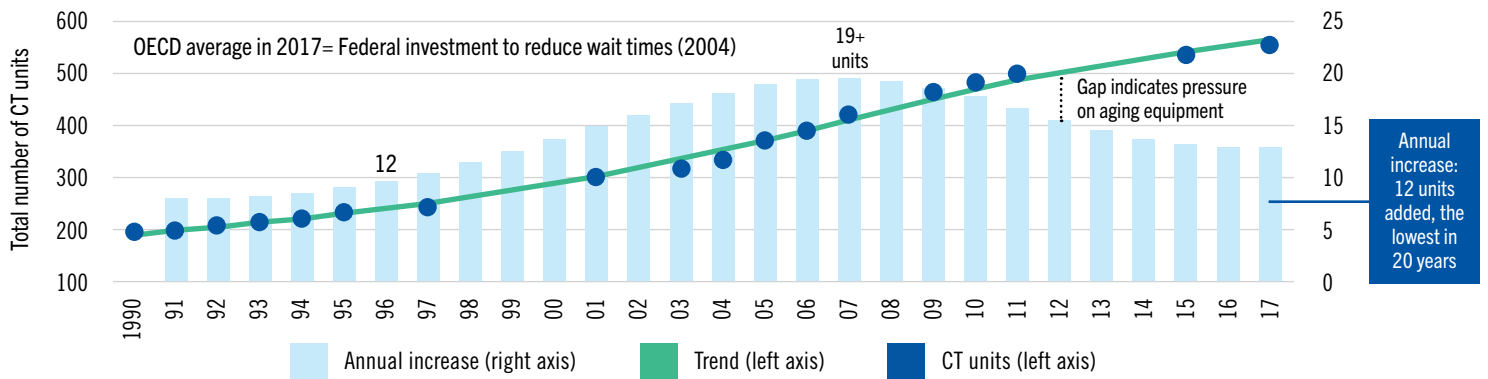


Stagnant Growth Trend in CT Units

CT Machines, total units and annual increase in units, 1990-2017 *Source: Conference Board, CADTH and CIHI*



Frequently Asked Questions:



How will a federal investment in medical imaging benefit Canadians?

It would reduce wait times and improve access to diagnostic and interventional procedures, improving overall patient outcomes.



Why is investment in medical imaging equipment needed now?

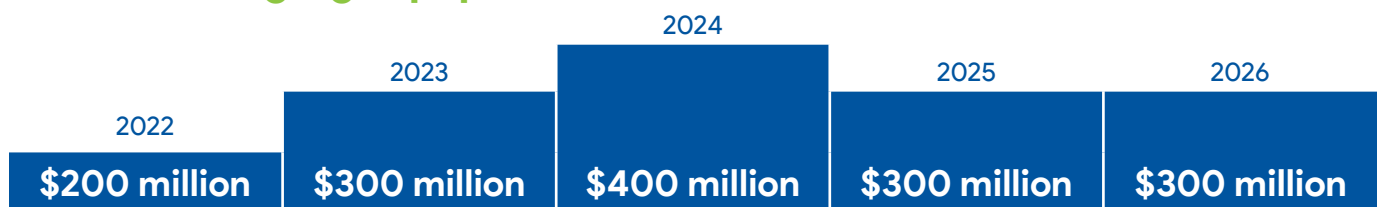
Canadian imaging equipment is undersupplied. We are at a 20-year low for investment in new imaging equipment. The average Canadian waits between 50-82 days for CT and up to 89 days for MRI/ This is 20-52 days longer than recommended by Canadian Wait time Alliance and supported by the CAR. This has been further amplified by COVID-19.



Healthcare is a provincial priority, why ask for a federal investment?

The health and well-being of Canadians is a national priority. Including an investment in medical imaging as part of the Canadian Health Transfer will help to ensure that patients in all jurisdictions have fair and equitable access to imaging procedures. In 2005, the government provided a substantial investment in imaging equipment to help tackle the lengthy wait times.

Recommended Yearly Investment – Medical Imaging Equipment



Executive Summary

Prior to the pandemic, Canadians were waiting an average of 50 to 82 days for CT scans and 89 days for MRI imaging. This is 20 to 52 days longer than the recommended 30-day wait time.¹ Due to COVID-19, waitlists are even longer, putting Canada in crisis mode for medical imaging. This is especially concerning for individuals needing breast and colorectal cancer screening, patients undergoing cancer treatment, or those who may need imaging but have delayed seeking care due to fears or factors associated with the pandemic.

