

REVIEW ARTICLE

Uptake in the practice of medical assistance in dying (MAiD) and involvement by physician speciality over time in Nova Scotia, Canada

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Abstract

Legislation on medical assistance in dying (MAiD) was enacted in Canada in 2016. There is limited research on the topic available from Atlantic Canada. This study provides early data on the uptake of MAiD in Nova Scotia based on analysis of administrative billing data. It presents the number of MAiD cases by year from 2017 through early 2020. It also provides data on physician involvement in the MAiD process by specialty, broken down by assessors and providers of MAiD. Our data agrees with provincial- and national-level data that family physicians are highly involved in the MAiD process. Our study also documents physician involvement in conducting MAiD assessments by specialty, a metric which is not widely available in the literature. This study emphasizes the need for robust, provincial-level data on the demographics of providers involved in MAiD.

Introduction

Canada's federal legislation on medical assistance in dying (MAiD) was enacted in June 2016¹. In doing so, Canada joined several countries, American states, and other jurisdictions where MAiD is now legal in some form². Prior to the introduction of this federal legislation, the province of Quebec alone had put forth similar legislation which permitted medical aid in dying for patients who were terminally ill^{3,4}. In Canada, MAiD refers to the prescription of medications to cause a person's death, to be administered by a provider or by the patient themselves¹. In Nova Scotia, the MAiD procedure is administered intravenously by the provider⁵. The process requires assessments by two independent clinicians, typically physicians or nurse practitioners^{6,7}. In Nova Scotia, referrals are sent to a centralized MAiD Coordination Centre to be triaged and referred for assessment³. The first assessor determines a patient's eligibility against a set of criteria, the second assessor confirms the patient's eligibility, and one of these assessors may then provide the procedure. The 2016 criteria limits eligibility to adults with a "grievous and irremediable medical condition", which is considered serious and incurable; causing an advanced state of decline and intolerable suffering; and whose natural death is reasonably foreseeable¹. These adults must have capacity to make medical decisions, and make the request for MAiD voluntarily⁸. On March 17th of 2021, the criterion of reasonably foreseeable

natural death was removed, and mental health was excluded as a medical condition until March 17th, 2023⁸.

According to Health Canada Reports, nearly 22,000 Canadians have received MAiD since the enactment of federal legislation⁹. Health Canada recently released the Second Annual Report on MAiD, providing information on cases for the 2020 year. This report follows up on the First Annual Report on MAiD and is based on robust data collection and reporting requirements, and expands on interim reports published from 2016 through 2018¹⁰⁻¹³. Together, these reports suggest that MAiD demographics have been similar across provinces and between years. The average age of MAiD recipients is in their 70's, with an almost equal distribution between women and men. Malignancy has been the most common primary diagnosis, representing approximately 60% of cases, depending on the province or year. Neurodegenerative and cardiorespiratory diseases comprise smaller proportions of MAiD services. In 2020, private residences accounted for 47.6% of MAiD administration settings, and 28% took place in hospitals⁹. This was a marked change from 2019, during which private residences accounted for 35.1% of MAiD administration settings and hospitals accounted for 36.4%⁹.

Various centres across Canada have begun to outline their specific experiences providing MAiD. Most of this literature comes from the province of Ontario^{2,14-18}, with fewer reports available from British Co-

lumbia¹⁹ and Alberta^{20,21}. The Atlantic provinces are under-represented in this literature. It is only in the 2019 Health Canada report that data from Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland and Labrador was not included as an aggregate.

The legalization of MAiD represents a significant change in practice for healthcare providers in Canada, in particular for family physicians. In countries like the Netherlands, up to 88% of MAiD provision is done by family physicians²². In the 2019 Health Canada report, which provided data on the specialties of MAiD providers for the first time, 65% of all providers were family physicians¹. In the 2020 Health Canada report, 68.1% of MAiD procedures were provided by family physicians⁹. It is less clear how involved family physicians are as MAiD assessors and referring physicians, as this report does not differentiate provider specialty for each role (assessor versus provider)^{1,9}. Family physicians are well-placed to be involved in all of aspects of the MAiD process as a specialty that emphasizes patient values and context and is privy to the specific details of patient illnesses and disease trajectories⁶. They are also a primary point of contact with the healthcare system, and thus may play an important role in MAiD access and uptake⁶.

This study presents all data to date on MAiD in Nova Scotia based on an analysis of administrative billing codes. It describes the uptake of MAiD and physician involvement as a first assessor, second assessor, and provider by specialty from 2017 to early 2020.

Methods

The Nova Scotia Department of Health and Wellness provided the study team with anonymized, aggregate billing code data tables of MAiD provision from January 1st, 2017 to the end of February 2020, as requested by the authors. This administrative billing data are collected by the Nova Scotia Department of Health and Wellness for service billing fees submitted by physicians for services rendered. Reporting is based on the calendar year (January to December). Billing data for MAiD services provided by nurse practitioners are not available as they are paid via contract and do not submit billing claims for this service. Data for 2020 were only available for January and February, and so no comment can be made through these data about the impact of the COVID-19 pandemic on MAiD provision in Nova Scotia. Ethics approval was not required due to the aggregate nature of this reportable data offered by the Nova Scotia Department of Health and Wellness.

