Improving Access to **Lifesaving Imaging Care** for Canadians

A multistakeholder approach to addressing the backlog for medical imaging across the country and recommendations for the sustainability of these services for patients

Canadian Association of Radiologists
L'Association canadienne des radiologistes

CAMRT ACTRM

Sonography Canada
Échographie® Canada

Summary

The Healthcare Crisis Demands a More United Response

It is time to work more closely together.

The pandemic has impaired Canadians' ability to obtain a multitude of healthcare services including surgery, therapeutic treatments, and medical imaging. Access to medical imaging (MI) before the pandemic was challenging and has significantly worsened. With a shortage of MI equipment and insufficient health human resources, patients wait an exorbitant amount of time for lifesaving diagnostic imaging and image-guided procedures. Canadians who postponed diagnostic imaging and necessary follow-up treatment are now in more urgent need of care. Combined with an aging population, these postponements have created a massive influx of patients, intensified by the number of people requiring more extensive treatment due to delayed diagnoses and worsening medical conditions. This demand, combined with capacity limitations in radiology departments will hinder our healthcare system if we do not act now. Our healthcare system is not equipped to handle this additional capacity. We risk leaving many patients undiagnosed and untreated.

Before the pandemic, Canadians were waiting an average of 50 to 82 days for CT scans and up to 89 days for MRI imaging. This is 20 to 52 days longer than the recommended 30-day wait time for these potentially lifesaving modalities.[1] During COVID, waitlists lengthened, creating ominous circumstances for people needing cancer screening, or patients requiring image-guided therapies or ongoing management of their disease.

Federal investment in MI equipment is required to meet the increased demand. Additional health human resources, including more radiologists, medical radiation technologists (MRTs) and sonographers are required to adequately staff departments and imaging units. There is a shortage of these highly trained health professionals across the country, and those who are currently employed are experiencing significant levels of burnout.

1 Sutherland, Greg, Nigel Russell, Robyn Gibbard, and Alexandru Dobrescu. The Value of Radiology, Part II. Ottawa: The Conference Board of Canada, 2019. https://www.conferenceboard.ca/temp/af67287b-a3e3-4193-856e-c5305ea3b422/10328_The%20Value%20of%20Radiology_RPT.pdf

A recent review article highlighted an emotional burnout rate of up to 72% among Canadian radiologists.[2] The Canadian Association of Medical Radiation Technologists (CAMRT) and Sonography Canada have also reported that MRTs and sonographers are facing similar issues. Burnout was a troubling issue for the MRT profession even before the pandemic, with more than a third of the workforce reporting signs of burnout in 2018. CAMRT's regular mental health surveys show that the pandemic pushed substantial numbers of MRTs to breaking point. In 2021, there was an 80% jump in MRTs reporting signs of burnout, meaning two-thirds (64%) of the workforce now go to work feeling emotionally exhausted.[3] Similarly, in 2021 over 56% of sonographers reported that they are feeling overextended at work to the point of emotional exhaustion, versus 42% in 2018.[4] An investment is needed in radiology health human resources to deal with the radiology workforce challenges across the country.

Advanced radiology solutions implemented in other jurisdictions can enhance productivity for radiology departments. Information technologies and artificial intelligence have great potential to avoid repetitive tasks thereby allowing our staff and physicians to concentrate on patient management. For example, by **implementing artificial intelligence** in workflows and investing in infrastructure, radiology departments can better care for patients in a timely fashion.

Implementing clinical decision support systems decreases the rate of non-relevant imaging examinations ensuring we can deliver the right examination to the right patient at the right time. The Canadian Association of Radiologists (CAR) in collaboration with the Canadian Association of Medical Radiation Technologists (CAMRT) and Sonography Canada are proposing a set of joint recommendations to help address the growing demand for MI and ensure the relevance and sustainability of radiology services in the future.

The Canadian Cancer Survivor Network has voiced its support for additional investment in diagnostic imaging, as such an investment directly aligns with their priorities to ensure rapid access to care for those patients suspected of having cancer, with an emphasis on equitable access to screening, diagnostics, and treatment regardless of where a person lives.

