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Trends in MRI Exam Volumes Between 2007 and 2022–2023 in Canada

Key Messages

What Is the Issue?

- Canada's Drug Agency (CDA-AMC) received a request to analyze MRI exam trends over 16 years to inform policy decisions related to diagnostic imaging capacity and access. Because MRI scans play a key role in diagnostics, growing demand may impact imaging services, wait times, and access.
- With the number of MRI units growing from 222 in 2007 to 432 in 2022–2023, analysis is needed to better understand how growth aligns with demand.
- Demand may be influenced by emerging clinical applications of MRI — such as MRI-guided biopsies and surgeries, and other detailed cardiac assessments — along with changing population needs, health care resources, and medical advancements.
- Analyzing overall and per capita exam trends will provide insights to guide strategic decisions regarding resource allocation, workforce development, and potential diagnostic imaging capacity expansion.

What Did We Do?

- We examined trends in both total (absolute) and per capita (relative) MRI exams using data from the Canadian Institute for Health Information and the Canadian Medical Imaging Inventory — collected at 7 intervals between 2007 and 2022–2023. We also reviewed MRI unit counts and units per capita.
- The analysis focused on 10 jurisdictions with consistent MRI capacity throughout the entire period, showing how MRI use evolved nationwide.

What Did We Find?

- Between 2007 and 2022–2023, there was growth in MRI exam volumes across Canada, although this growth was not consistent annually:
  - Total MRI exam volumes increased from 1.02 million to 2.21 million, reflecting a national growth of 117%.
  - Total MRI exam volumes per 1,000 people increased from 30.9 to 55.6, representing a national growth rate of 80%.
  - MRI exam growth varied across jurisdictions, with total exam increases ranging from 42% to 239% and per capita volumes experiencing an increase ranging from 24% to 170%. No jurisdiction experienced a decrease in either total or per capita MRI exam volume.

Key Messages

- When comparing growth to the national average, half the jurisdictions were below average in both total and per capita exams, while the other half exceeded the national average in overall or per capita exam volume, or both.

What Does This Mean?

- This suggests that MRI is being used more, and the role of MRI continues to evolve.
- Given the increasing use, decision-makers may wish to consider capacity challenges, ensuring efficient use of existing MRI and supporting technologies, workflows, and processes.
- Addressing these areas may help reduce wait times, support recruitment and retention efforts, and ensure sufficient capacity to meet future demand. The variation across jurisdictions highlights the importance of tailoring solutions to local needs and contexts.
- The insights gained from this report can inform strategic decisions related to resource allocation, workforce development, and aligning diagnostic imaging capacity with evolving health care needs.

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Context

MRI is a widely used noninvasive imaging technology used for producing detailed images of internal body structures to identify and assess conditions such as brain and spinal cord anomalies, joint injuries, tumours, and diseases affecting organs and soft tissues.[1,2] Over the past 16 years, the demand for MRI exams has steadily increased, highlighting its growing importance in modern health care. This trend is driven by advancements in medical technology, a greater reliance on imaging for accurate and timely diagnoses,[3] and the rising use of imaging services by an aging population with greater health care needs.[4]

This report examines both absolute (overall) and relative (per capita) growth in MRI exam volumes. Absolute values represent the total number of exams performed, while relative values show how usage is changing, after adjusting for population size and other variables. Both absolute and relative values change in relation to various influencing factors. These may include:

- population changes
- shifts in health care use
- technological advances
- equitable resource distribution across jurisdictions
- policy changes.

In this report, exams are reported per 1,000 population and units per 1,000,000 population, both standardized on a per capita basis to account for population size differences across jurisdictions. However, caution is needed when interpreting per capita figures in Canada. The country's vast geography and uneven population distribution mean that access to health care can vary greatly between rural, urban, and remote areas.[5] As a result, per capita numbers may not fully capture regional differences in service availability or demand.[6] As well, this report relies on self-reported data from sites, which may contain errors, misinterpretations, or other issues that could introduce bias. The analysis is further limited by the number of sites that submitted complete data. In some cases, small sample sizes may have affected the reliability of the results.

This analysis reports on the trends in MRI exam volumes across jurisdictions in Canada over a 16-year period. As of 2022–2023, Canada had a total of 432 MRI units, an increase from 222 units in 2007.[3,7] Historically, MRI technology has been used in traditional imaging such as for high-resolution scans of the brain, spinal cord, musculoskeletal system, heart, and pelvis, especially in cases requiring superior soft tissue contrast and no radiation exposure.[8] However, it is now also being used in advanced applications such as cardiac MRI for detailed heart assessments and prostate biopsies, highlighting its growing role in both diagnostic precision and therapeutic planning.[9] Therefore, expanding imaging capacity in areas where it most improves patient outcomes can help meet growing demand while preserving efficient care.

Objective

The purpose of this report is to summarize information on MRI exam volume trends (overall and per capita) at a national and a provincial and territorial level between 2007 and 2022–2023.

About This Document

- This document summarizes information gathered through the Canadian Medical Imaging Inventory (CMII), a national survey on advanced medical imaging equipment. Between 2007 and 2012, the Canadian Institute for Health Information (CIHI) conducted this national survey.[10,11] Since 2015, Canada's Drug Agency (formerly the Canadian Agency for Drugs and Technologies in Health) has continued to conduct the CMII national survey approximately once every 2 years.[7,12-16]
- This report analyzes the trends in MRI exam numbers in Canada from 2007 to 2022–2023, focusing on both absolute (i.e., overall exam volumes) and relative metrics (i.e., per capita) to provide insights into the evolving health care landscape.[17]
- Exams are reported per 1,000 population and units are reported per 1,000,000 population, both standardized on a per capita basis to account for population size differences across jurisdictions. However, per capita figures in Canada can be misleading due to the country's uneven population distribution, which may cause regional differences in health care access.
- Statistics Canada's population estimates[7] were used to calculate the number of exams per 1,000 population (per capita) and units per 1,000,000 population (per capita).
- The overall average growth was calculated using the mean, which helps identify general trends of the MRI exams, whereas median growth was calculated to better represent the data and maintain consistency if there were a few very high or very low values.
- An imaging exam refers to a single medical imaging session using an imaging modality to study 1 (or more than 1) body structure, body system, or anatomic area that yields 1 or more views for diagnostic and/or therapeutic purposes.[18]

Results

MRI Exam Growth in Canada (2007 to 2022–2023)

This report documents the growth trends of MRI exams in Canada from 2007 to 2022–2023, both overall and per capita, at national and jurisdictional levels. Figures 1 through 22 and Tables 1 and 2 (in Appendix 1) summarize the number of overall and per capita MRI exams in Canada and its jurisdictions, capturing only those with capacity throughout the entire period. Tables 3 and 4 (in Appendix 1) show the total number of MRI units for each jurisdiction and the MRI units per 1,000,000 population.

National Growth Trends

Between 2007 and 2022–2023, the volume of MRI exams experienced substantial growth, likely driven by broader access, rising demand, and the evolving role of MRI across Canada.

- Over the 16-year period, Canada's total MRI exam volume increased by 117%, while there was a slower increase in the average per capita growth at 80%.
- The median growth in overall MRI exam volume was 110%, indicating that half of the jurisdictions more than doubled their exam volume, with increases ranging from 116% to 239%, while the other half saw increases below the median, ranging from 42% to 104%.
- Similarly, the median growth of per capita exams was 80%, meaning half of the jurisdictions experienced growth at or above this level, with increases ranging from 81% to 170%, while the other half experienced growth below the median, ranging from 24% to 78%.
- During this period, the total number of MRI units grew from 222 to 432 (95% increase), while the units per capita increased from 6.8 to 10.8 (59% increase) (Appendix 1, Table 4).