Results

Summaries of billing codes showed the number of times

Table 1. Total MAiD cases in Nova Scotia by year.

Year	Months	Cases	Cases per month (average)
2017	12	6	0.5
2018	12	63	5.2
2019	12	236	19.7
2020	2	108	54
Cumulative	38	413	10.9

* Data from 2020 includes January and February only.

physicians billed for a visit associated with MAiD, and whether this visit was for a first assessment, second assessment, or the provision of medications (a proxy for the provision of MAiD). The number of MAiD cases was extrapolated from these data, equal to the number of medication provision billings. In accordance with Canadian legislation, the prescribing physician had to be either the first or second physician assessor; however, the data do not specify which of the two was the provider.

Four hundred and thirteen people received MAiD in Nova Scotia between January 2017 and February 2020 (see Table 1). MAiD cases are reported per year and as an average per month, to better reflect the uptake over time as the billing data for 2020 only included January and February (2 months total). At least five medical specialties have been involved in MAiD in Nova Scotia as providers and assessors. The involvement of each specialty is reported as a proportion of total MAiD cases for each role by year (see Table 2) and overall (see Table 3). Totals may not add to 100% due to rounding. Two specialties were combined into “other” due to small numbers and to preserve physician privacy.

Discussion

Our study reports on the uptake of MAiD in Nova Scotia using data from provincial administrative billing codes. It provides information on the number of MAiD-related deaths and physician involvement in the MAiD process from 2017 through 2020.

Our data are in agreement with the 2020 data from Health Canada that family physicians are the specialty most often providing MAiD (68.1% of providers)¹. Our study adds additional information to this by documenting which specialties are frequently involved in

Table 2. Involvement in MAiD by physician specialty and role over time.

Physician Specialty	First assessor (%)				Second assessor (%)				Provider (%)			
	2017	2018	2019	2020	2017	2018	2019	2020	2017	2018	2019	2020
Anaesthesia	15	32	25	4	33	49	65	9	0	44	55	17
Family medicine	81	51	44	76	67	45	25	64	83	46	26	60
Internal medicine	4	14	9	14	0	0	5	18	0	0	2	19
Psychiatry	0	0	16	0	0	0	0	0	0	6	14	0
Other	0	3	6	6	0	6	4	8	17	3	3	5

*Data reported as proportion of total MAiD cases for each year.

* Data from 2020 includes January and February only.

* Percentages shown without frequencies as some cell counts are less than 5.

first and second MAiD assessments. This metric is not readily available in the Canadian literature, and was not reported in the 2019 or 2020 annual report^{1,9}. The federal report on MAiD identifies the primary specialty of providers involved in MAiD provision being family medicine, followed by palliative medicine, nurse practitioners, anesthesiology, internal medicine, critical or emergency care, oncology, and psychiatry⁹.

Based on our data, family physicians are also heavily involved in first and second MAiD assessments in Nova Scotia (56% and 39% of all first and second assessors, respectively). Anesthesiologists are also heavily involved in MAiD as first assessor, second assessor, and provider. This is likely due to their familiarity with the processes and medications involved in the provision of MAiD²³ as well as their experience providing care for patients with complex and chronic health concerns. Our data also suggest there are specialties who are less commonly MAiD providers but are still involved in conducting first and second assessments such as internal medicine. The federal reporting system does not currently collect data on the specialties involved in first and second MAiD assessments. Another area for future inquiry is the specialties of providers referring patients for MAiD. Nationally, almost 30% of written requests are received from a practitioner outside of the care coordination service (such as a social worker, family physician, or nurse) but their specialty is unknown¹. This may also represent an area of significant involvement by family physicians. A study of MAiD requests from London, Ontario between 2016 to 2018 reported that 19% of referrals came from family physicians¹⁵. Collecting data on the specialty of MAiD assessors and referring providers – which is not currently included in the national reporting requirements – would provide a more fulsome picture of family physician involvement

in MAiD.

It is also important to consider how the physician workforce may impact MAiD access and uptake. In 2019, 14.5% of Canadians reported not having access to a regular healthcare provider – whether that be a family physician, specialist or nurse practitioner²⁴. There are few studies which comment on barriers that Canadian patients face when accessing MAiD. A study of all MAiD-related deaths in Ontario between 2016 and 2018 reported access barriers in 6.6% of cases¹⁴; an earlier study of the first 100 cases in Ontario suggested access barriers were more common, at 16%¹⁷. A recent study in Nova Scotia found that there was no significant difference in completion of MAiD services for those with or without a family provider among patients who have requested MAiD³. However, this inter-

Table 3. Involvement in MAiD by physician specialty and role (as a percentage of all cases from 2017 to 2020).

