

Health Technology Review

Trends in CT 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 CT exam volume trends over a 16-year period to inform policy decisions related to diagnostic imaging capacity and access. Because CT scans play a key role in diagnostics, growing demand may impact imaging services, wait times, and access.
- With the number of CT units growing from 419 in 2007 to 560 in 2022–2023, there is a need for analysis to better understand how this growth aligns with current demand and evolving clinical needs.
- Demand may be influenced by emerging clinical applications, such as biopsies, drainages, and other interventional uses of CT as well as changing population needs, available health care resources, and advancements in medical practices.
- Analyzing trends in overall and per capita exam volumes will provide insights to guide strategic decisions regarding resource allocation, workforce development, and potential expansion of diagnostic imaging capacity.

What Did We Do?

- We examined trends in both total (absolute) and per capita (relative) CT exams using data from the Canadian Institute for Health Information (CIHI) and the Canadian Medical Imaging Inventory (CMII) — collected at 7 intervals between 2007 and 2022–2023. This also included reviewing the total number of CT units and CT units per capita.
- The analysis focused on 11 jurisdictions that maintained consistent CT capacity throughout the entire period. The results show how the use of CT machines has evolved nationwide.

What Did We Find?

- Between 2007 and 2022–2023, there was growth in CT exam volumes across Canada, although this growth was not consistent every year:
 - Total CT exam volumes increased from 3.38 million to 6.42 million, reflecting a national growth of 90%.
 - Total CT exam volumes per thousand people increased from 102.5 to 160.2, representing a national increase in volume of 57%.
 - CT exam growth varied across jurisdictions, with total exam increases ranging from 27% to 208%, and per capita volumes experiencing an increase of 10% to 120%.

Key Messages

- When comparing the growth in the jurisdictions to the national average between 2007 and 2022–2023, most jurisdictions saw their overall and per capita CT exam volumes rise above the national average.

What Does This Mean?

- This report suggests that CT is being used more often, and the role of CT continues to evolve.
- Given the increasing use of CT, decision-makers may wish to consider capacity challenges and ensure that existing CT and supporting technologies, workflows, and processes are used with more efficiency.
- Addressing these areas may help reduce wait times, support recruitment and retention efforts, and ensure sufficient capacity to meet future demand. The variation in exam rates 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 alignment of diagnostic imaging capacity with evolving health care needs.

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Context

CT is among the most widely used advanced imaging modalities in Canada and plays a crucial role in diagnosing a broad spectrum of medical conditions, from cancers to traumatic injuries.^{1,2} Over the past 16 years, the demand for CT has steadily increased, highlighting its growing importance in modern health care. This trend is driven by advances in medical technology, an increased reliance on imaging for accurate and timely diagnoses, and the expanding needs of an aging population with greater health care needs.³

This report examines both absolute (overall) and relative (per capita) growth in CT exam volumes. Absolute values represent the total number of exams performed, whereas 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.

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. As a result, per capita numbers may not fully capture regional differences in service availability or demand.⁴ Additionally, this report does not analyze CT exam volumes by geographic setting, and therefore does not reflect the differing service demands across these regions.⁵

This analysis reports on the trends in CT exam volumes across jurisdictions in Canada over a 16-year period. As of 2022–2023, Canada had a total of 560 CT units, with at least 1 unit in each jurisdiction — an increase from 419 units in 2007.^{6,7} Historically, CT technology has been used in traditional imaging, such as for the diagnosis of stroke, vascular disease, cancer, trauma, acute abdominal pain, and diffuse lung diseases.⁸ However, it is now also being used in cancer care for CT simulation, and in interventional radiology for procedures like biopsies and drainages, underscoring the expanding role of CT in both diagnostic and therapeutic applications.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 CT exam volume trends (overall and per capita) at a national, provincial, and territorial level between 2007 and 2022–2023.

About This Document

- This document summarizes information gathered through the [CMII](#), a national survey on advanced medical imaging equipment. Between 2007 and 2012, CIHI conducted this national survey.^{10,11} Since 2015, CDA-AMC (previously 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 CT 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 thousand population, and units are reported per million population, both standardized on a per capita basis to account for population size differences across jurisdictions.
- Statistics Canada's population estimates⁷ were used to calculate the number of exams per 1,000 population (per capita) and units per million population (per capita).
- The overall average growth was calculated using the mean, which helps identify general trends of the CT exams, whereas median growth was calculated to better represent the data and maintain consistency if there are 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

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

This report documents the growth trends of CT exams in Canada from 2007 to 2022–2023, using both overall and per capita values, at national and jurisdictional levels. [Figures 1](#) through [24](#) and [Table 1](#) and [Table 2](#) (in [Appendix 1](#)) summarize the number of overall and per capita CT exams in Canada and its jurisdictions, capturing only those with capacity throughout the entire period. [Table 3](#) and [Table 4](#) (in [Appendix 1](#)) show the total number of CT units for each jurisdiction and the CT units per million population.

National Growth Trends

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

- Over the 16-year period, Canada's total CT exam volume increased by 90%, whereas there was a slower increase in the average per capita growth, at 57%.
- The median growth in overall CT exam volume was 98%, indicating that half of the jurisdictions nearly doubled their exam volume, with increases ranging from 98% to 208%, whereas the other half experienced increases below the median, ranging from 27% to 54%.

- Similarly, the median growth of per capita exams was 62%, meaning that half of the jurisdictions experienced growth at or above this level, ranging from 62% to 120%, whereas the other half experienced growth lower than the median, ranging from 3% to 47%.
- During this period, the total number of CT units grew from 419 to 560 (34% increase), whereas the unit per capita increased from 12.8 to 14.0 (9% increase) ([Appendix 1, Table 4](#)).

Canada experienced overall and per capita exam growth throughout the 16-year period. For both, CT exams growth was gradual for a 10-year period, between 2007 and 2017, followed by a period of decline in 2019–2020, which may be related to the temporary closure of some imaging departments during the pandemic. There was a subsequent increase through to 2022–2023 ([Figure 2](#)). During this period, the number of CT units grew from 419 to 560, whereas the units per capita increased from 12.8 to 14.0 per million population in Canada ([Figure 2](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

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

National CT Exam Trends: 2007 to 2022–2023

Total exams: increased from 3,382,818 to 6,420,996

Overall exam growth: 90% increase; ranging from 27% to 208% across the jurisdictions

Per capita exams: increased from 102.5 to 161.1 exams per 1,000 population

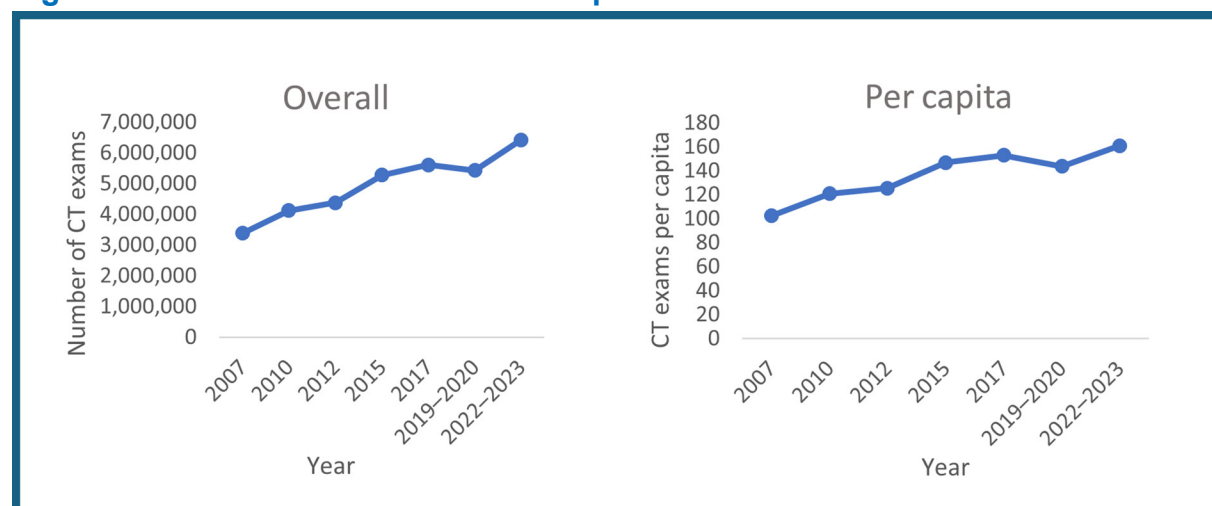
Per capita exam growth: 57% increase; ranging from an increase of 3% to 120% across the jurisdictions

Total CT units: increased from 419 to 560

Overall unit growth: 34% increase; ranging from 0% to an increase of 53% across the jurisdictions

Per capita CT units: increased from 12.8 to 14.0 units per 1 million population

Per capita unit growth: 9% increase; ranging from a 30% decrease to an increase of 39% across the jurisdictions

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

Provincial and Territorial Growth Trends

Across Canada's 11 jurisdictions with CT capacity throughout the period of 2007 to 2022–2023, there were variations in growth trends for both overall and per capita exams ([Figure 3](#) and [Figure 4](#) and [Appendix 1, Table 1](#) and [Table 2](#)):

- All jurisdictions saw increases in both overall and per capita exams.
- Six out of 11 jurisdictions surpassed the national average percentage increase for both overall (90%) and per capita (57%) exams.
- Five out of 11 jurisdictions were below the national average percentage for both overall (90%) and per capita (57%) exams.