Canada experienced overall and per capita exam growth throughout the 16-year period. For both, MRI exam growth was gradual between 2007 and 2015, followed by a small decline in 2017. There was a subsequent increase through to 2022–2023 (Figure 2). During this period, the number of MRI units grew from 222 to 432, while the units per capita increased from 6.8 to 10.8 per 1,000,000 population in Canada (Figure 2 and Appendix 1, Tables 3 and 4).

Figure 1: MRI Exam Volume and Per Capita Growth in Canada

National MRI Exam Trends: 2007 to 2022–2023

Total MRI exams: increased from 1,019,562 (2007) to 2,214,157 (2022–2023)

Overall exam growth: 117% increase; ranging from 42% to 239% across the jurisdictions

Per capita exams: 30.9 (2007) to 55.6 (2022–2023) exams per 1,000 population

Per capita exam growth: 80% increase, ranging from 24% to 170% across the jurisdictions

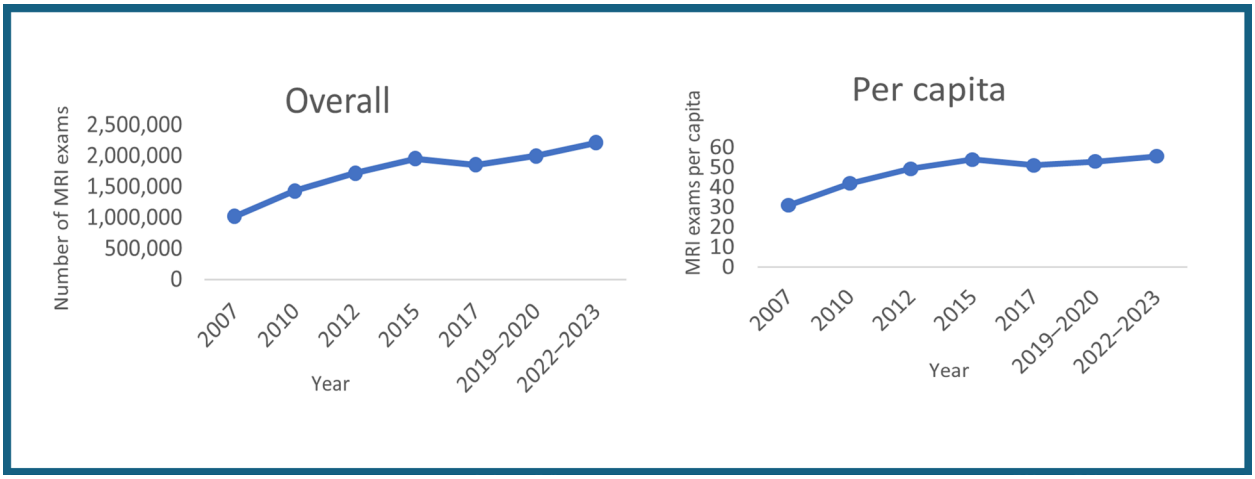
Total MRI units: increased from 222 to 432

Overall unit growth: 95% increase; ranging from 0% to an increase of 175% across the jurisdictions

Per capita MRI units: increased from 6.8 to 10.8 units per 1 million population

Per capita unit growth: 59% increase; ranging from 21% decrease to an increase of 125% across the jurisdictions

Figure 2: Trends in Overall and Per Capita MRI Exams in Canada



Provincial and Territorial Growth Trends

Across Canada's 10 jurisdictions with MRI capacity, throughout the period from 2007 to 2022–2023, there were variations in growth trends for both overall and per capita exams (Figures 3 and 4 and Appendix 1, Tables 1 and 2):

- All jurisdictions saw increases in both overall and per capita exams over the 16-year period.
- Four out of 10 jurisdictions surpassed the national average percentage increase for both overall (117%) and per capita (80%) exams.
- Five out of 10 jurisdictions were below the national average percentage for both overall (117%) and per capita (80%) exams.
- One out of 10 jurisdictions was below the national average percentage for overall (117%), but above the national average percentage for per capita (80%), exams.

Per capita MRI exams in this report refer to the average number of exams performed per 1,000 people each year. In all jurisdictions, the total number of MRI exams has increased more quickly than the per capita figures. This suggests that, while overall usage is rising, the number of exams available to each individual may not be increasing at the same pace. This pattern may highlight ongoing challenges in distributing MRI resources equitably, contributing to regional differences in access across Canada's large and unevenly populated geography.

Newfoundland and Labrador Growth Trends

Newfoundland and Labrador's total MRI exam volume rose by 151%, while per capita growth was 140% (Figure 3 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units grew from 3 to 5, representing a 67% increase, while units per capita increased from 5.9 to 9.4, representing a 59% increase (Figure 3 and Appendix 1, Tables 3 and 4). Both the growth in overall exam volume and per capita exam volume were above the national average of 117% and 80%, respectively.

These figures positioned Newfoundland and Labrador among the top 3 jurisdictions for total and per capita percentage MRI exam growth over the time period. However, it is noted that its overall share of total MRI exam volumes remained 1% of the national total for each reporting year.

Newfoundland and Labrador experienced overall and per capita growth during the 16-year period, with continual growth between 2007 and 2015, when exam volumes reached their peak. The peak may be attributed to the use of imputed data for that year, rather than actual numbers. It is likely that, had actual numbers been used, the trajectory may have been more linear. Between 2015 and 2022–2023, exam volumes mostly plateaued, with 2022–2023 levels dropping slightly below those of 2019–2020 (Figure 4).

Figure 3: MRI Exam Volume and Per Capita Growth in Newfoundland and Labrador

Newfoundland and Labrador MRI Exam Trends: 2007 to 2022–2023

Total MRI exams: increased from 8,544 to 21,409

Overall exam growth: 151% increase across the jurisdiction

Per capita exams: increased from 16.7 to 40.1 exams per 1,000 population

Per capita exam growth: 140% increase across the jurisdiction

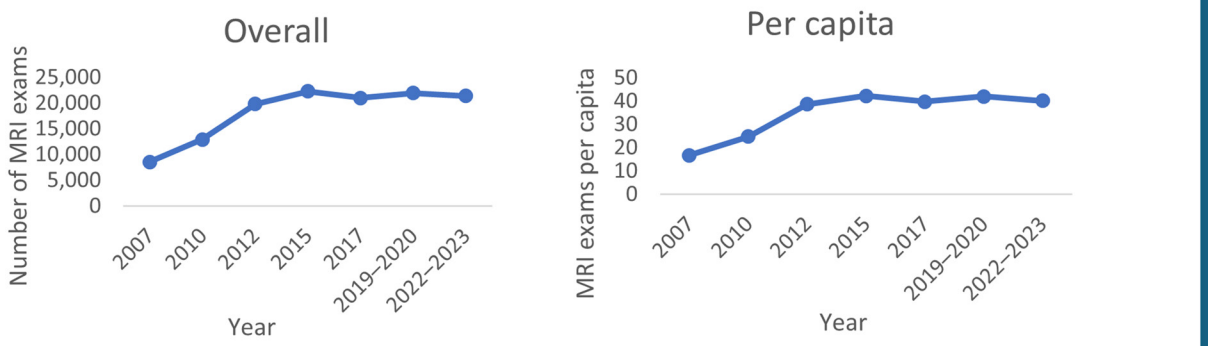
Total MRI units: increased from 3 to 5

Overall unit growth: 67% increase across the jurisdiction

Per capita MRI units: increased from 5.9 to 9.4 units per 1,000,000 population

Per capita unit growth: 59% increase across the jurisdiction

Figure 4: Trends in Overall and Per Capita MRI Exams in Newfoundland and Labrador



Prince Edward Island Growth Trends

Prince Edward Island's total MRI exam volume increased by 104%, while per capita growth was 60% (Figure 5 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units remained constant at 1, while units per capita decreased from 7.2 to 5.7, representing a decline of 21% (Figure 5 and Appendix 1, Tables 3 and 4). Both the growth in overall exam volume and per capita exam volume were below the national average of 117% and 80%, respectively.