With nearly 50% of Canadian population vaccinated, radiology departments across the country are seeing a massive influx of patients attempting to reschedule

their appointments. This is on top of the existing need and extremely lengthy wait lists for imaging in Canada. Our healthcare system is not equipped to handle these volumes; we are at risk of leaving many patients undiagnosed and treated.

The Canadian Association of Radiologists (CAR) recommends that the Government invest in medical imaging equipment, health human resources, technology infrastructure, and a national Clinical Decision Support framework to meet the needs of patients whose care has been adversely affected by the pandemic. This will help prepare our healthcare system to address the medical imaging challenges now and in the future.

The radiologist is the doctor who:



analyzes your images to make a diagnosis

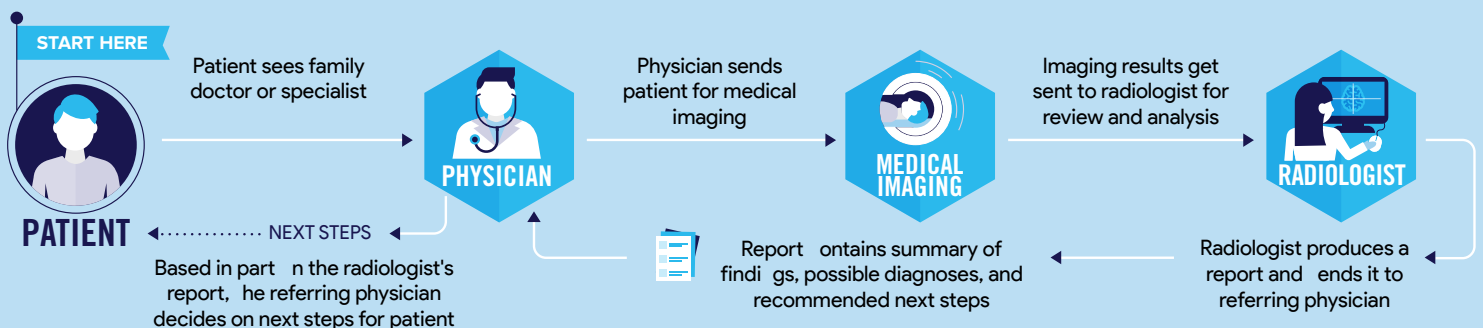


communicates the findings to your referring physician



contributes to your treatment plan

Patient Journey Through Diagnostic Imaging



DID YOU KNOW?

Radiologists are the physicians who specialize in interpreting results of imaging exams. Family physicians and other specialists turn to radiologists for consultation on the safest and most appropriate exam.

The professional conducting the imaging exam is an imaging technologist.

The majority of radiologists have at least 14 years of postgraduate education.

The COVID Effect – Increased Strain and Lengthened Wait Times

As COVID-19 ebbs, the number of patients seeking diagnostic or follow-up imaging will exacerbate existing backlogs. Prior to the pandemic, patients already faced significant waitlists for imaging across Canada. The Conference Board of Canada estimates that average wait times in 2022 will be 67 days for a CT and 133 days for an MRI, far exceeding the acceptable 30-day standard, **resulting in a net loss to the economy of \$3.5 billion in lost GDP.**ⁱⁱ These wait times are alarming to radiologists, who want to provide lifesaving procedures and imaging for their patients in a timely fashion, and to patients who are waiting in uncertainty for imaging care. Recent reporting from CIHI shows wait times for CT and MRI that exceed recommended benchmarks, even accounting for decreased imaging volumes necessitated by the pandemic.ⁱⁱⁱ