Per capita CT exams in this report refer to the average number of exams performed per 1,000 people each year. In most jurisdictions, the total number of CT exams has increased more quickly than the per capita figures. This suggests that, although 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 CT 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 CT exam volume increased by 54%, whereas per capita growth was 47% ([Figure 3](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were below the national averages of 90% and 57%, respectively. During this period, the number of CT units rose from 11 to 16, representing a 46% increase, whereas units per capita grew from 21.6 to 30.0, representing a 39% increase ([Figure 3](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

Newfoundland and Labrador experienced overall and per capita growth during the 16-year period, with continual growth from 2007 through 2015, when exam volumes reached their peak. This spike 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 ([Figure 4](#)).

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

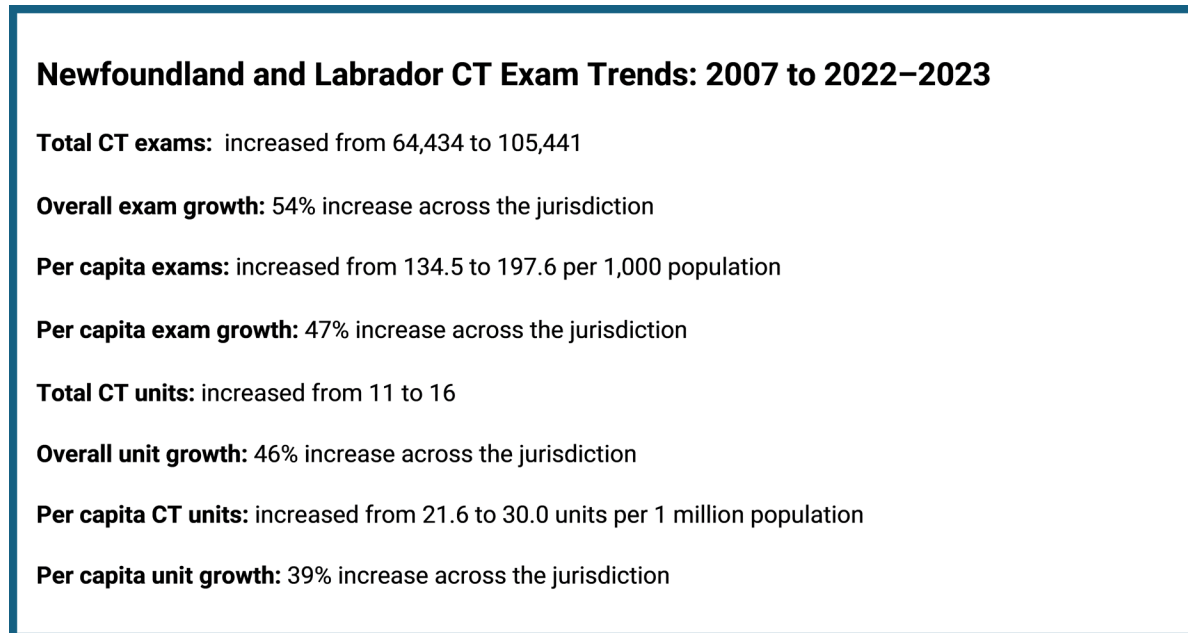
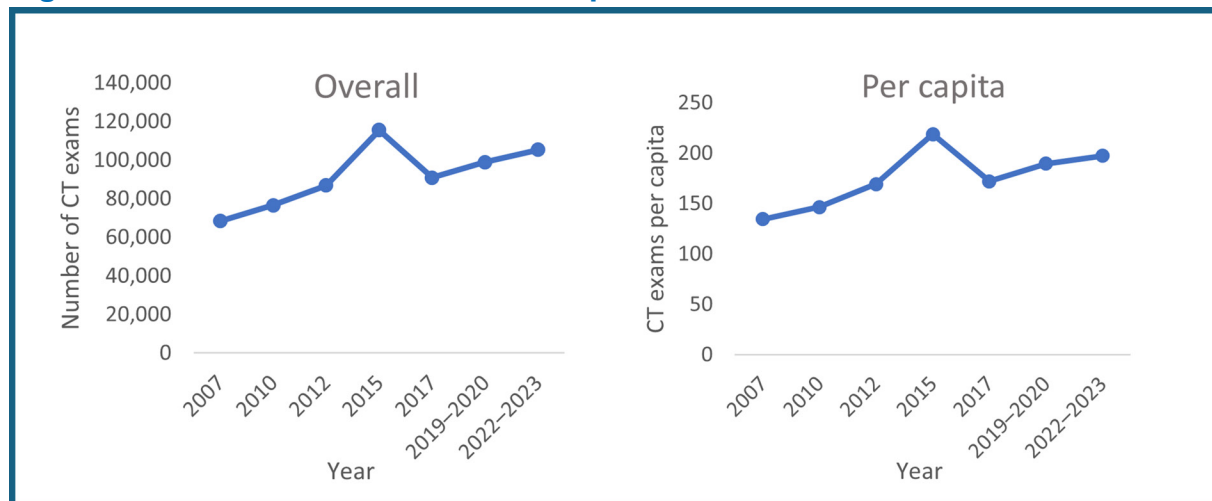


Figure 4: Trends in Overall and Per Capita CT Exams in Newfoundland and Labrador



Prince Edward Island Growth Trends

Prince Edward Island's total CT exam volume rose by 163%, whereas per capita growth was 107% ([Figure 5](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were well above the national averages of 90% and 57%, respectively. During this period, the number of CT units remained unchanged at 2, representing a 21% decrease in units per capita, from 14.5 to 11.4 ([Figure 5](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

The overall and per capita exam volume increase places Prince Edward Island among the top 3 jurisdictions for percentage exam growth over the time period. However, it is noted that its share of overall CT exam volumes remained below 0.5% of the national total in each reporting year.

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 2010, when exam growth reached a peak that was not surpassed again for a 10-year period, until 2019–2020. Upward growth continued after then, through to 2022–2023 ([Figure 6](#)).