Prince Edward Island experienced overall and per capita growth during the 16-year period. The greatest period of growth for both was between 2007 and 2012, when exam volumes reached a high that was not surpassed again until 2019–2020. Upward growth continued after that, and by 2022–2023, total exams had exceeded their previous peak. Per capita volumes remained slightly below 2019–2020 levels (Figure 6).

Figure 5: MRI Exam Volume and Per Capita Growth in Prince Edward Island

Prince Edward Island MRI Exam Trends: 2007 to 2022–2023

Total MRI exams: increased from 2,839 to 5,803

Overall exam growth: 104% increase across the jurisdiction

Per capita exams: increased from 20.6 to 33.0 exams per 1,000 population

Per capita exam growth: 60% increase across the jurisdiction

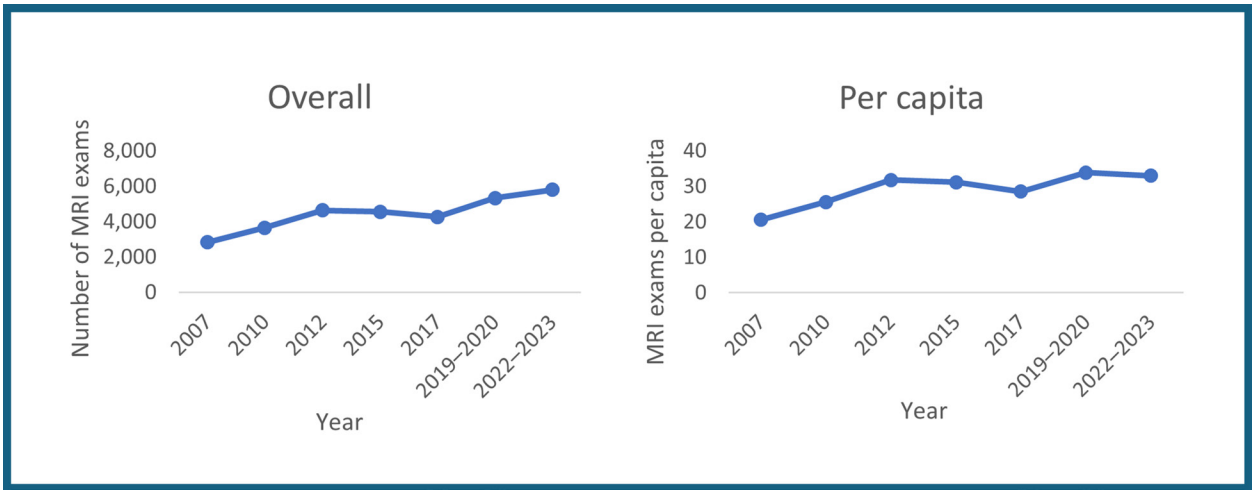
Total MRI units: remained the same, from 1 to 1

Overall unit growth: 0% increase across the jurisdiction

Per capita MRI units: decreased from 7.2 to 5.7 units per 1,000,000 population

Per capita unit growth: 21% decrease across the jurisdiction

Figure 6: Trends in Overall and Per Capita MRI Exams in Prince Edward Island



Nova Scotia Growth Trends

Nova Scotia's total MRI exam volume increased by 42%, while per capita growth was 27% (Figure 7 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units increased from 6 to 11, representing an 83% increase, while units per capita grew from 6.4 to 10.5, representing a 64% increase (Figure 7 and Appendix 1, Tables 3 and 4). Both the growth in overall exam volume and per capita exam volume were below the national averages of 117% and 80%, respectively.

Nova Scotia experienced overall and per capita growth during the 16-year period. The greatest period of growth for both was between 2007 and 2019–2020, when exam volumes reached a peak. This was followed by a decline, and by 2022–2023, volumes were slightly below those observed in 2012 (Figure 8).

Figure 7: MRI Exam Volume and Per Capita Growth in Nova Scotia

Nova Scotia MRI Exam Trends: 2007 to 2022–2023

Total MRI exams: increased from 24,584 to 34,935

Overall exam growth: 42% increase across the jurisdiction

Per capita exams: increased from 26.3 to 33.4 exams per 1,000 population

Per capita exam growth: 27% increase across the jurisdiction

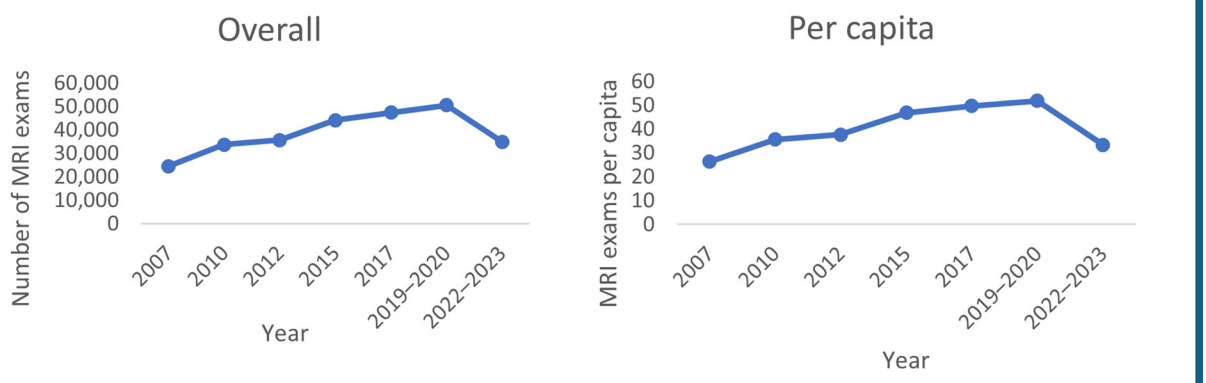
Total MRI units: increased from 6 to 11

Overall unit growth: 83% increase across the jurisdiction

Per capita MRI units: increased from 6.4 to 10.5 units per 1,000,000 population

Per capita unit growth: 64% increase across the jurisdiction

Figure 8: Trends in Overall and Per Capita MRI Exams in Nova Scotia



New Brunswick Growth Trends

New Brunswick's total MRI exam volume increased by 102%, while per capita growth was 81% (Figure 9 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units increased from 5 to 11, representing a 120% rise, while MRI units per capita grew from 6.7 to 13.2, representing a 97% increase (Figure 9 and Appendix 1, Tables 3 and 4). The growth in total exam volume was below the national average of 117%, whereas the growth in per capita exam volume was above the national average of 80%.