Included within this brief are the perspectives of each organization, presenting a unified voice on behalf of patients and healthcare providers seeking to improve vital aspects of the continuum of care. Outlined are the pressures, policy responses and advocacy required to break the deadlock of inaction. The brief also includes a set of key recommendations addressing HHR challenges for the Federal government to consider implementing, as well as a proposal for a memorandum of agreement on how best to work together to respond to this crisis.

2 Cao DJ, Hurrell C, Patlas MN. Current Status of Burnout in Canadian Radiology. Canadian Association of Radiologists Journal. 2022;0(0). doi:10.1177/08465371221117282

3 Canadian Association of Medical Radiation Technologists. The Mental Health of Medical Radiation Technologists in Canada: 2021 Survey. 2021. Available at: https://www.camrt.ca/wp-content/uploads/2021/10/CAMRT-National-Mental-Health-Survey-2021.pdf

4 Canadian Journal of Medical Sonography. Sonographers are S.A.D; Sonography Canada is M.A.D.: National Mental Health Survey 2021. Available from https://sonographycanada.ca/app/uploads/2022/01/CJMS-Volume-12-issue-4.pdf.

Key Points

It is time to take a unified approach, for radiology associations to work more closely together

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The healthcare system is in crisis, and it is hurting patients

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Medical Imaging is a crucial part of most patients' healthcare journey

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Our organizations, the CAR, CAMRT, Sonography Canada and the Canadian Cancer Survivor Network are uniquely positioned to help provide a united way forward

- Our collective voices can be amplified by coordinating:
  - MI policy as it relates to patients with cancer and for cancer screening
  - Advocacy

Investments that are needed include:

- MI equipment
- An MI HHR strategy for today and the next 10 years
- A technology response leveraging improving the interoperability of information technologies, implementing AI and clinical decision support in our clinical routine

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The Patient Voice

As public health measures related to the pandemic are lifted, it is expected that future COVID-19 variants and waves will emerge requiring increased health system capacity; at the same time, cancer diagnostic procedures and surgeries must continue as a standard component of healthcare. Canada is at a pivotal moment where the decisions to invest in our health and well-being today will fundamentally shape the future of our healthcare system in the years to come.

Ewa Hodges, a Toronto patient with cancer knows firsthand the importance of medical imaging for cancer care. In 2020, Ewa was diagnosed with stage 1 breast cancer. She underwent surgery and treatment, and in the year that followed, she needed follow-up imaging to monitor her condition. When the pandemic caused many facilities to cancel or delay scheduled services, Ewa's follow-up imaging was cancelled because it was deemed not urgent. Despite having a very aggressive form of cancer, she was not able to access the tests she needed.

After 9 months of pleading with her local hospital, she was finally able to obtain imaging only to find out that her cancer had returned, necessitating another surgery, radiation treatment, and 5 years of medication. Her treatment may have been less invasive had she been imaged and assessed in a timely manner. This is one example of many demonstrating the importance of prompt access to lifesaving medical imaging and why we need to enhance our health system resources in radiology to better care for patients.

In a recent study published by the Canadian Partnership Against Cancer, it is predicted that there will be more than 20,000 additional cancer-related deaths over the next 10 years. However, that number could be reduced by almost 80% if cancer care, including diagnostic imaging, is increased 10% above pre-pandemic levels.[5]

This is an issue of top priority that cannot wait because cancer will not wait.

Patients are worried about their access to necessary diagnostic imaging. The Canadian Cancer Survivor Network is calling on governments, healthcare facilities, and cancer centers to invest in strengthening cancer care. Cancer will not wait for those who are currently without a diagnosis and for those who may have progressed to a later stage during the pandemic. Policymakers and hospital administrators across Canada must help to avoid what may already be an unavoidable increase in the number of deaths from cancer.

The Canadian Cancer Survivor Network is a place to connect patients with cancer, and survivors, and for caregivers to learn about the complexities of our healthcare system. It is a place where they can connect with others to plan, and act on those plans to promote better care and healthier survivorship.

Imaging plays a major role in oncology by offering numerous minimally invasive therapies guided by ultrasound, CT or fluoroscopy. Eighteen months after the start of the COVID-19 pandemic, half of the patients with cancer across Canada reported that their cancer care appointments were postponed, or rescheduled, while six in 10 recently diagnosed patients and seven in 10 patients with metastatic cancer, reported that their cancer care appointments were cancelled, postponed, or rescheduled. On average, it takes 28 days to reschedule cancer care appointments and 44 days to reschedule procedures or surgeries Moreover, many patients report they continue to experience delays in rescheduling appointments or dates for surgery.