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

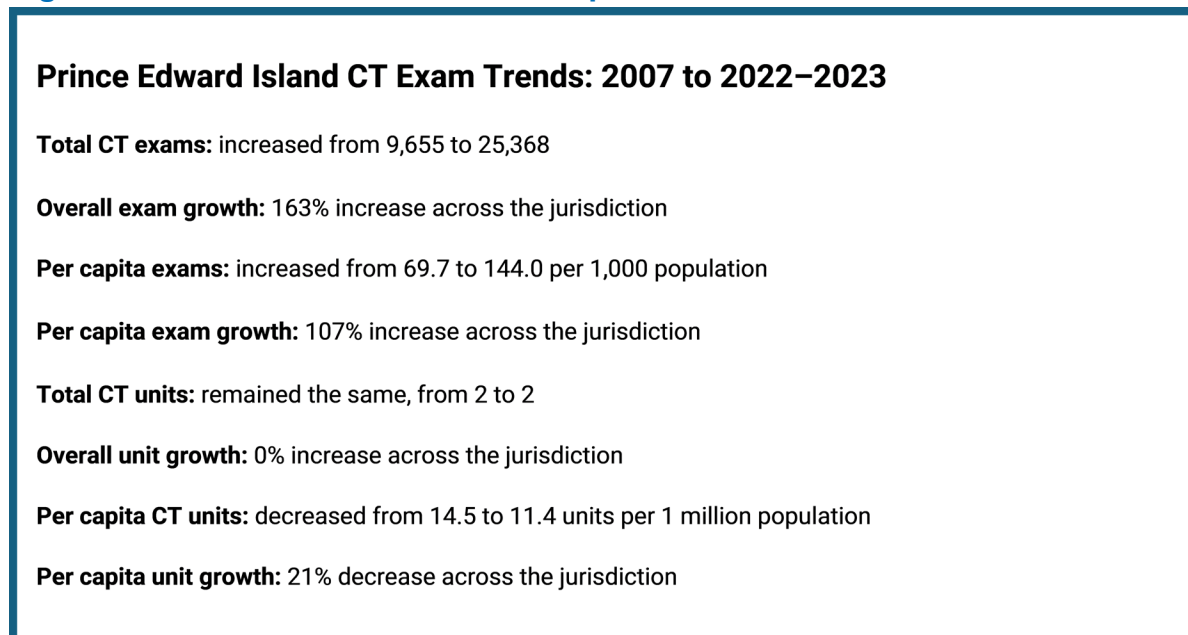
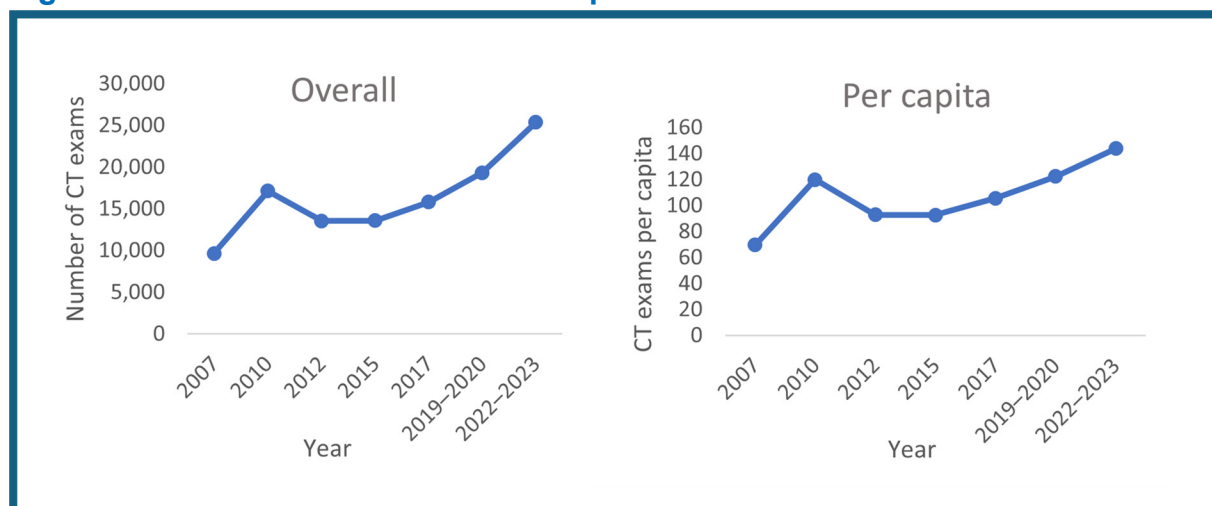


Figure 6: Trends in Overall and Per Capita CT Exams in Prince Edward Island



Nova Scotia Growth Trends

Nova Scotia's total CT exam volume increased by 27%, whereas per capita growth was 13% ([Figure 7](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were below the national averages of 90% and 57%, respectively. During this period, the number of CT units rose from 16 to 18, representing a 13% increase, whereas units per capita remained virtually unchanged, increasing slightly from 17.1 to 17.2 (0.6%) ([Figure 7](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

Nova Scotia experienced overall and per capita growth during the 16-year period. The greatest period of growth for both was between 2007 and 2010. This was followed by a period of decline through 2012, then another phase of growth leading up to 2019–2020, before a slight decrease thereafter ([Figure 8](#)).

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

Nova Scotia CT Exam Trends: 2007 to 2022–2023

Total CT exams: increased from 130,818 to 166,268

Overall exam growth: 27% increase across the jurisdiction

Per capita exams: increased from 140.0 to 158.8 per 1,000 population

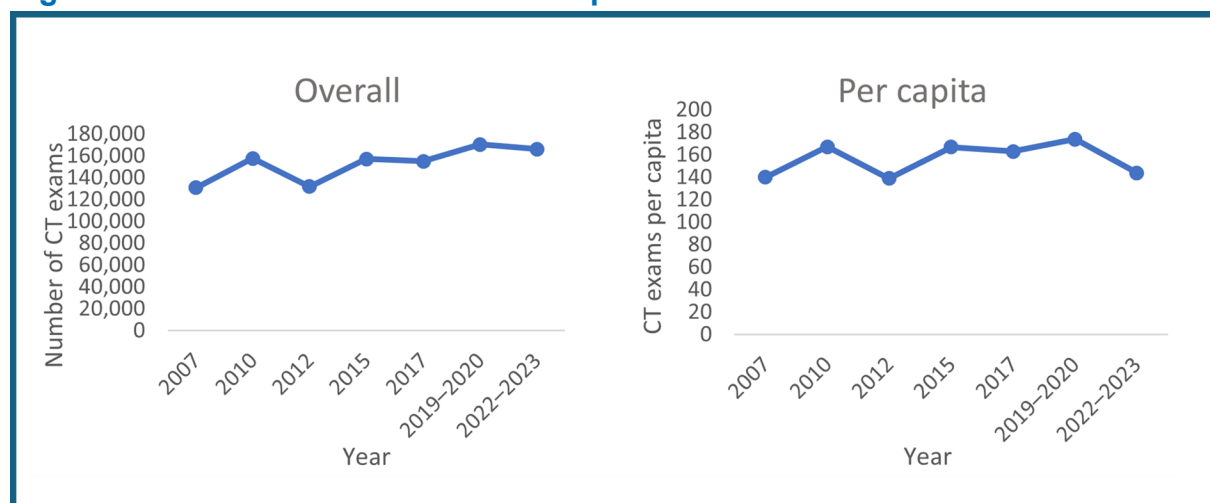
Per capita exam growth: 13% increase across the jurisdiction

Total CT units: increased from 16 to 18

Overall unit growth: 13% increase across the jurisdiction

Per capita CT units: increased from 17.1 to 17.2 units per 1 million population

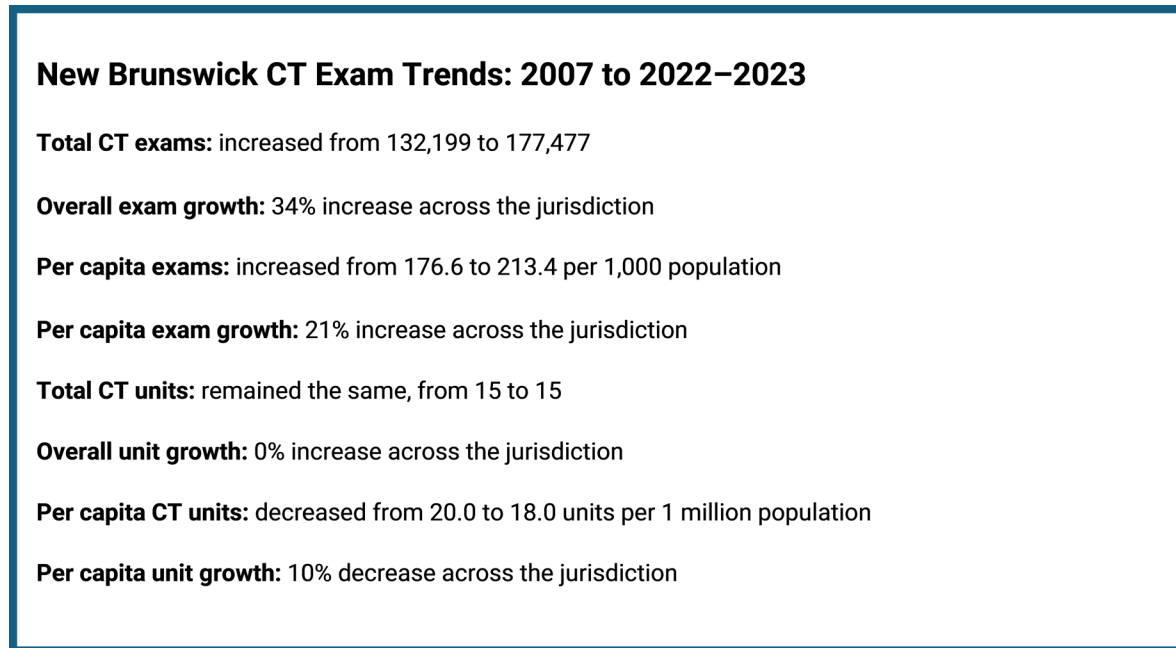
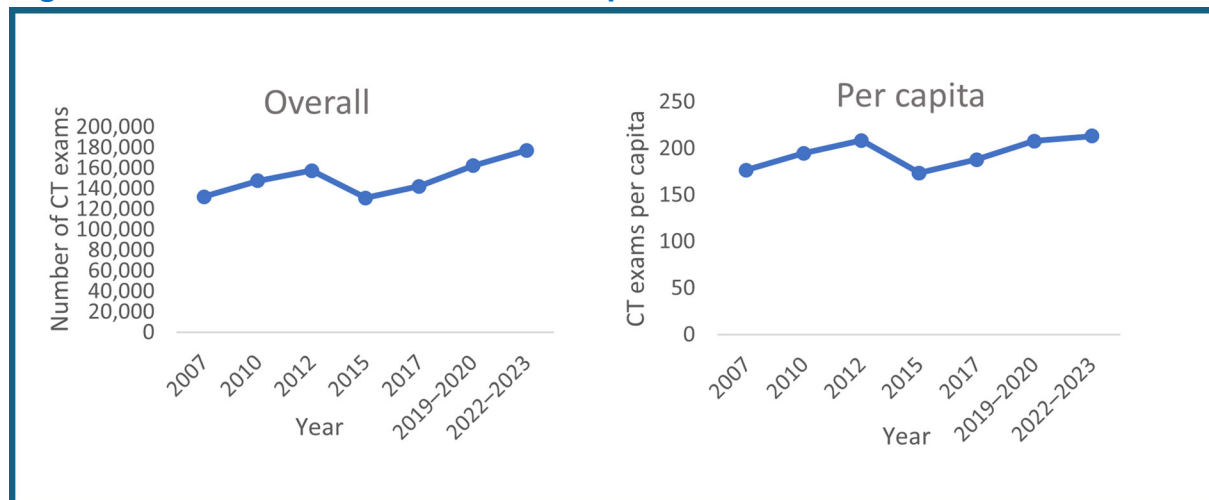
Per capita unit growth: 0.6% increase across the jurisdiction