New Brunswick experienced overall and per capita growth during the 16-year period. The greatest period of growth for both was between 2007 and 2019–2020, with exam volumes rising steadily throughout that time. After 2019–2020, overall exams continued to increase, while per capita rates plateaued (Figure 10).

Figure 9: MRI Exam Volume and Per Capita Growth in New Brunswick

New Brunswick MRI Exam Trends: 2007 to 2022–2023

Total MRI exams: increased from 24,496 to 49,376

Overall exam growth: 102% increase across the jurisdiction

Per capita exams: increased from 32.8 to 59.4 exams per 1,000 population

Per capita exam growth: 81% increase across the jurisdiction

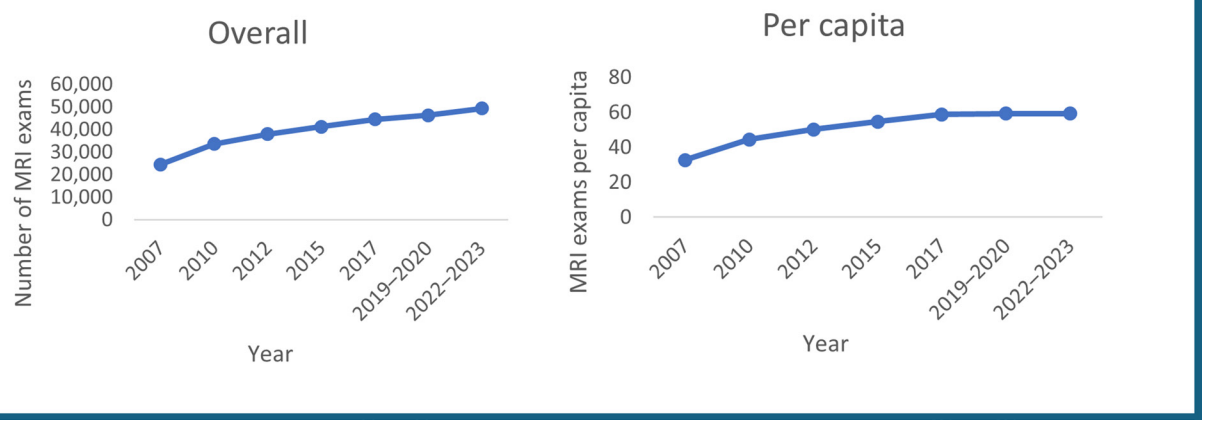
Total MRI units: increased from 5 to 11

Overall unit growth: 120% increase across the jurisdiction

Per capita MRI units: increased from 6.7 to 13.2 units per 1,000,000 population

Per capita unit growth: 97% increase across the jurisdiction

Figure 10: Trends in Overall and Per Capita MRI Exams in New Brunswick



Quebec Growth Trends

Quebec's total MRI exam volume increased by 101%, while per capita growth was 75% (Figure 11 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units grew from 67 to 123, representing an increase of 84%, while MRI units per capita grew from 8.7 to 13.9, representing a 60% increase

(Figure 11 and Appendix 1, Tables 3 and 4). Both the growth in overall exam volume and per capita exam volume were below the national averages of 117% and 80%, respectively.

Quebec experienced overall and per capita growth during the 16-year period. For both, MRI exam growth showed a gradual upward trend with a slight decline around 2015, followed by a steady increase leading up to 2022–2023. The 2015 dip may reflect the use of imputed data instead of actual numbers for that year. If actual numbers had been used, the growth trajectory may have been more linear (Figure 12).

Figure 11: MRI Exam Volume and Per Capita Growth in Quebec

Quebec MRI Exam Trends: 2007 to 2022–2023

Total MRI exams: increased from 224,890 to 450,947

Overall exam growth: 101% increase across the jurisdiction

Per capita exams: increased from 29.2 to 51.1 exams per 1,000 population

Per capita exam growth: 75% increase across the jurisdiction

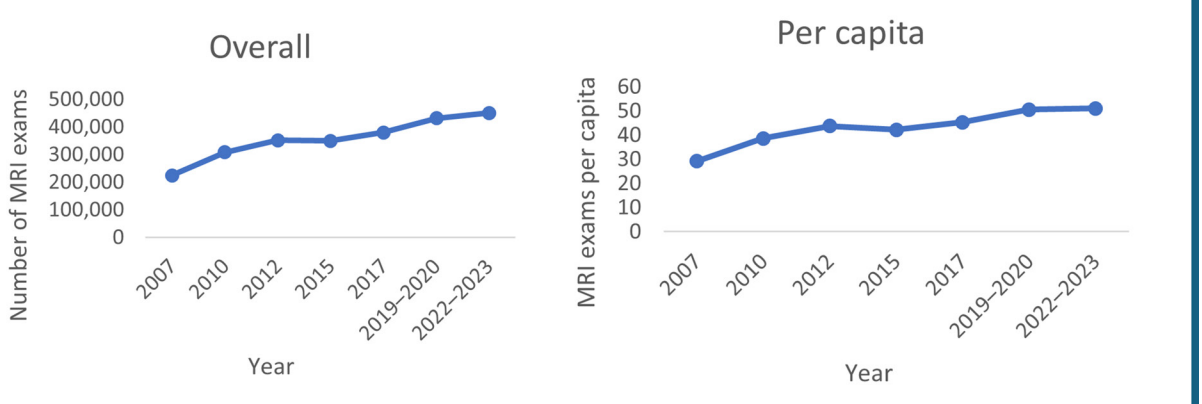
Total MRI units: increased from 67 to 123

Overall unit growth: 84% increase across the jurisdiction

Per capita MRI units: increased from 8.7 to 13.9 units per 1,000,000 population

Per capita unit growth: 60% increase across the jurisdiction

Figure 12: Trends in Overall and Per Capita MRI Exams in Quebec



Ontario Growth Trends

Ontario's total MRI exam volume increased by 116%, while per capita growth was 78% (Figure 13 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units grew from 72 to 157, representing a 118% increase, while MRI units per capita grew from 5.7 to 10.1, representing a 77% increase (Figure 13 and Appendix 1, Tables 3 and 4). Both the growth in overall exam volume and per capita exam volume were below the national averages of 117% and 80%, respectively.

Ontario experienced overall and per capita growth during the 16-year period. The greatest period of growth for both was between 2007 and 2015, with volumes peaking in 2015. This was followed by a decline through 2019–2020, then an increase by 2022–2023, though exam numbers remained below the 2015 peak (Figure 14).

The slight drop after 2015 may be related to imputed data rather than actual exam counts; if actual data had been used, the trend may have been more linear.