There is also a widespread decline in cancer screening through MI across Canada, resulting in cancers being diagnosed at later stages. The Quebec Ministry of Health reported that over 60,000 fewer colonoscopies were completed between April 2020 and January 1, 2021, versus the same period from the previous year. Alberta and Nova Scotia also saw reductions in cancer diagnoses and surgeries during the pandemic. The Ontario Breast Screening Program (OBSP) performed 149 mammograms for routine cancer screening in April 2020, compared with 61,655 during the same month one year prior.[6]

Delays in appointments and treatments not only impact patients in terms of their projected health outcomes but continue to impact patients and caregivers, with nearly 70% reporting these delays were having a major impact on their emotional and mental health. Canadians want better access to medical imaging.[7]

A recent Nanos Research poll indicated that nine out of 10 Canadians would support the federal government making new investments in MI to reduce wait times. Meanwhile, over 53% of Canadians say wait times to access diagnostic imaging have worsened since the pandemic started, with only 3% of respondents responding that wait times had improved.[8]

5 Malagón T, Yong JHE, Tope P, Miller WH, Franco EL, and McGill Task Force on the Impact of COVID-19 on Cancer Control and Care. "Predicted Long-Term Impact of COVID-19 Pandemic-Related Care Delays on Cancer Morality in Canada." International Journal of Cancer 150, no. 8 (April 15, 2022): 1244–54. https://www.mcgill.ca/pollak-lab/files/pollak-lab/predicted_long-term_impact_of_covid-19_pandemic-related_care_delays_on_cancer_mortality_in_canada_edited.pdf.

6 Cancer Can't Wait: Survey on wave 3 reveals COVID-19 continues to disrupt cancer care across Canada – Canadian Cancer Survivor Network. Accessed October 21, 2022. https://survivornet.ca/act/covid-19-cancercantwait-campaign-2/cancer-cant-wait-new-survey-reveals-covid-19-continues-to-disrupt-cancer-care-across-canada/

7 Ibid.

8 Nanos National Survey of Canadian perceptions on radiology and investment for Medical Imaging. Conducted January 2022. Data available: https://nanos.co/wp-content/uploads/2022/01/2022-2065-Radiologists-Jan-Populated-report-with-tabulations.pdf

Cancer Can't-Wait!

"Across Canada, we have all witnessed the physical, psychological, and financial impact of dealing with the COVID-19 pandemic," says Jackie Manthorne, President and CEO of the Canadian Cancer Survivor Network. "For those Canadians facing cancer, the impact is even greater."

"Cancer can't wait. It can't be cancelled or postponed," declares Manthorne. "We cannot continue to delay diagnoses, tests, treatments, and care that will help save cancer patients' lives."

Supporting Our Radiology Workforce

The absence of sufficient health human resources is a **national crisis**. There are not enough healthcare workers to support the influx of patients entering the healthcare system. In radiology, this is a significant problem. Staff are overworked and MRTs, sonographers, radiologists, and support workers are burnt out. We need to put in place solutions to address this national crisis. The CAR, CAMRT and Sonography Canada with the endorsement of the Canadian Cancer Survivor Network have come together in partnership to propose a series of recommendations to help radiology departments provide better access for patients to medical imaging and alleviate the current stress placed on healthcare providers, delivering improved services for the diagnosis and treatment of disease including cancer.

Recommendations

Our multistakeholder partnership is proposing that the Federal government take a leadership position in the following areas to help address the backlogs and HHR crises in radiology for patients in Canada

1. Invest in new medical imaging equipment across the country to ensure patients have timely access to diagnostic imaging and screening.
2. Develop a robust health human resources strategy for radiology departments to address the current crisis and better serve patients in all jurisdictions for years to come.
3. Harness new technologies such as AI in radiology to help increase the capacity of radiology services to both assess and treat disease.
4. Implement a national directive for Clinical Decision Support tools to allow front-line healthcare providers better access to e-referral guidelines to guide care.