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

New Brunswick Growth Trends

New Brunswick's total CT exam volume increased by 34%, whereas per capita growth was 21% ([Figure 9](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were below the national averages of 90% and 57%, respectively. During this period, the number of CT units remained unchanged at 15, resulting in a 10% decrease in units per capita, from 20.0 to 18.0 ([Figure 9](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

Although New Brunswick saw overall and per capita growth over the 16-year period, there were fluctuations in the exam numbers for both. Specifically, CT exams increased from 2007 to 2012, followed by a decline in 2015, then steady growth leading up to 2019–2020, before plateauing with a slower growth at the 2022–2023 levels. The sharp drop in 2015 may be attributed to the use of imputed data rather than actual figures for that year. Had the data been based on actual exam numbers, the decline experienced in 2015 — which did not return to 2012 levels until 2019–2020 — may have been less pronounced ([Figure 10](#)).

Figure 9: CT Exam Volume and Per Capita Growth in New Brunswick**Figure 10: Trends in Overall and Per Capita CT Exams in New Brunswick**

Quebec Growth Trends

Quebec's total CT exam volume increased by 98%, whereas per capita growth was 72% ([Figure 11](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were above the national averages of 90% and 57%, respectively. During this period, the number of CT units rose from 119 to 144, representing a 21% increase, whereas units per capita grew modestly from 15.5 to 16.3, representing a 5% increase ([Figure 11](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

Quebec experienced overall and per capita growth during the 16-year period. For both, growth in CT exams showed a gradual upward trend with a possible spike in 2015, followed by a decline in 2017 and a steady increase leading up to 2022–2023. The 2015 spike 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: CT Exam Volume and Per Capita Growth in Quebec

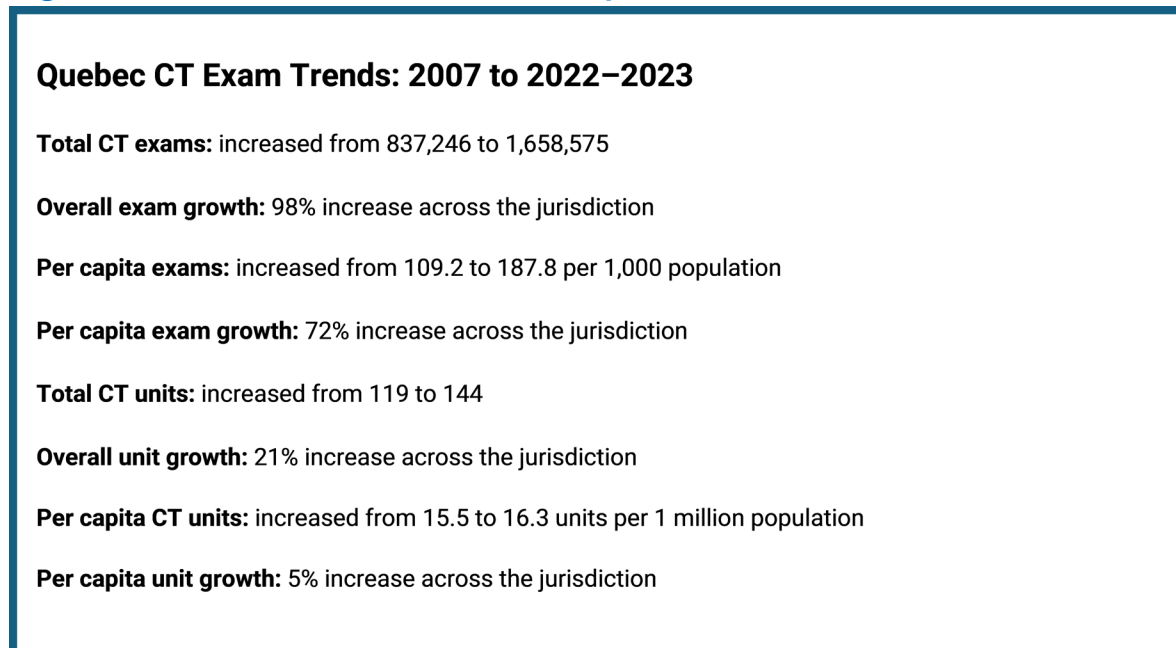
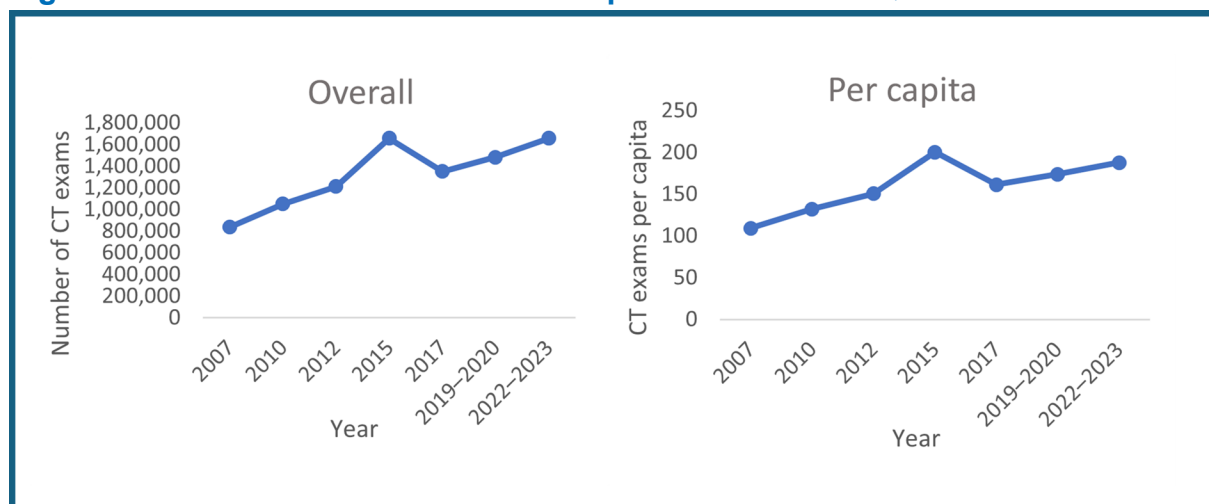


Figure 12: Trends in Overall and Per Capita CT Exams in Quebec



Ontario Growth Trends

Ontario's total CT exam volume increased by 99%, whereas per capita growth was 64% ([Figure 13](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were above the national averages of 90% and 57%, respectively. During this period, the number of CT units rose from 130 to 192, representing a 48% increase, whereas units per capita increased from 10.2 to 12.4, representing a 22% rise ([Figure 13](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

Ontario experienced overall and per capita growth during the 16-year period. Growth in CT exams for both was gradual for 10 years, between 2007 and 2017. Exam volumes peaked in 2017, followed by a period of decline in 2019–2020 and a subsequent increase through to 2022–2023 ([Figure 14](#)).