Figure 13: MRI Exam Volume and Per Capita Growth in Ontario

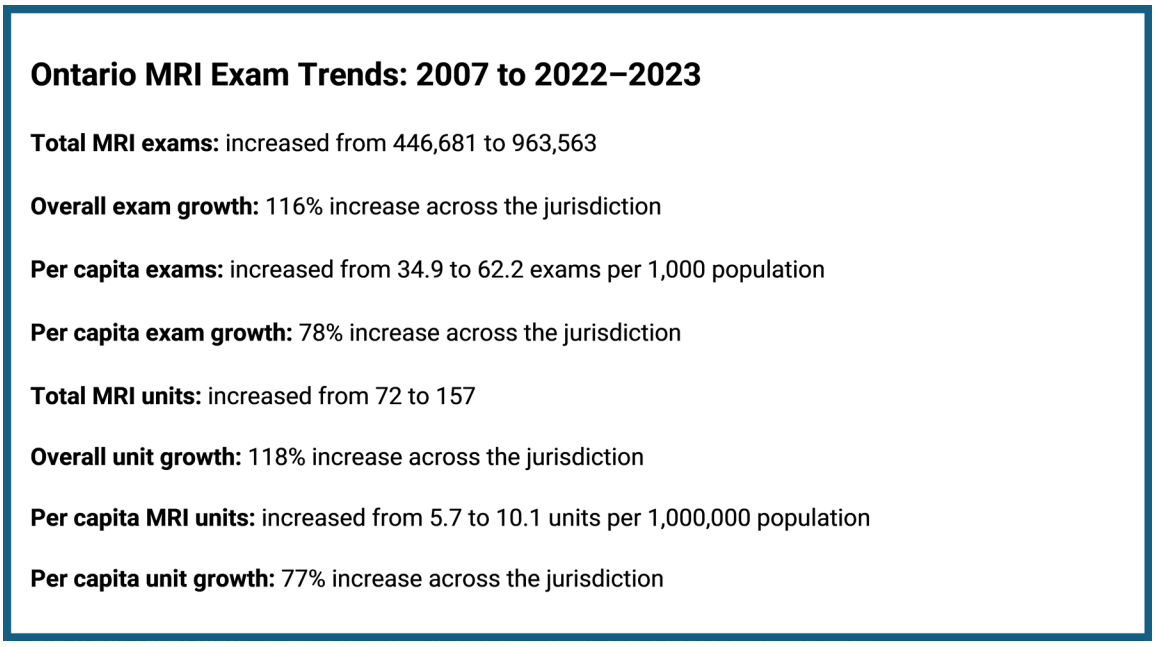
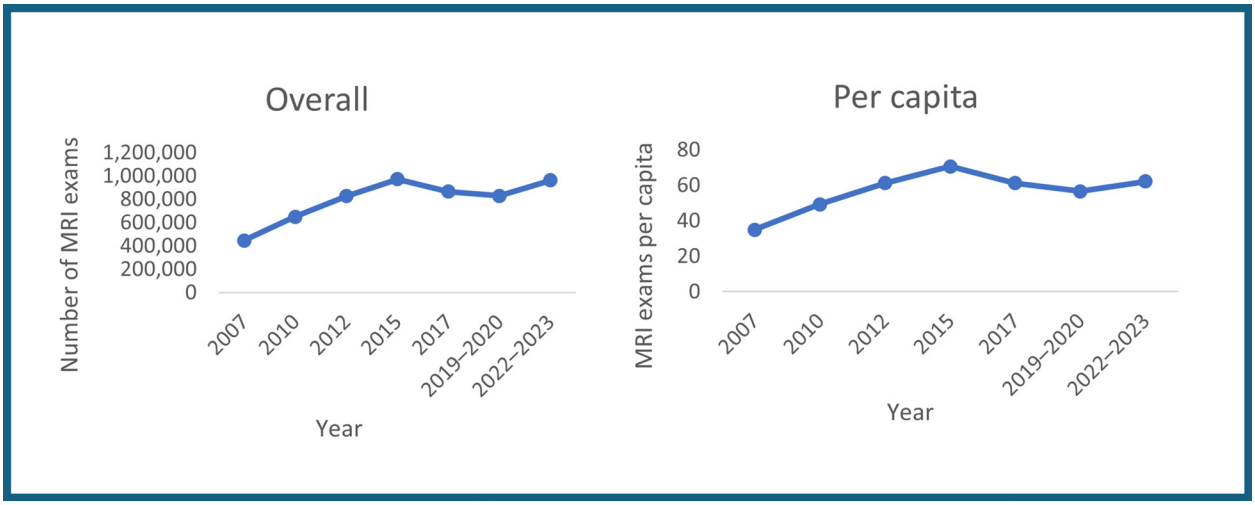


Figure 14: Trends in Overall and Per Capita MRI Exams in Ontario



Manitoba Growth Trends

Manitoba's total MRI exam volume rose by 141%, while per capita growth was 99% (Figure 15 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units grew from 8 to 14, representing a 75% increase, while MRI units per capita grew from 6.8 to 9.7, representing a 43% increase (Figure 15 and Appendix 1, Tables 3 and 4). Both the growth in total exam volume and per capita exam volume were above the national averages of 117% and 80%, respectively.

Manitoba experienced overall and per capita growth during the 16-year period. The greatest period of growth for both was between 2007 and 2012, followed by a brief plateau through 2017. Growth resumed leading up to 2019–2020, after which there was a slight decline (Figure 16).

Figure 15: MRI Exam Volume and Per Capita Growth in Manitoba

Manitoba MRI Exam Trends: 2007 to 2022–2023

Total MRI exams: increased from 38,028 to 91,497

Overall exam growth: 141% increase across the jurisdiction

Per capita exams: increased from 31.9 to 63.4 exams per 1,000 population

Per capita exam growth: 99% increase across the jurisdiction

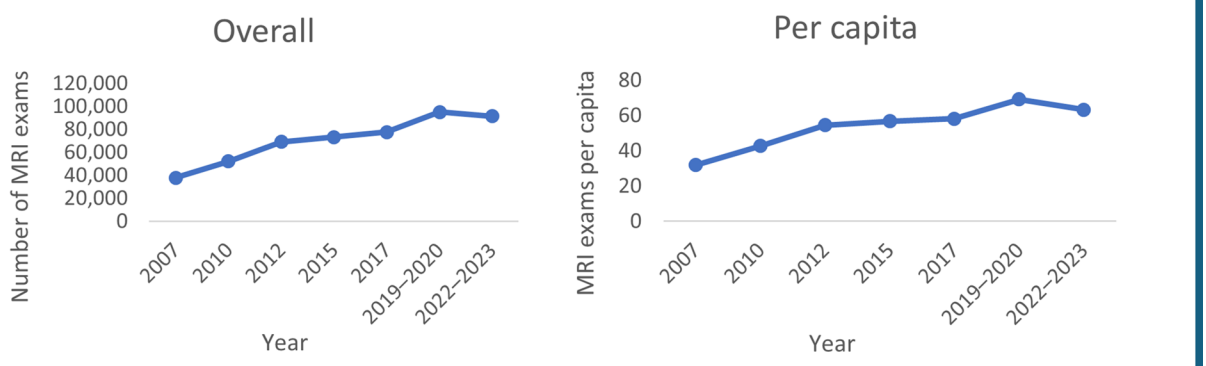
Total MRI units: increased from 8 to 14

Overall unit growth: 75% increase across the jurisdiction

Per capita MRI units: increased from 6.8 to 9.7 units per 1,000,000 population

Per capita unit growth: 43% increase across the jurisdiction

Figure 16: Trends in Overall and Per Capita MRI Exams in Manitoba



Saskatchewan Growth Trends

Saskatchewan's total MRI exam volume rose by 190%, while per capita growth was 139% (Figure 17 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units increased from 4 to 11, representing a 175% increase, while MRI units per capita grew from 4.0 to 9.0, representing a 125% increase (Figure 17 and Appendix 1, Tables 3 and 4). Both the growth in overall exam volume and per capita exam volume were above the national averages of 117% and 80%, respectively.