Specialty	First assessor n (%)	Second assessor n (%)	Provider n (%)
Anaesthesia	98 (20)	150 (48)	176 (43)
Family medicine	280 (56)	121 (39)	160 (39)
Internal medicine	52 (10)	23 (7)	25 (6)
Psychiatry	41 (8)	0 (0)	36 (9)
Other	26 (5)	17 (5)	16 (4)
Total	497 (100)	311 (100)	413 (100)

*Data reported as proportion of total billings (i.e. MAiD cases) for each role from 2017 to 2020.

pretation does not include patients who wish to request MAiD services but were unable to because they did not have a provider or for other reasons. A small Canadian study found that patients experienced barriers such as a lack of information about MAiD, issues around final consent, stigma associated with MAiD, and others²⁵. The barriers in Nova Scotia associated with MAiD access and uptake is an important area for future research.

There was an increase in MAiD cases each year in Nova Scotia from 2017 to 2019 observed in our data. Although the data from 2020 are incomplete, they suggest an increase for 2020. This is in keeping with provincial trends reported by Health Canada⁹. On a national level, rates of MAiD have also increased year after year, from 0.6% of all deaths in 2016 to 2.5% of deaths in 2020^{1,9,11}. According to the second annual report on MAiD in Canada, there was a growth in MAiD cases of 34.2% between 2019 and 2020⁹. Other jurisdictions have seen similar trends – in the Netherlands and Oregon, rates of MAiD increased on a yearly basis following legalization and have since stabilized in more recent years^{22,26–29}. In 2019, MAiD represented 4.2% of all deaths in the Netherlands²² and 0.5% of all deaths in Oregon³⁰. Proposed reasons for this initial rise and subsequent plateau include changes in reporting requirements, physician comfort, patient interest, public awareness, and/or population changes²⁶. Further research is needed to explore how the new MAiD legislation and changes to eligibility criteria for MAiD impacts provision. There may be a growing demand for MAiD services as access increases with the new changes to the eligibility criteria for MAiD. The COVID-19 pandemic also enabled innovations in primary care access which may also play a role in increasing demand and availability of MAiD. Over the last decade, Nova Scotia has also incrementally invested in collaborative family practice teams staffed by family physicians, nurse practitioners, registered nurses, and other allied health professionals with the goal of improving access to primary care for Nova Scotians³¹. As these teams continue to grow, access to family physicians and nurse practitioners who provide MAiD may also increase.

Limitations

There are some discrepancies between our administrative billing data and the data reported by Health Canada on the number of MAiD cases by year. This is likely attributable to differences in reporting cycles; how dates were accounted for (e.g., by date of visit versus billing submission); lack of inclusion of MAiD cases provided by nurse practitioners in our data (who are documented to provide MAiD in the province)¹; billing errors (underreporting, poor introduction of billing codes)^{32–34}; or differences in billing between fee-for-ser-

vice and salaried physicians³². The administrative billing data is also missing much of the work that is done by family physicians which may not have been billed such as MAiD referrals and other work completed for patients who do not end up receiving MAiD for a variety of reasons (natural death before MAiD, loss of capacity, etc)³⁵. Our dataset reports provider specialty based on the Royal College or College of Canadian Family Physicians designation. This has implications for specialties such as Palliative Care, whose designation is created by way of Fellowship or certification. This is also relevant to ICU and emergency medicine. These specialties would be included under family medicine, internal medicine, and/or other in our dataset. This limits our interpretation of physician involvement by specialty, but which data source is more accurate is not evident.

Compared with other provinces, the raw numbers for MAiD in Nova Scotia are small. This leaves the data on physician involvement more open to being skewed by random variations in physician activity (e.g., retirement or leaves of absence). Finally, there are many aspects of MAiD which were not captured by the administrative billing data available to our study team. These include primary diagnosis; location of the MAiD procedure; and referral sources. This information was not previously available at a provincial level in Health Canada's interim reports, but is captured in their most recent release¹. These represent important aspects of MAiD to document.

Conclusion

Our study adds to the limited literature on MAiD from the Atlantic provinces, and more specifically from Nova Scotia. It presents data on the number of cases of MAiD from 2017 to early 2020 and physician involvement in the assessment and provision by specialty and role, previously unknown. Our findings support data reported by Health Canada that shows year after year increases in rates of MAiD since federal legislation was enacted in 2016. Existing literature suggests family physicians are highly involved as MAiD providers, and this study documents that they are similarly involved in MAiD assessments. The specialty of MAiD assessors is not currently reported by Health Canada and not otherwise available in the literature. Whether the specifics of the family physician workforce in Nova Scotia, or nationally, affects MAiD uptake and access remains to be seen. This is an important area of study given the proportion of patients with no family physician or limited access to their provider^{32,36,37}. Future research on MAiD in Nova Scotia could be directed at gaining a better understanding of the demographics of physicians involved in MAiD, including such aspects as payment models, gender, and years in practice. A qual-

itative inquiry could provide important insights on patient barriers to accessing MAiD and physician barriers to providing MAiD.

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