Federal Investments in Medical Imaging Equipment are not new

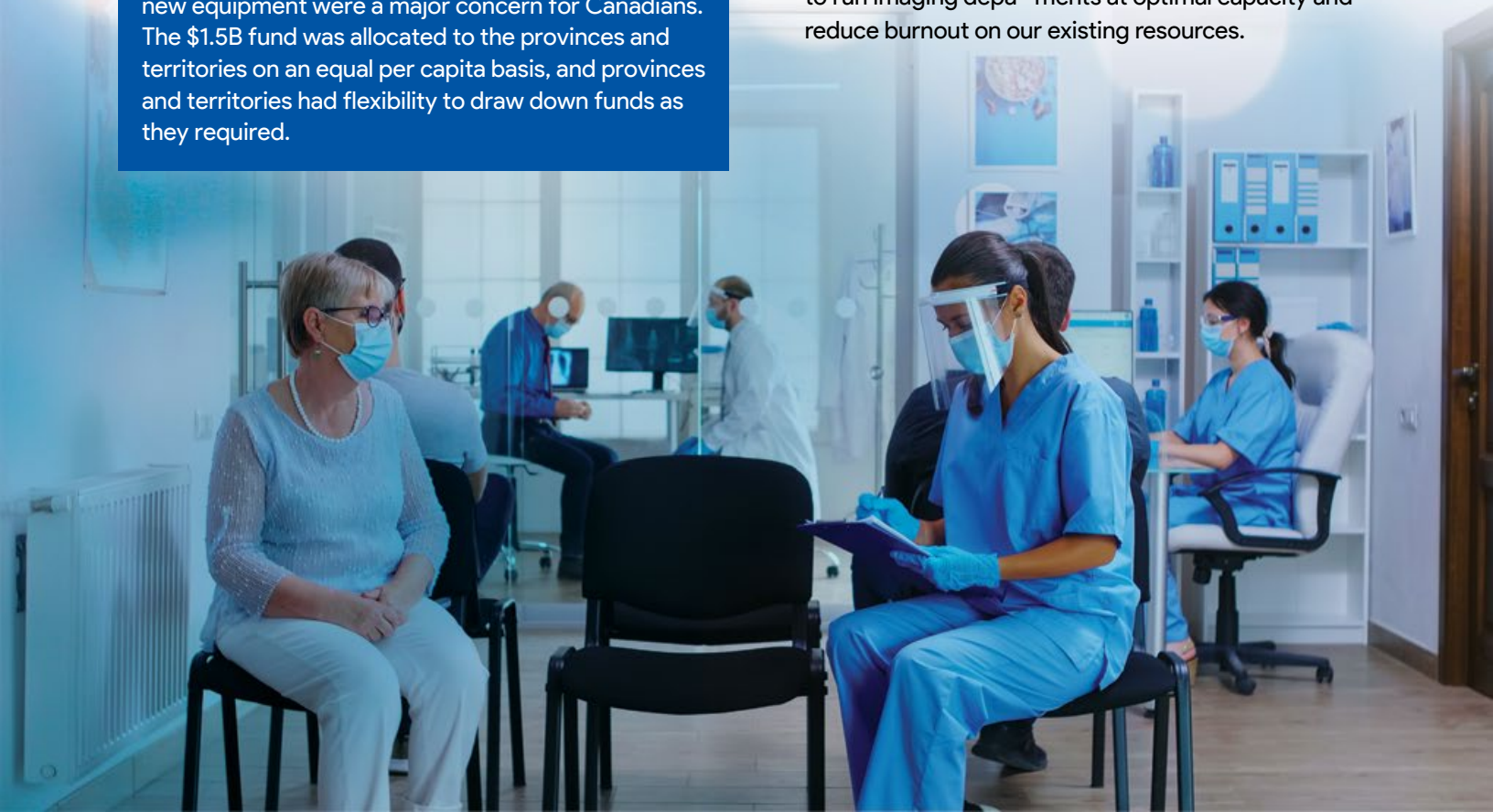
In 2003, former Prime Minister Paul Martin included \$1.5B over three years in the Federal Budget. These funds were in recognition that wait times for diagnostics and medical treatments that rely on new equipment were a major concern for Canadians. The \$1.5B fund was allocated to the provinces and territories on an equal per capita basis, and provinces and territories had flexibility to draw down funds as they required.

Transitioning to a “New Normal”

In the transition to the “new normal,” healthcare facilities face the dual challenge of maintaining safe and efficient operations, simultaneously preparing for the future. Amid COVID-19, the CAR has reported on radiology resilience and evaluated wait times for medical imaging in Canada, offering recommendations to efficiently manage radiology services now, and to meet the demand in the future.^{iv} Investing in radiology is key in maintaining patient health and to prevent further losses to the Canadian economy.