These figures positioned Saskatchewan among the top 3 jurisdictions for total and per capita percentage MRI exam growth over the time period. However, it is noted that its overall share of total MRI exam volumes remained 2% of the national total for each reporting year.

Saskatchewan experienced overall and per capita growth during the 16-year period. The greatest period of growth for both was between 2007 and 2015, when exam volumes rose steadily. This was followed by a slight decline, then a rapid increase starting in 2017 and continuing thereafter (Figure 18).

Figure 17: MRI Exam Volume and Per Capita Growth in Saskatchewan

Saskatchewan MRI Exam Trends: 2007 to 2022–2023

Total MRI exams: increased from 21,814 to 63,335

Overall exam growth: 190% increase across the jurisdiction

Per capita exams: increased from 21.7 to 51.9 exams per 1,000 population

Per capita exam growth: 139% increase across the jurisdiction

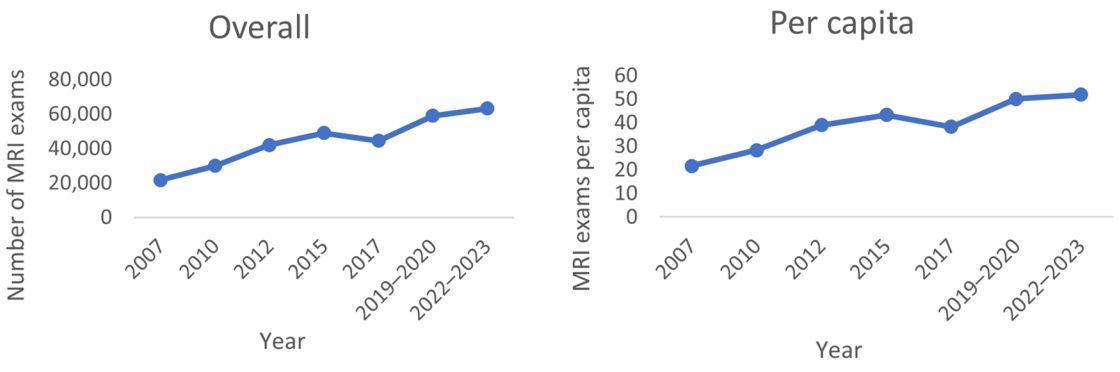
Total MRI units: increased from 4 to 11

Overall unit growth: 175% increase across the jurisdiction

Per capita MRI units: increased from 4.0 to 9.0 units per 1,000,000 population

Per capita unit growth: 125% increase across the jurisdiction

Figure 18: Trends in Overall and Per Capita MRI Exams in Saskatchewan



Alberta Growth Trends

Alberta's total MRI exam volume rose by 66%, while per capita growth was 24% (Figure 19 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units increased from 27 to 43, representing a 59% increase, while MRI units per capita grew from 7.9 to 9.1, representing a 15% increase (Figure 19 and Appendix 1, Tables 3 and 4). Both the growth in overall exam volume and per capita exam volume were below the national averages of 117% and 80%, respectively.

Alberta experienced overall and per capita growth during the 16-year period. The greatest period of growth for both was between 2012 and 2015, followed by a decline through 2017 and then a gradual increase leading up to 2022–2023. The slight dip after 2015 may be related to imputed data rather than actual exam numbers being used in the calculations; if actual data had been used, the decline may have been less pronounced (Figure 20).

Figure 19: MRI Exam Volume and Per Capita Growth in Alberta

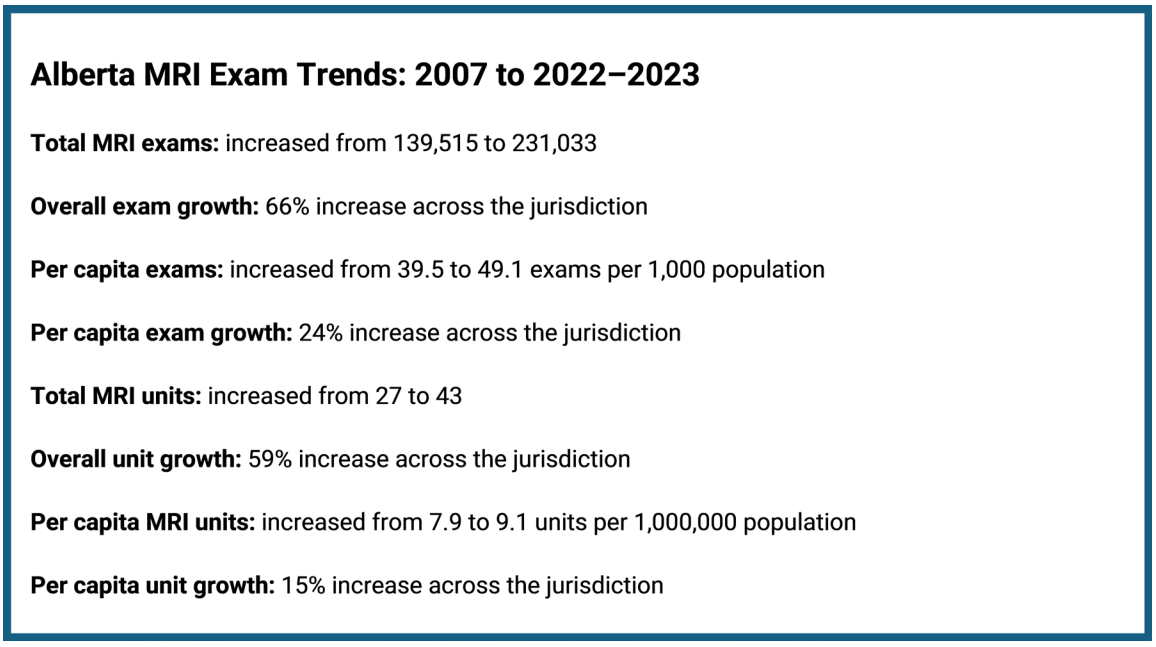
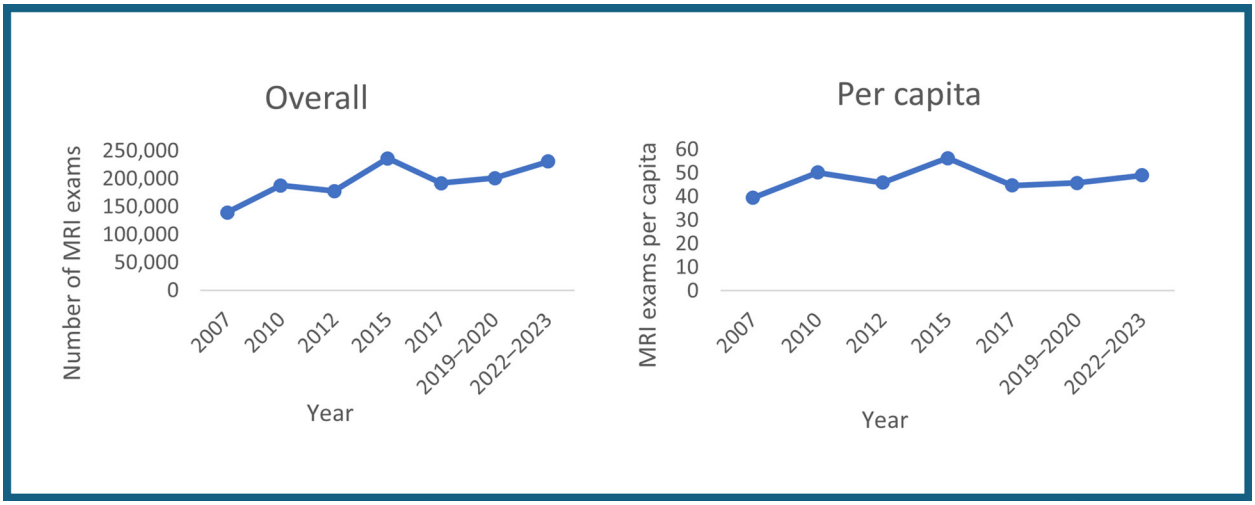


