required to describe the

scope of the problem at a health system level are lacking. The use of population-based, linked, routinely collected health administrative data, or *big data*, offers a unique opportunity to study the health of the Canadian health workforce and understand its relationship to healthcare delivery. Our research team – named Health Evaluation and Liveliness for Physicians through Meaningful Data (HELP-MD) – has leveraged a novel data linkage to study the health and practice patterns of all physicians in Ontario. HELP-MD links physicians who are registered to practise in Ontario with administrative health data housed at ICES, allowing us to examine longitudinal health indicators and healthcare service use for over 45,000 physicians. The use of these data is already leading to early, important insights into the health of physicians and has the potential to identify targeted solutions to the HHR crisis in Canada.

Leveraging Big Data to Understand Physician Health

What is the prevalence of mental health problems among physicians?

Despite greater recognition of the importance of physician mental health, much of the existing literature has relied on small, cross-sectional surveys with low response rates (CMA 2022). In addition, physician mental health remains stigmatized, leading to concerns about response bias. There are important gaps in our knowledge, including the prevalence of physicians' mental health concerns, prevalence changes over time and risk and protective factors.

To address these gaps, we used the HELP-MD data linkage to complete a series of studies examining patterns of mental healthcare use by physicians. In our first study, we compared changes in outpatient mental health visits to a family physician or psychiatrist by physicians prior to and during the COVID-19 pandemic (Myran et al. 2022). Our results showed that during the pre-pandemic period, 18.3% of physicians in Ontario had received mental healthcare in the previous two years. During the first year of the pandemic, rates of

outpatient mental health visits among physicians increased by 27% compared with the pre-pandemic period (Figure 1) (Myran et al. 2022).

We also compared trends of mental health visits among physicians to the general population. During the first 18 months of the pandemic, outpatient mental health visits increased by 23.2% in physicians compared to 9.8% in nonphysicians of the same age and sex (Figure 2) (Myran et al. 2023).

Our studies have also identified patterns of physician mental healthcare use pre-pandemic with wide variation by specialty, age and sex. Female physicians accessed mental health services almost twice as frequently as their male counterparts and residents had higher rates of mental health visits compared with all physicians. For specialties, the number of visits among family physicians was nearly double that of surgeons (Myran et al. 2022). Subgroup findings may be used to inform physician wellness programming and governmental policies.

What are the patterns of primary care use among physicians?

Access to primary care has been well established as improving the health of individuals and populations. However, there is a dominant culture among physicians to access care informally, such as through “corridor consultations” (Kay et al. 2008: 503). We used the HELP-MD data linkage to compare patterns of primary care usage between physicians and the general population. Compared to the general population, physicians were less likely to have a family physician (81.8% vs. 86.4%) and had fewer primary care visits per year (median: four vs. two visits). Older male physicians and surgical specialties were the least likely to have a regular family physician (Rhodes et al. 2022). Interventions to improve primary care

attachment among low care seeking groups may help promote physician wellness and contribute to reductions in the burden of the HHR crisis.

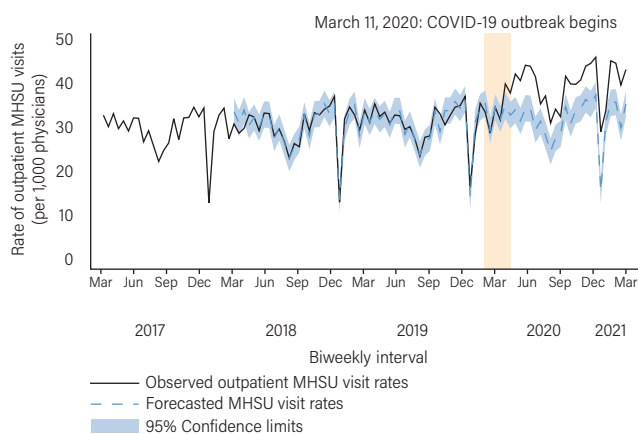
A Growing Body of Evidence for the HHR Crisis

The unique nature of the HELP-MD data means that we can study a range of social factors of physicians and how these relate to current and past practice patterns. For example, by linking across diverse datasets and registries, we can examine sociodemographic factors (e.g., age, sex), health factors and training characteristics (e.g., medical schools of training), which can then be linked to career choice and practice patterns. Our research team has several projects underway that target policy-relevant research questions for specific aspects of the HRR crisis.