COVID-19 postponed medical imaging services in every jurisdiction across Canada. While these services resumed to 75% of capacity, in some cases, the current backlog is insurmountable and lower-priority patients will simply not be seen. To tackle waitlists and prepare for the future, we need investment in:

- Updated medical imaging equipment that integrates with IT infrastructure and emerging AI systems
- Tools that enable the healthcare system to work smarter by eliminating barriers to efficient care caused by inadequate data management and missed opportunities to streamline the patient experience
- Highly skilled healthcare workers like radiologists, medical radiation technologists, and support staff to run imaging departments at optimal capacity and reduce burnout on our existing resources.



Economic Impact of Failing to Invest in Radiology

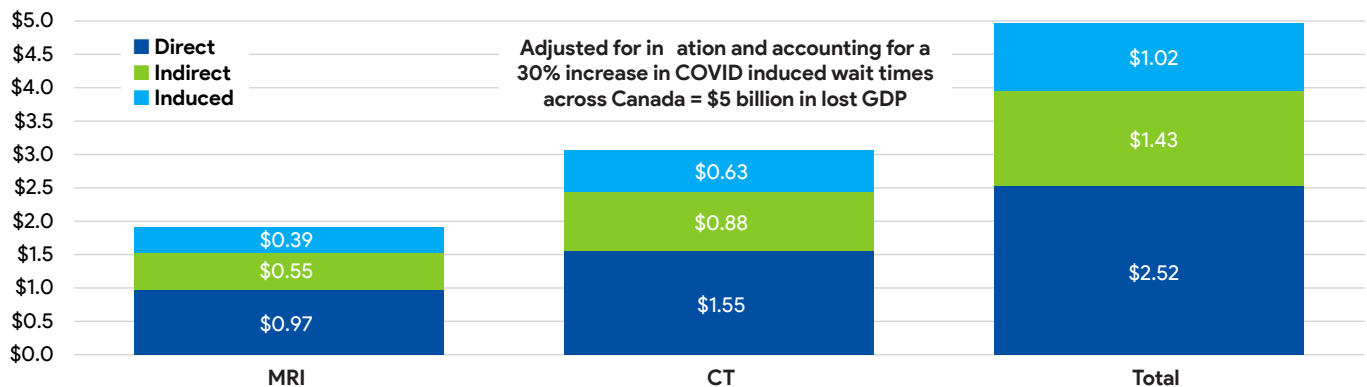
If the ongoing service disruption created by COVID-19 results in even a 25% reduction in overall patient throughput, the impact on the economy is an additional billion dollars in lost GDP due to people being unable to work while waiting for imaging procedures. This translates into an estimated loss of nearly **\$5 billion in GDP for 2021**.

The effect of the pandemic's third wave on wait times cannot yet be measured. In the coming months, we expect that data will illuminate the full cost of delaying medical

imaging, necessitating a re-analysis of wait times across Canada. The cost of addressing excessive wait times may require additional resources beyond what we have already identified. **We need to act now by investing in medical imaging equipment and health human resources to support the influx of referrals and while tackling waitlists.** Improvements to healthcare system capacity are truly an investment in patient care that will facilitate our long-term economic recovery from the pandemic.

The Cost of COVID on Diagnostic Imaging in Canada

National Excessive Wait Time Costs Amount to \$3.54 bn in 2018 turns in to \$5 billion in 2020 Direct, Indirect and Induced Impact on Canadian GDP (billions, \$)



Source: The Conference Board of Canada 2019, updated by CAR in July 2020

Postponed Cancer Screening Affects Patient Outcomes

Delays for medical imaging have hindered the detection and management of many diseases including colorectal cancer, a preventable disease that is the third most common cancer and second leading cause of cancer-related death in men, and the third leading cause of cancer-related death in women in Canada. The pandemic heavily impacted routine endoscopy and colonoscopy screening. Patients who were identified as average risk were offered less-effective methods of screening as a replacement to medical imaging.

CT colonography is the preferred method for colorectal screening and offers a safe, noninvasive method for screening. Substituting CT colonography for other screening methods does a disservice to patients.