Figure 20: Trends in Overall and Per Capita MRI Exams in Alberta



British Columbia Growth Trends

British Columbia's total MRI exam volume rose by 239%, while per capita growth was 170% (Figure 21 and Appendix 1, Tables 1 and 2). During this period, the number of MRI units increased from 29 to 55, representing a 90% increase, while MRI units per capita grew from 6.7 to 10.1, representing a 51% increase (Figure 21 and Appendix 1, Tables 3 and 4). Both the growth in overall exam volume and per capita exam volume were above the national averages of 117% and 80%, respectively.

These figures positioned British Columbia among the top 3 jurisdictions for total and per capita percentage MRI exam growth over the time period. However, it is noted that its overall share of total MRI exam volumes remained between 9% and 14% of the national total for each reporting year.

British Columbia experienced consistent year-over-year increases in MRI exam growth throughout the 16-year period. The greatest period of growth for both was between 2017 and 2019–2020, following a steady upward trajectory that continued through 2022–2023 (Figure 22).

Figure 21: MRI Exam Volume and Per Capita Growth in British Columbia

British Columbia MRI Exam Trends: 2007 to 2022–2023

Total MRI exams: increased from 88,170 to 299,061

Overall exam growth: 239% increase across the jurisdiction

Per capita exams: increased from 20.4 to 55.0 exams per 1,000 population

Per capita exam growth: 170% increase across the jurisdiction

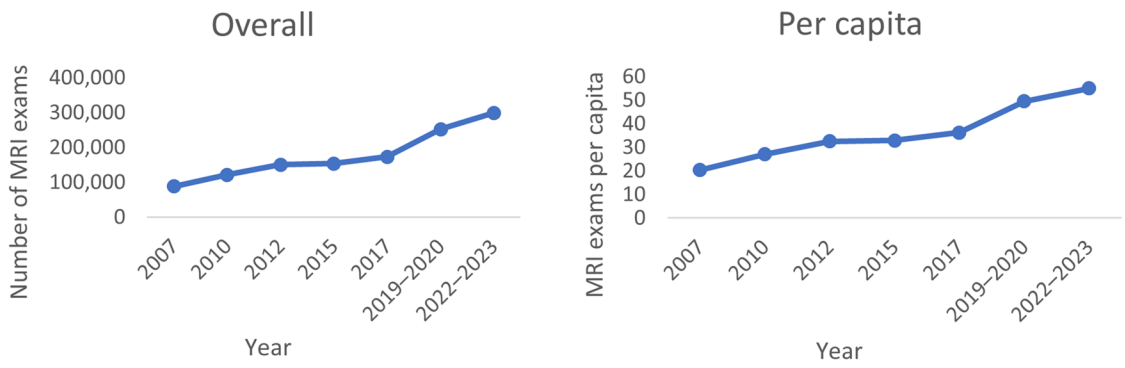
Total MRI units: increased from 29 to 55

Overall unit growth: 90% increase across the jurisdiction

Per capita MRI units: increased from 6.7 to 10.1 units per 1,000,000 population

Per capita unit growth: 51% increase across the jurisdiction

Figure 22: Trends in Overall and Per Capita MRI Exams in British Columbia



Yukon started MRI services in 2015 and operated 1 MRI unit through to 2022–2023. The total number of MRI exams in Yukon grew from 2,200 in 2015 to 3,198 in 2022–2023 (Appendix 1, Table 1), representing a 45% increase. On a per capita basis, MRI exams increased from 58.8 per 1,000 people in 2015 to 72 per 1,000 people in 2022–2023, representing a 23% increase (Appendix, Table 2). As of 2022–2023, the Northwest Territories and Nunavut did not have any MRI units.

Limitations

This report is reliant on self-reported data that may include errors, misinterpretations, or other data issues, leading to potential biases in the report. Additionally, this report is limited by the number of sites that reported the necessary information required for this analysis. Sometimes, limited sample sizes may have been unable to provide a reliably accurate result.

Also, the results of this report are based on the data collected over more than a decade. Over this time period, the organizations responsible for data collection changed, and there were differences in the data collection methods, validation procedures, and reporting compliance. The data collection changed — CIHI conducted the survey between 2007 and 2012[10,11,19] and CDA-AMC took over from 2015 onward.[16,20-22] Data from 2015 were partially imputed due to incomplete submissions from some jurisdictions for this year. While this approach ensured a more comprehensive baseline for analysis, it introduced variability that may affect trend interpretation for that year. Imputation of missing data was primarily done through proportional scaling, assuming that nonreporting sites had exam volumes similar to those that reported. This assumption, if incorrect, may have led to overestimation — especially in jurisdictions where the imputed values represented a large portion of the total. These methodological choices influenced the quality of the data and might contribute to the differences in the number of exams performed during that year.

Furthermore, using per capita values can be misleading in a country like Canada, which has the second-largest landmass in the world. These measurements do not account for the disparities in population distribution, where many people live along the southern border and vast and remote areas remain sparsely populated.[6] Additionally, Canada's geographic size means that providing services and infrastructure over such a large area comes with challenges that per capita figures cannot portray. As a result, per capita measures do not reflect the true complexities of the geographic distribution of populations across the country.

Another limitation of this report is that it did not consider jurisdictions that did not have MRI capacity for the entire period from 2007 to 2022–2023. This report focuses only on those jurisdictions that have data for the entire period from 2007 to 2022–2023. As a result, jurisdictions like the Northwest Territories and Nunavut (which did not offer MRI services as of 2022–2023) and Yukon (where MRI services began only in 2015) are excluded from the national trend analysis, despite ongoing efforts to expand MRI capacity in the territories. Moreover, variations in regional health care infrastructures, such as access to MRI facilities and health care policies, could have contributed to regional disparities. The evolution of MRI technology, including improvements in imaging quality and machine efficiency, may also have impacted the comparability of data across different time points.

There were a few contextual factors that influenced the use of imaging modalities over time, such as the COIVD-19 pandemic,[23] population growth,[7] changing standard of care, and population aging, but the impact of these factors could not be assessed with the available data.

Implications for Decision-Making

The demand for MRI exams is shaped by various factors, including population growth, health care resources, and evolving medical practices. Understanding trends in exam volumes is essential for planning imaging capacity and ensuring timely access to diagnostic services.