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

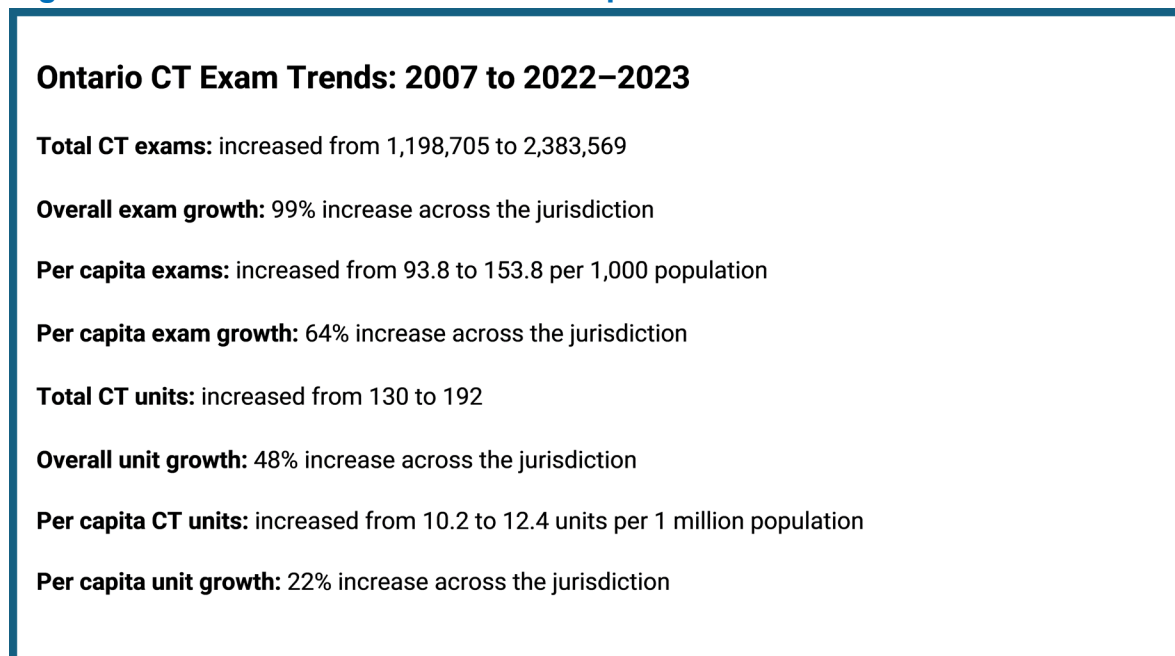
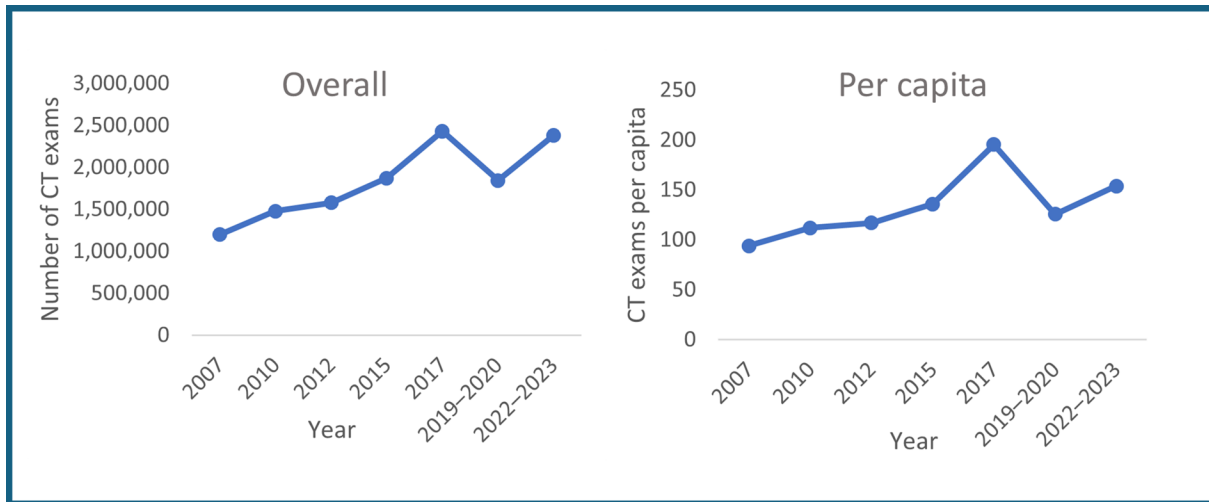
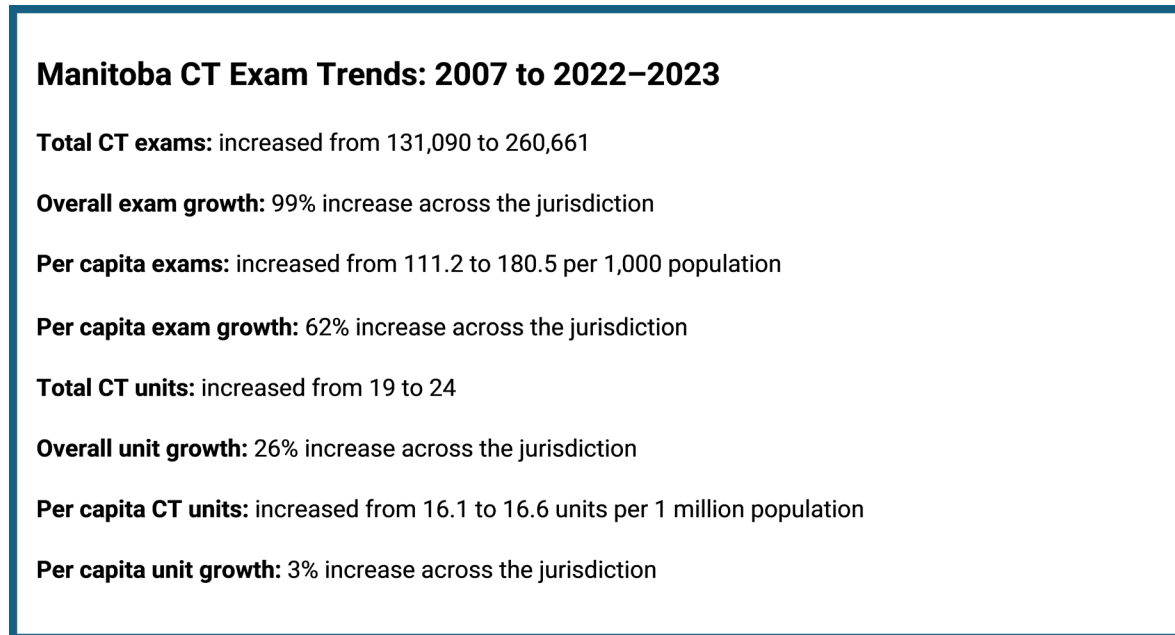
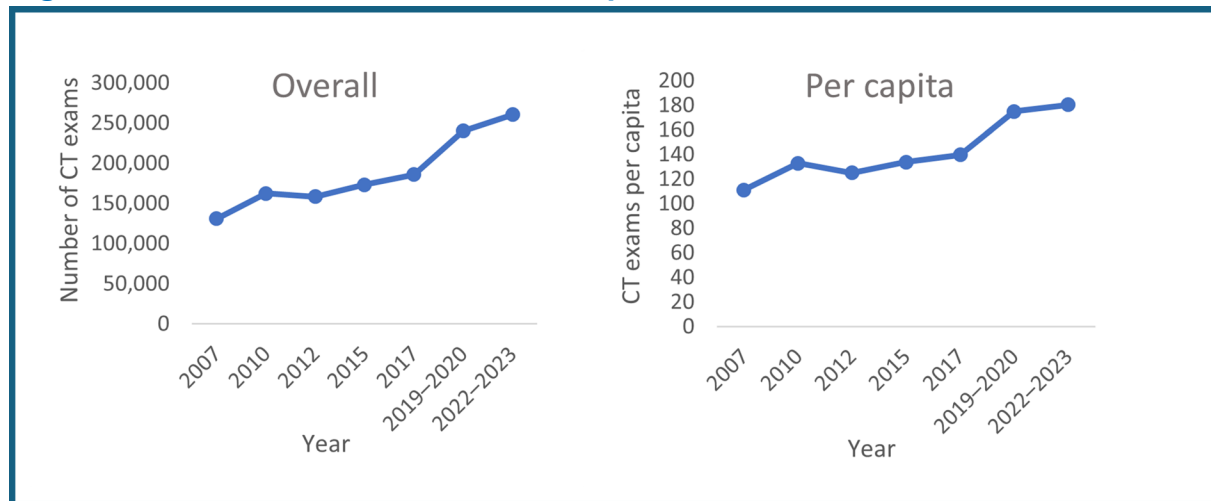


Figure 14: Trends in Overall and Per Capita CT Exams in Ontario

Manitoba Growth Trends

Manitoba's total CT exam volume increased by 99%, whereas per capita growth was 62% ([Figure 15](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were above the national averages of 90% and 57%, respectively. During this period, the number of CT units rose from 19 to 24, representing a 26% increase, whereas units per capita increased slightly from 16.1 to 16.6, representing a 3% rise ([Figure 15](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

Manitoba experienced a gradual increase in overall and per capita exams over the 16 years, with a slight decrease in 2012 compared to 2010 for both. The period of greatest increase was between 2017 and 2019–2020 for both overall and per capita exams ([Figure 16](#)).