"In my practice, a 70-year-old man who had two positive fecal tests had appointments for conventional colonoscopy cancelled twice. He subsequently presented for imaging and was found to have a carcinoma in his sigmoid colon at CT. That stage of cancer at time of diagnosis has significant implications not only for immediate treatment options, but also for 5-year survival rates and risk of recurrence. Earlier detection through medical imaging would have impacted his diagnosis and prognosis much more favourably. This is just one of many examples of how the pandemic has impacted medical imaging in Canada." Dr. Tanya Chawla, Assistant Professor, Mount Sinai Hospital, Dept of Medical Imaging.

The current data suggests that in Ontario it will take 41 months to get back to acceptable wait time unless there is an intervention. This will have a tremendous impact on thousands of patients and their chance of recovery.

We need more medical imaging equipment and staff resources to ensure that Canadians are receiving the care they so desperately need. Now is the time to act.

The Right Test at the Right Time

The number of patients in need of advanced imaging requires us to ensure the proper prioritization of imaging referrals. We need to work with referring health professions to ensure that they have access to the latest Canadian medical imaging guidelines through the implementation of an electronic Clinical Decision Support (CDS) system. By harnessing AI through CDS, we can prioritize patients as effectively and efficiently as possible

and ensure that every patient receives the right test at the right time. Moreover, we can facilitate medical imaging protocolling and optimize workflows using data sets and tools that are already being developed in hospitals and academic institutions across the country. **We are asking for the Government's support in helping provinces integrate CDS into their EMR systems.**