Investing in Medical Imaging Equipment

Investment in medical imaging equipment is at a 20-year low. A recent study by the Conference Board of Canada indicated that 35% of medical imaging equipment is 10 or more years old.[9]

This contravenes the "Golden Rules" for the appropriate age of installed imaging equipment, which stipulates that 30% of equipment should be no less than five years old and no more than 10% of equipment should be 10 years or older.[10] Many jurisdictions are operating with outdated equipment that is not working efficiently and frequently breaking down. Dr. Amol Mujoomdar, a radiologist and President of the Canadian Society of Interventional Radiology indicated that the MRI and CT machines in his department in London, ON are not reliable. "In 2021 patients scheduled for scans, on numerous occasions have had their procedures cancelled or are stuck in the MRI machine waiting for their imaging to take place. The breakdown of equipment is a normal occurrence for the London Health Science Center. This is not acceptable. We are dealing with the health and well-being of Canadians. We need to have access to the very best imaging services possible."

In addition to staff shortages, many remote and rural communities do not have adequate access to imaging equipment, making it difficult to access MI procedures, delaying the diagnosis of illness and as well as management of disease. New equipment is not only more reliable but also operates more quickly, reducing the imaging time for each patient and can reduce delays in procedures due to dysfunctional equipment.

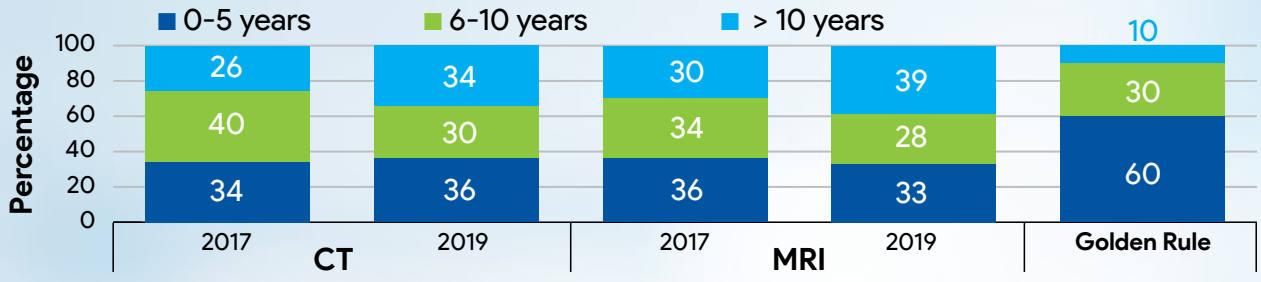
It is crucial to make a capital investment in equipment now with an equal investment in full-time radiology employees. The medical community welcomed the Minister of Health's announcement of $2 billion in new funding to clear the backlog, however, more needs to be done. By allocating an additional $1 billion for MI over 5 years to all provinces and territories, the federal government can make a significant impact in improving care for Canadians. MI touches on virtually every facet of the patient health journey and is essential to the diagnosis, management, and treatment of disease. We owe it to our patients to provide the best service possible. In 2001 the federal government made a one-time $1 billion investment in Canadians in replenishing MI equipment in Canada. This had a significant impact on the quality of imaging care patients received. The stakeholder group is asking the government to step up and make this a priority again.

This, of course, is only one element to rectifying the backlogs for MI in Canada. Implementation of a robust HHR strategy for radiology is essential, in conjunction with an investment in capital equipment. We need skilled, trained people to conduct procedures and operate the machines.

Compliance With Golden Rules

The age profile of DI equipment is getting worse – not compliant with the COCIR Golden Rules.

Source: The Conference Board of Canada; the Canadian Agency for Drugs and Technologies in Health.