Figure 15: CT Exam Volume and Per Capita Growth in Manitoba**Figure 16: Trends in Overall and Per Capita CT Exams in Manitoba**

Saskatchewan Growth Trends

Saskatchewan's total CT exam volume increased by 39%, whereas per capita growth was 12% ([Figure 17](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were below the national averages of 90% and 57%, respectively. During this period, the number of CT units grew from 15 to 18, representing a 20% increase, whereas units per capita decreased slightly from 15.2 to 14.7, representing a 3% decrease ([Figure 17](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

Saskatchewan's growth in overall and per capita CT exams slowed after 2010, continuing this downward trend until 2017, when exam numbers dropped to their lowest point, falling below the 2007 baseline.

Between 2019–2020 and 2022–2023, exam numbers began to rise again, with overall exams and per capita exams surpassing the 2007 baseline by 2022–2023 ([Figure 18](#)).

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

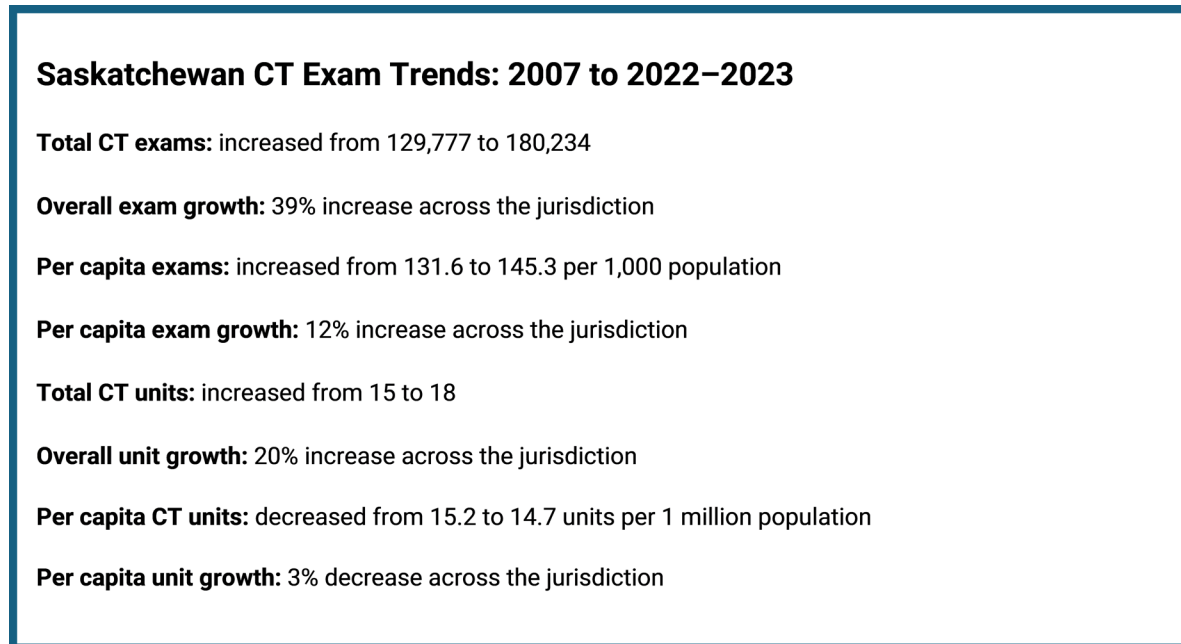
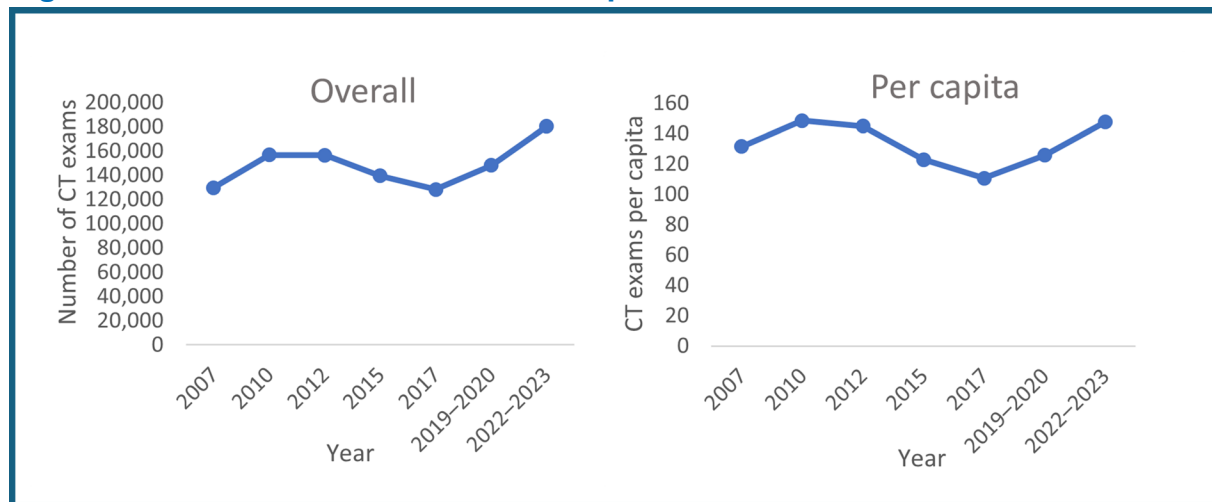


Figure 18: Trends in Overall and Per Capita CT Exams in Saskatchewan



Alberta Growth Trends

Alberta's total CT exam volume increased by 42%, whereas per capita growth was 3% ([Figure 19](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were below the national averages of 90% and 57%, respectively. During this period, the number of CT units rose from 41 to 53, representing a 29% increase,

whereas units per capita decreased from 12.0 to 11.3, representing a 6% decrease ([Figure 19](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

Alberta experienced overall and per capita growth over the 16-year period. CT exam volumes gradually increased for both between 2007 and 2010, followed by a slight dip in 2012. After 2015, exam volumes rose again, forming a steady upward trajectory through to 2022–2023 ([Figure 20](#)).

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

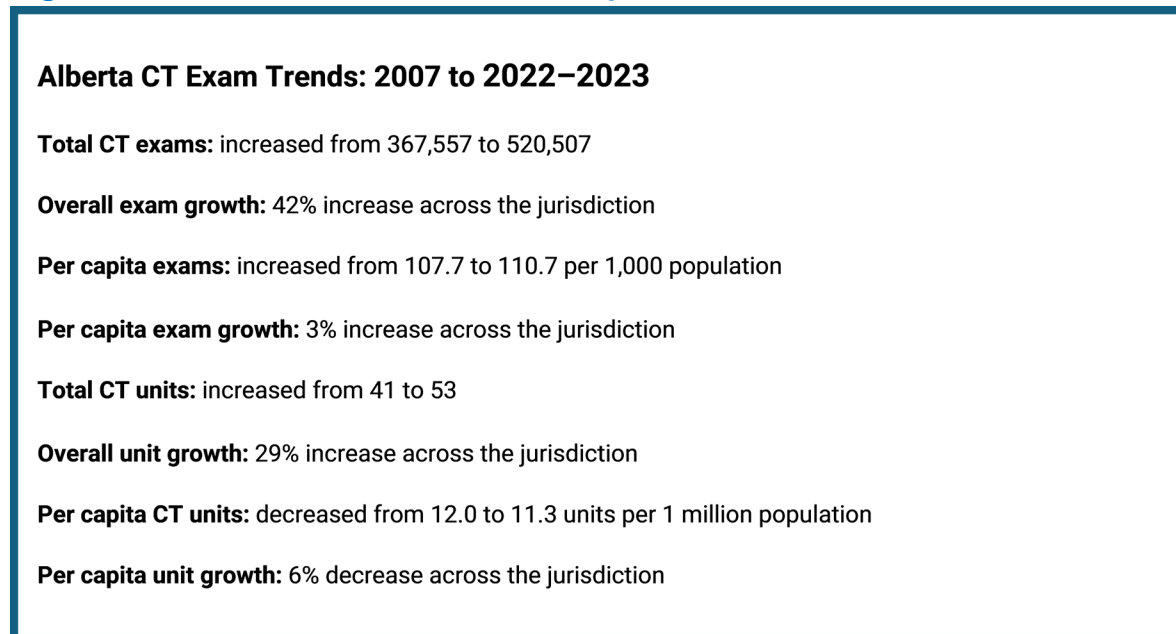
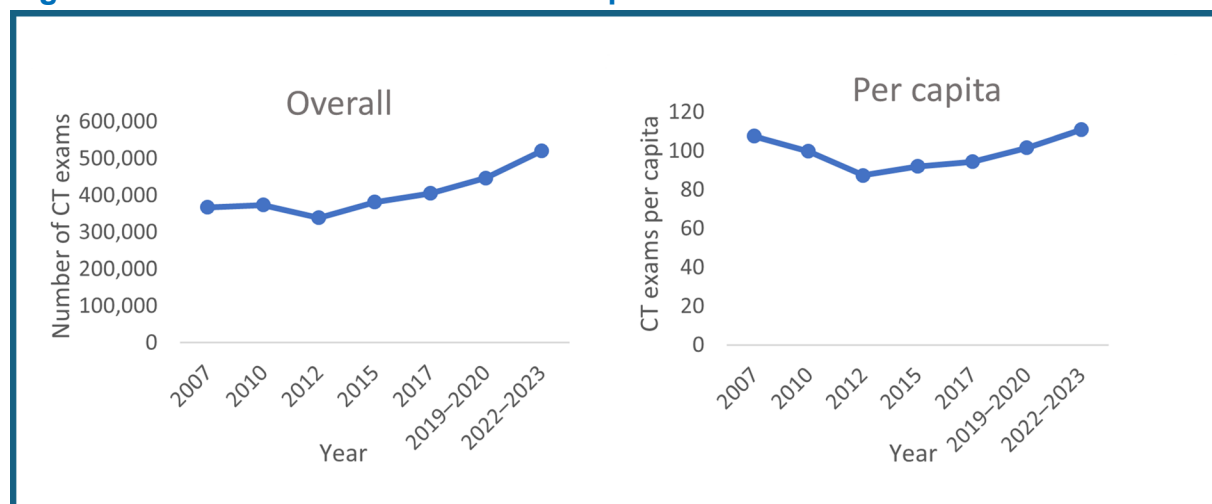