Harnessing Home Grown Artificial Intelligence

Simplified Patient Journey

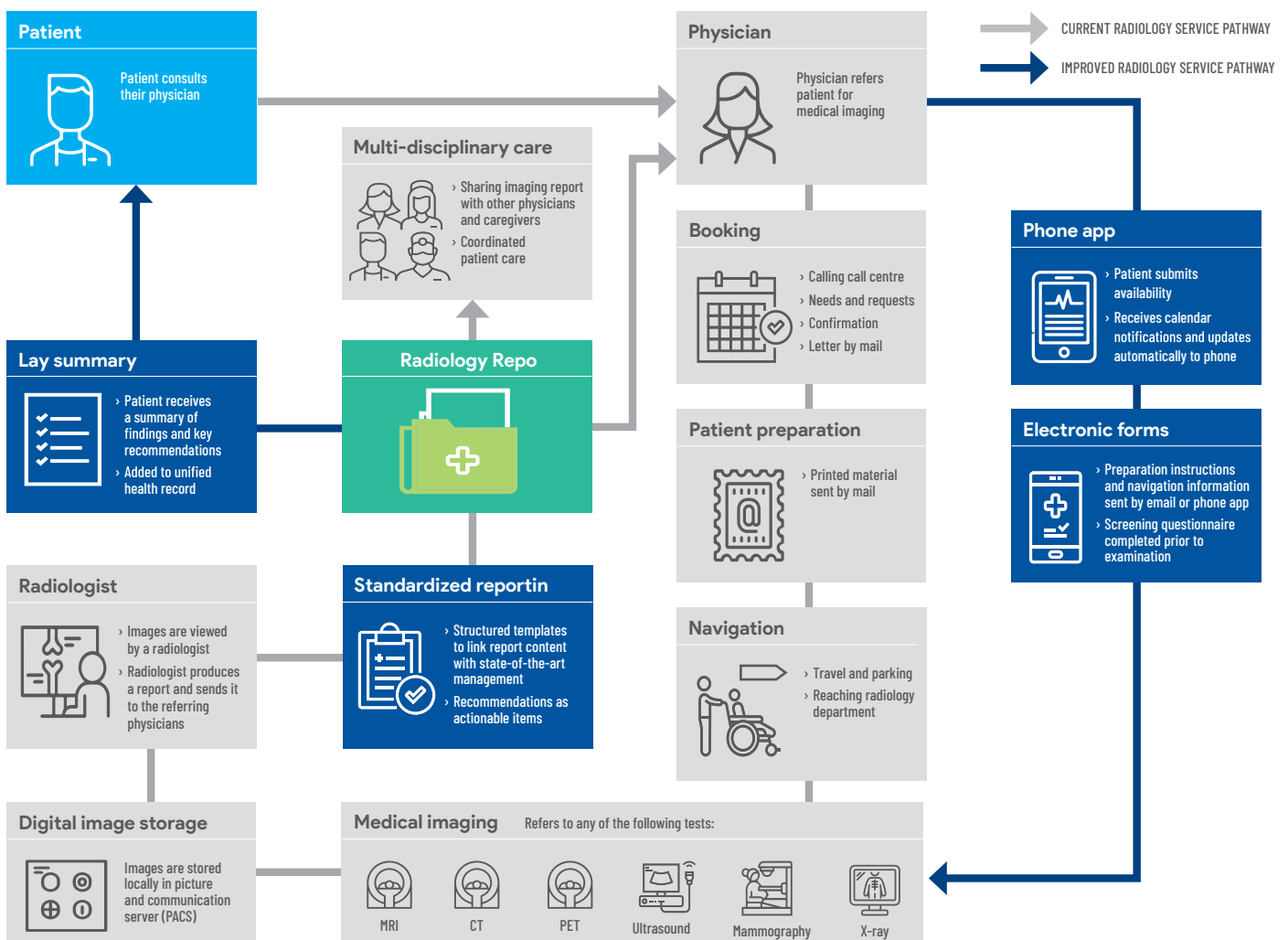


Figure 14: Patient journey through a radiology department. Current pathway is illustrated in black. Opportunities to improve patient well being, quality of care, patient engagement, and patient satisfaction with modern web, phone, scheduling, and mapping software are shown in blue. ©2020, An Tang, CHUM.

To augment investments made in capital equipment and health human resources, we recommend creating a **National Data Science Institute** to consolidate efforts already underway to **thoroughly integrate AI into medical imaging** and the rest of the healthcare system. Clinical insight and validation are necessary to ensure that we use the existing oceans of data to tackle real problems. **AI is not a solution unto itself**; expert guidance and human input are essential to the optimal application of the technology.

Canada is well positioned to take a leading role to drive the integration of AI into healthcare, by capitalizing on existing strengths in research, bioinformatics, and a single-payer healthcare system. The Government has already taken steps to drive the integration of AI into various technologies in Canada. Harnessing cutting-edge research for applications in medicine will define the way that the next generation of Canadians access and experience care. To ensure that AI tools for medicine

are developed and deployed quickly with patient safety and privacy in mind, **the Federal Government must lead on setting standards for the interoperability of AI systems, while addressing regulatory and legal issues that accompany the use of AI in medicine.**

There are many industry leaders in the AI space in Canada who have exported AI solutions abroad. To improve healthcare for Canadian patients, we should adopt these solutions here at home. It will be important to bring together Canada's AI thought leaders to develop a comprehensive implementation plan. The Government can play a key role in leading this.

The CAR would welcome the opportunity to appear before the Standing Committee on Finance to further elaborate on our recommendations to reduce wait times for medical imaging in Canada and ensure that all Canadians receive the lifesaving care they desperately need in a timely manner.

About the Canadian Association of Radiologists

The Canadian Association of Radiologists (CAR) is the national voice for radiologists in Canada, dedicated to imaging excellence and advocating for the highest standard of patient care across the country. We represent 2,800 radiologists who provide vital medical imaging for millions of patients.

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- i Sutherland, Greg, Nigel Russell, Robyn Gibbard, and Alexandru Dobrescu. The Value of Radiology, Part II. Ottawa: The Conference Board of Canada, 2019.
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- iii Canadian Institute for Health Information. Wait Times for Priority Procedures in Canada, 2021: Focus on the First 6 Months of the COVID-19 Pandemic. Ottawa, ON: CIHI; 2021.
- iv Canadian Association of Radiologists. Radiology Resilience Now and Beyond: Report from the Canadian Radiology Resilience Taskforce. [Web] Accessed 21 June 2021. https://car.ca/wp-content/uploads/2020/10/RAD_Resilience-Report_2_20_ENG_FINAL-2.pdf
- v Jill Tinmouth et al., "Estimating the Backlog of Colonoscopy Due to Coronavirus Disease 2019 and Comparing Strategies to Recover in Ontario, Canada," *Gastroenterology* 160, no. 4 (March 1, 2021): 1400-1402.e1, <https://doi.org/10.1053/j.gastro.2020.11.048>.