Despite the increase in both overall and per capita exam volumes, the rising number of MRI exams may pose potential challenges, underscoring key points for health care decision-makers to consider, such as the following:

- Extended wait times for imaging may delay diagnoses and treatment, potentially affecting patient outcomes.[24,25]
- Extending operating hours can help reduce wait times and allow exam volumes to be managed more effectively.[26] However, challenges in resourcing may make it difficult to extend the hours of operation of the equipment.[27]
- Longer wait times can also lead to increased health care costs and reduced productivity, with imaging delays estimated to cost the economy $3.54 billion in 2018.[25,28]
- Limited imaging availability may result in patients seeking private diagnostic services, increasing out-of-pocket health care expenses.[4]

Variations in exam trends suggest that regions may face unique health care challenges and requirements. Decision-makers may consider tailored strategies —such as optimizing existing imaging infrastructure, refining workforce planning, and aligning resource allocation— that could help support timely and equitable MRI access across all regions.

Conclusion

The analysis of MRI exam growth across Canada's 10 jurisdictions with MRI capacity from 2007 to 2022–2023 shows distinct patterns in both overall and per capita exam volumes. All jurisdictions experienced increases in overall and per capita exam volumes.

The wide variation in both overall and per capita exam growth across jurisdictions suggests that resource allocation and access to MRI services may not be uniform across Canada's vast geography, and the low population density in certain regions likely contributes to these disparities. Furthermore, comparing urban, rural, and remote areas is challenging due to differences in population density and local conditions. Disparities in access to MRI services — driven by factors such as travel time, distance, and population size — may result in lower per capita exam volumes in some jurisdictions or local regions, highlighting potential inequities in access. These patterns underscore the need for region-specific health care planning to address the unique challenges each area faces.

The growing demand for MRI exams, in relation to imaging capacity, may lead to longer wait times, which can delay diagnoses and treatment, affecting patient outcomes. Additionally, these delays may increase health care costs and out-of-pocket expenses for patients seeking private services.

This analysis underscores the importance of strategic health care planning, which includes targeted strategies to optimize imaging infrastructures, resource allocation, and continuously monitoring capacity and demand. Decision-makers may want to consider local contextual factors when interpreting these trends and making decisions about future diagnostic imaging services.

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Appendix 1: Summary Tables

Table 1: Number of MRI Exams Nationally and by Jurisdiction Between 2007 and 2022–2023

Year	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YT	NT	NU	Canada
2007	8,544	2,839	24,584	24,496	224,890	446,681	38,028	21,814	139,516	88,170	0	0	0	1,019,562
2010	12,934	3,658	33,736	33,625	308,153	650,295	52,369	29,942	188,132	121,655	0	0	0	1,434,500
2012	19,820	4,641	35,755	38,051	352,489	827,787	69,142	42,069	177,986	150,893	0	0	0	1,718,633
2015	22,265	4,567	44,187	41,310	349,945	974,500	73,460	49,122	236,406	154,098	2,200	NA	NA	1,952,060
2017	20,990	4,279	47,490	44,592	380,357	866,953	77,735	44,461	192,375	173,678	2,200	NA	NA	1,855,110
2019–2020	21,929	5,348	50,664	46,309	431,655	831,038	95,250	59,109	201,208	252,527	2,350	0	0	1,997,387
2022–2023	21,409	5,803	34,935	49,376	450,947	963,563	91,497	63,335	231,033	299,061	3,198	0	0	2,214,157

AB = Alberta; BC = British Columbia; MB = Manitoba; NA = not applicable; NB = New Brunswick; NL = Newfoundland and Labrador; NS = Nova Scotia; NT = Northwest Territories; NU = Nunavut; ON = Ontario; PE = Prince Edward Island; QC = Quebec; SK = Saskatchewan; YT = Yukon.

Note: This table has not been copy-edited.

Table 2: Number of MRI Exams per 1,000 Population Nationally and by Jurisdiction Between 2007 and 2022–2023

Year	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YT	NT	NU	Canada
2007	16.7	20.6	26.3	32.8	29.2	34.9	31.9	21.7	39.5	20.4	0	0	0	30.9
2010	24.7	25.6	35.7	44.6	38.7	49.3	42.8	28.4	50.2	27.1	0	0	0	42
2012	38.7	31.8	37.7	50.3	43.8	61.3	54.6	39	45.9	32.6	0	0	0	49.3
2015	42.2	31.2	46.9	54.8	42.3	70.7	56.8	43.3	56.3	32.9	58.8	NA	NA	54
2017	39.7	28.6	49.8	58.9	45.4	61.3	58.3	38.3	44.8	36.3	58.2	NA	NA	51
2019–2020	42	33.9	51.9	59.4	50.6	56.7	69.3	50.1	45.8	49.5	57.3	0	0	52.9
2022–2023	40.1	33	33.4	59.4	51.1	62.2	63.4	51.9	49.1	55	72	0	0	55.6

AB = Alberta; BC = British Columbia; MB = Manitoba; NA = not applicable; NB = New Brunswick; NL = Newfoundland and Labrador; NS = Nova Scotia; NT = Northwest Territories; NU = Nunavut; ON = Ontario; PE = Prince Edward Island; QC = Quebec; SK = Saskatchewan; YT = Yukon.

Note: This table has not been copy-edited.

Table 3: Number of MRI Units by Jurisdiction, 2007 to 2022–2023

Year	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YT	NT	NU	Canada
2007	3	1	6	5	67	72	8	4	27	29	—	—	—	222
2010	3	1	9	6	81	93	8	5	36	39	—	—	—	281
2012	5	1	9	6	90	104	8	6	39	40	—	—	—	308
2015	5	1	11	10	85	125	10	9	41	42	1	—	—	340
2017	5	1	12	11	107	120	12	10	41	46	1	—	—	366
2019–2020	5	1	11	14	102	124	14	10	44	52	1	—	—	378
2022–2023	5	1	11	11	123	157	14	11	43	55	1	—	—	432

AB = Alberta; BC = British Columbia; MB = Manitoba; NB = New Brunswick; NL = Newfoundland and Labrador; NS = Nova Scotia; NT = Northwest Territories; NU = Nunavut; ON = Ontario; PE = Prince Edward Island; QC = Quebec; SK = Saskatchewan; YT = Yukon.

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Table 4: MRI Units per Capita by Jurisdiction, 2007 to 2022–2023

Year	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YT	NT	NU	Canada
2007	5.9	7.2	6.4	6.7	8.7	5.7	6.8	4.0	7.9	6.7	—	—	—	6.8
2010	5.9	7.1	9.6	8.0	10.3	7.1	6.5	4.8	9.7	8.7	—	—	—	8.3
2012	9.7	6.9	9.5	7.9	11.2	7.7	6.4	5.6	10.2	8.7	—	—	—	8.9
2015	9.5	13.7	11.7	13.3	17.7	13.5	7.7	7.9	9.8	9.0	27.0	—	—	9.5
2017	9.5	6.7	12.6	14.5	12.8	8.5	9.0	8.6	9.6	9.6	26.5	—	—	10.0
2019–2020	9.6	6.3	11.3	17.9	12.0	8.5	10.2	8.5	10.1	10.2	24.4	—	—	10.0
2022–2023	9.4	5.7	10.5	13.2	13.9	10.1	9.7	9.0	9.1	10.1	22.5	—	—	10.8

AB = Alberta; BC = British Columbia; MB = Manitoba; NB = New Brunswick; NL = Newfoundland and Labrador; NS = Nova Scotia; NT = Northwest Territories; NU = Nunavut; ON = Ontario; PE = Prince Edward Island; QC = Quebec; SK = Saskatchewan; YT = Yukon.

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