Identifying factors that promote family medicine specialization and comprehensive care delivery for underserved regions and populations

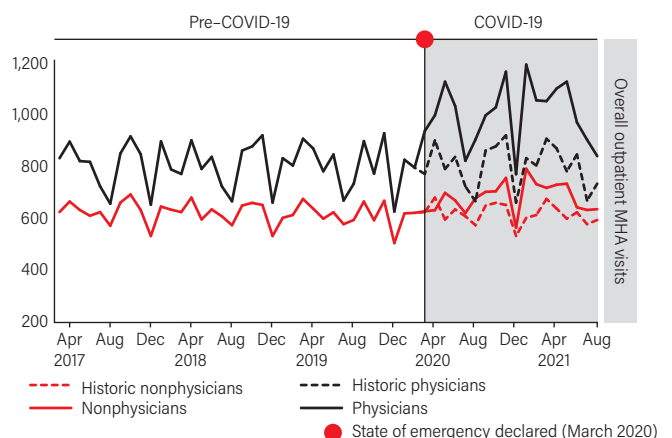
In Ontario, more than one in four residents are expected to be without a family doctor by 2026, a problem that continues to worsen as fewer new medical graduates are choosing to practise family medicine and to deliver comprehensive care (Kiran 2022). Access to comprehensive care is especially poor among underserved patients and in rural settings. However, we have little insight into the socio-demographic and training factors involved in the choice of specializing in and practising family medicine, especially for underserved populations. Our team intends to utilize health administrative data to identify predictors of choice for family medicine specialization, delivery of comprehensive primary care and caring for underserved regions and populations. Collectively, our findings can help inform initiatives to promote a more sustainable family medicine workforce.

FIGURE 1.
Biweekly (14-day) outpatient mental health and substance use (MHSU) by physicians



Source: Reproduced from Myran et al. (2022).

FIGURE 2.
Age- and sex-standardized monthly rates of outpatient mental health and addiction (MHA) visits



Source: Reproduced from Myran et al. (2023).

Factors that support physician parents practising to their full scope

An increasing proportion of the Canadian physician workforce is female, with approximately half (49.7%) of the family physician workforce and nearly 60% of first-year medical students being female in the 2020/2021 admission cycle (CIHI 2024). Physician training and career are demanding and may place pressure on physician parents, particularly physician mothers who face unique challenges including pregnancy, childbirth and return to work following maternity leave. Prior work from our team identified delays in childbearing among female physicians, which may impact workforce planning once a physician enters practice (Cusimano et al. 2021). Ongoing work will identify unique challenges associated with parenthood and identify what practice environments and institutional factors best support the return of physician parents to work at their desired capacity.

Expansion of big data to nursing and other healthcare providers

Similar to the physician workforce, recent national surveys indicate that nurses are at a high risk of chronic fatigue, burnout, depression and anxiety (Ben Ahmed and Bourgeault 2022). While these surveys report concerns about

nurses' health, the findings do not provide a population perspective, nor do they examine patterns of health and healthcare use (Stelnicki and Carleton 2021). Our team is pursuing similar collaborations with the College of Nurses and regulatory bodies representing other healthcare workers to establish a data platform that will enable a robust examination of the health of Ontario's nursing and other healthcare provider workforce.

Conclusion

A high-functioning health system is dependent on the health and well-being of the health workforce. Critically, high-quality data capturing the health and work patterns of healthcare providers in Canada are lacking, leading to large gaps in our understanding of the scope of this problem and its solution. The HELP-MD linkage provides one such novel approach to generating high-quality evidence on the state of physician health and factors that promote the sustainable delivery of healthcare in Canada. Ongoing work using the HELP-MD data, along with novel data linkages, is urgently needed to help key stakeholders and partner organizations develop data-driven solutions to Canada's current HHR crisis. 

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