Figure 20: Trends in Overall and Per Capita CT Exams in Alberta



British Columbia Growth Trends

British Columbia's total CT exam volume increased by 146%, whereas per capita growth was 96% ([Figure 21](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were well above the national averages of 90% and 57%, respectively. During this period, the number of CT units rose from 49 to 75, representing a 53% increase, whereas units per capita increased from 11.3 to 13.8, representing a 22% rise ([Figure 21](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

These figures positioned British Columbia among the top 3 jurisdictions for total and per capita percentage CT exam growth over the time period. However, it is noted that its share of overall CT exam volumes remained between 11% and 15% of the national total for each reporting year.

British Columbia experienced consistent year-over-year increases in overall and per capita CT exam growth throughout the 16-year period, reflecting a steady upward trajectory for each reporting year between 2007 and 2022–2023 ([Figure 22](#)).

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

British Columbia CT Exam Trends: 2007 to 2022–2023

Total CT exams: increased from 375,238 to 923,990

Overall exam growth: 146% increase across the jurisdiction

Per capita exams: increased from 86.7 to 169.9 per 1,000 population

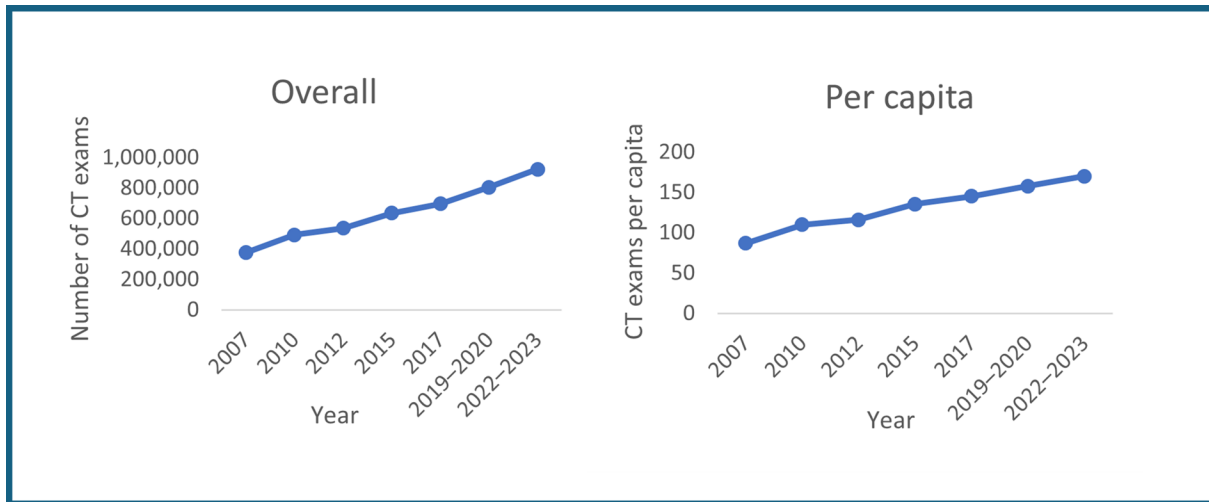
Per capita exam growth: 96% increase across the jurisdiction

Total CT units: increased from 49 to 75

Overall unit growth: 53% increase across the jurisdiction

Per capita CT units: increased from 11.3 to 13.8 units per 1 million population

Per capita unit growth: 22% increase across jurisdiction

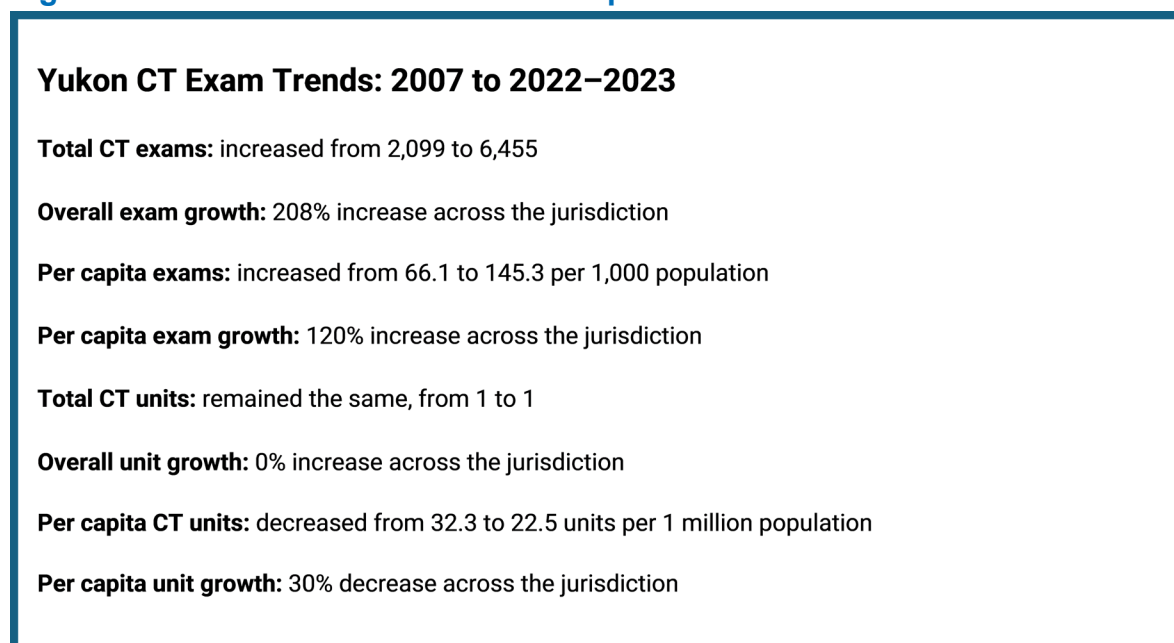
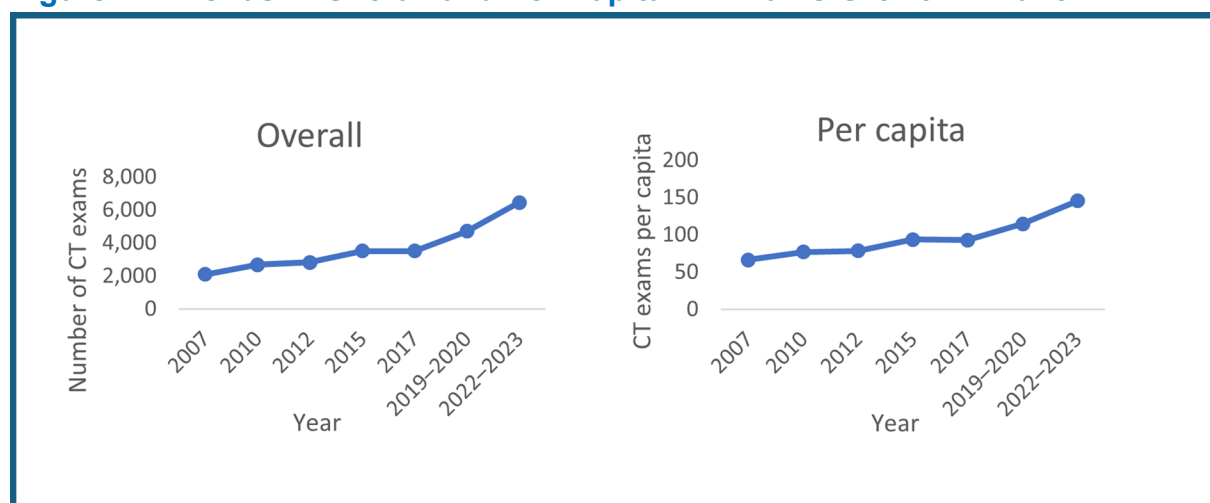
Figure 22: Trends in Overall and Per Capita CT Exams in British Columbia

Yukon Growth Trends

Yukon's total CT exam volume increased by 208%, whereas per capita growth was 120% ([Figure 23](#) and [Appendix 1, Table 1](#) and [Table 2](#)). Both figures were well above the national averages of 90% and 57%, respectively. During this period, the number of CT units remained constant at 1, resulting in a 30% decrease in units per capita, from 32.3 to 22.5 ([Figure 23](#) and [Appendix 1, Table 3](#) and [Table 4](#)).

Yukon had the highest total and per capita percentage increase among all the jurisdictions over this time period; however, it is noted that its total CT exam volumes remained below 0.5% of the national total for each reporting year.

Yukon showed gradual growth for overall and per capita exams over the 16-year period, albeit with some minor fluctuations. The greatest period of growth was between 2019–2020 to 2022–2023 ([Figure 24](#)).

Figure 23: CT Exam Volume and Per Capita Growth in Yukon**Figure 24: Trends in Overall and Per Capita CT Exams Growth in Yukon**

The Northwest Territories started CT services in 2010, and Nunavut followed in 2017. Each jurisdiction operated with 1 CT unit through to 2022–2023. The total number of CT exams in the Northwest Territories grew from 4,175 in 2010 to 8,115 in 2022–2023 ([Appendix 1, Table 1](#)), representing a 94% increase. On a per capita basis, CT exams increased from 96.4 per 1,000 people in 2010 to 177.7 per 1,000 people in 2022–2023, an 84% increase ([Appendix 1, Table 2](#)).

The total number of CT exams in Nunavut grew from 2,000 in 2017 to 4,336 in 2022–2023 ([Appendix 1, Table 1](#)), representing a 117% increase. On a per capita basis, CT exams increased from 53.4 per 1,000 people in 2017 to 106.5 per 1,000 people in 2022–2023, representing a 99% increase ([Appendix 1, Table 2](#)).

Limitations

The results of this report are based on 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 as CIHI conducted the survey between 2007 and 2012^{10,11,19} and CDA-AMC took over from 2015 onward.^{6,15,20,21} Data from 2015 were partially imputed due to incomplete submissions from some jurisdictions for this year. Although 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 achieved 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.

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 — many people live along the southern border, and remote areas, although they are vast, remain sparsely populated.⁴ Additionally, Canada's geographic size means that providing services and infrastructure over such a large area comes with challenges that per capita figures often overlook. As a result, per capita measures do not reflect the true complexities of the geographic distribution of population across the country.

Another limitation of this report is that it did not consider jurisdictions that did not have CT capacity for the entire period from 2007 to 2022–2023. This report focuses on those jurisdictions that had data for the entire period from 2007 to 2022–2023. As a result, jurisdictions such as the Northwest Territories and Nunavut — where CT services were introduced only in 2010 and 2017, respectively — are not included in the national trend analysis, despite ongoing efforts to expand CT capacity among the territories. Moreover, variations in regional health care infrastructures, such as access to CT facilities and health care policies, could have contributed to regional disparities. The evolution of CT 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 COVID-19 pandemic,²² 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 CT exams is shaped by various factors, including population growth and aging, health care, 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 CT exams may pose potential challenges, underscoring key considerations that can support health care decision-making, such as the following:

- Extended wait times for imaging may delay diagnoses and treatment, potentially affecting patient outcomes.^{23,24}
- Extending operating hours can help reduce wait times and manage exam volumes more effectively.²⁵ However, challenges in resourcing may make it difficult to extend the hours of operation of the equipment.²⁶
- 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 2018.²⁷
- Limited imaging availability may result in patients seeking private diagnostic services, increasing out-of-pocket health care expenses.³

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 infrastructures, refining workforce planning, and aligning resource allocation — that could help support timely and equitable CT access across all regions.

Conclusion

The analysis of CT exam growth across Canada's 11 jurisdictions with CT capacity from 2007 to 2022–2023 shows distinct patterns in both overall and per capita exam volumes. All jurisdictions experienced increases in both 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 CT services may not be consistent nationwide. Canada's vast geography and the low population density in certain regions likely contribute 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 CT 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 CT exams is influenced by a range of factors, including emerging clinical applications of CT, such as biopsies, drainages, and interventional use; population needs; health care resources; and advancements in medical practices. As demand continues to outpace imaging capacity, there is a risk of extended wait times, which can delay diagnoses and treatment, ultimately affecting patient outcomes.

This analysis underscores the importance of strategic health care planning that includes targeted strategies to optimize imaging infrastructures, resource allocation, and continuous monitoring of capacity and demand.

Decision-makers may 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: Overall Number of CT 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	68,434	9,655	130,818	132,199	837,246	1,198,705	131,090	129,777	367,557	375,238	2,099	0	0	3,382,818
2010	76,680	17,124	157,844	147,765	1,051,569	1,478,056	162,720	156,854	374,279	492,420	2,675	4,175	0	4,122,161
2012	86,881	13,559	131,881	157,683	1,212,437	1,578,694	158,643	156,509	339,451	535,591	2,828	3,761	0	4,377,919
2015	115,552	13,576	157,290	130,984	1,656,662	1,871,160	173,299	139,488	382,300	634,530	3,500	NA	NA	5,278,341
2017	90,985	15,811	155,099	142,294	1,350,792	2,430,739	186,197	128,415	405,332	695,248	3,500	4,695	2,000	5,611,107
2019–2020	98,967	19,349	170,603	162,322	1,483,373	1,842,982	240,269	148,202	447,069	805,584	4,700	5,335	3,081	5,431,836
2022–2023	105,441	25,368	166,268	177,477	1,658,575	2,383,569	260,661	180,234	520,507	923,990	6,455	8,115	4,336	6,420,996

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 CT 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	134.5	69.7	140	176.6	109.2	93.8	111.2	131.6	107.7	86.7	66.1	0	0	102.5
2010	146.7	120	167.2	195.9	132.2	112.1	132.9	148.5	99.9	109.8	76.9	96.4	0	120.8
2012	169.5	92.8	139	208.6	150.5	116.9	125.2	144.9	87.6	115.9	78.3	86.8	0	125.5
2015	218.9	92.7	166.8	173.7	200.5	135.7	134	123	91.1	135.5	93.6	NA	NA	147
2017	172.1	105.6	163.1	187.8	161.4	195.6	139.7	110.6	94.4	145.2	92.6	105.8	53.4	153
2019–2020	189.6	122.5	174.7	208.1	174	125.7	174.9	125.7	101.7	157.8	114.6	118.8	79.3	143.7
2022–2023	197.6	144	158.8	213.4	187.8	153.8	180.5	147.6	110.7	169.9	145.3	177.7	106.5	161.1

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.

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Table 3: Number of CT Units Across Jurisdictions Between 2007 and 2022–2023

Year	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YT	NT	NU	Canada
2007	11	2	16	15	119	130	19	15	41	49	1	1	0	419
2010	13	2	16	16	123	165	20	15	47	65	1	1	0	484
2012	14	2	16	17	132	168	21	16	50	72	1	1	0	510
2015	16	2	21	14	146	186	19	16	50	65	1	1	1	538
2017	16	2	18	15	163	184	23	15	56	66	1	1	1	561
2019–2020	15	2	17	17	164	169	22	16	55	69	1	1	1	549
2022–2023	16	2	18	15	144	192	24	18	53	75	1	1	1	560

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: CT Units per Million Population Across Jurisdictions Between 2007 and 2022–2023

Year	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YT	NT	NU	Canada
2007	21.6	14.5	17.1	20.0	15.5	10.2	16.1	15.2	12.0	11.3	32.3	23.6	0	12.8
2010	25.44	14.16	17.01	21.31	15.63	12.56	16.27	14.45	12.66	14.46	29.42	23.1	0	14.26
2012	27.3	13.7	16.9	22.5	16.5	12.5	16.7	15.0	13.1	15.6	28.1	22.9	0	14.7
2015	30.3	13.7	22.3	18.6	17.7	13.5	14.7	14.1	11.9	13.9	27.0	22.7	27.0	15.0
2017	30.3	13.4	18.9	19.8	19.5	13.0	17.3	12.9	13.1	13.8	26.5	22.5	26.7	15.3
2019–2020	28.7	12.7	17.4	21.8	19.2	11.5	16.0	13.6	12.5	13.5	24.4	22.3	25.7	14.5
2022–2023	30.0	11.4	17.2	18.0	16.3	12.4	16.6	14.7	11.3	13.8	22.5	21.9	26.6	14.0

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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ISSN: 2563-6596

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