9 Waters, Nicola and Zahra Ahmadvand. Medical Imaging Equipment in Canada 2022: Trends, Challenges, and Opportunities. Otawa: The Conference Board of Canada, 2022. https://www.conferenceboard.ca/e-library/abstract.aspx?did=11660

10 European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry (COCIR). Medical Imaging Equipment Age Profile & Density. 2019 Edition. Available from: https://www.cocir.org/fileadmin/Publications_2019/19076_COC_AGE_PROFILE_web.pdf

Addressing the HHR Crisis in Radiology

A report commissioned by the Canadian Medical Association, published in September 2022 by Deloitte, identified that job vacancies among healthcare practitioners have increased by nearly 92% in the September to December 2021 period compared to the same period pre-pandemic.[11] Data from CAMRT's profession-wide HHR survey conducted in December 2021 revealed that vacancies in the specialty areas of CT imaging and MRI have risen three- to five-fold since 2019, now standing at 10% and 11%, respectively.[12] Further missed diagnoses due to delayed care are adding additional challenges to the system that will last for years. The report found that almost one in three Canadians experienced delays in seeking care during the COVID-19 pandemic which may lead to late-stage diagnoses in certain patients.

The current shortage of MRTs and sonographers is a crisis that is negatively affecting the capacity of radiology services to provide care to Canadians across the country.

In June 2022 Health Canada convened a group of stakeholders to discuss the HHR crisis in Canada. This round table discussion yielded several recommendations to address the challenges, however, did not put forth concrete strategies for improvements in healthcare delivery.

The multistakeholder partnership has put forth the following recommendations for healthcare facilities to help address the existing backlog for medical imaging and to better prepare for the sustainability of MI for patients in the future.

Invest in hiring an additional 200 MRTs and sonographers across the country on a per capita basis. The funding could be allocated to the provinces as part of the Canadian Health Transfer.

Invest to help provinces expand accredited training programs to increase the supply of MRTs and sonographers in the future.

Invest in bridging programs for foreign-trained MRTs and sonographers to enable them to meet the Canadian standards for practice.

Offer incentives for Canadians to train as radiologists, MRTs or sonographers including the Student Loan Forgiveness Program in rural or remote communities by forgiving up to $20,000 of their student loans.

Implement a graduate retention program that provides income tax credits of up to $20,000 to graduates of eligible post-secondary programs who live and work in Canada.

Implement a clinical placement bursary that is offered to students in radiology disciplines that requires the completion of a final clinical placement as part of training.

Continued investment in programs specifically designed to support the mental health of the healthcare workforce.

11 Deloitte for the Canadian Medical Association. Measures to Address Health System Challenges: Review of Canadian, Provincial and Territorial 2022 Budgets (September 2022). Accessed October 21, 2022. Available from: https://www.cma.ca/sites/default/files/2022-09/CMA_System_Funding_2022_Report.pdf

12 Canadian Association of Medical Radiation Technologists. Human Resources Survey: Medical Imaging and Radiation Therapy 2021, *in publication*.

Harness New Technologies

The use of AI in radiology is growing, particularly in other jurisdictions such as the United States and Europe. In these healthcare systems, there has been a substantial investment in new radiology technologies, which have been shown to increase capacity and efficiency while reducing risk to the patient through lower radiation exposure.

An example of technological advancement in MI is voice dictation software. Integrating this software into Picture Archiving Computer System (PACS) can help to alleviate the administrative burden on radiologists and MRTs. Several Canadian companies have developed advanced MI software systems currently being used abroad. We need to implement Canadian home-grown solutions to better care for patients and support burgeoning businesses and innovation within our own country.

Several provinces implement a central repository of MI studies allowing all radiologists and physicians access to imaging acquired in the province and facility in which it was obtained. This helps to avoid duplication of examinations and to identify which facilities have lower wait times. These new systems use vendor-neutral archives and allow the integration of images from pathology departments or clinical pictures. Facilitating the interoperability of all hospital information systems including radiology information system (RIS), picture archiving and communication system (PACS), electronic medical records (EMR) and scheduling platform is also required to improve efficiency and decrease stress on HHR.

Clinical Decision Support, better access to referral guidelines for referring practitioners and the integration of new technologies using large datasets can help to triage patients, assess the priority of imaging and rule out a particular illness or disease. This allows radiologists to streamline their workflow and thereby ensure that people needing the most urgent attention receive the care they require without additional resources.

The CAR with the support of the Canadian Medical Association and working with the Canadian Association of Emergency Physicians, the College of Family Physicians of Canada, the Nurse Practitioners Association of Canada, and the Society of Rural Physicians of Canada, have already embarked on a national project focused on the creation and integration of Canadian-specific diagnostic imaging referral guidelines into CDS systems. These evidence-based, peer-reviewed guidelines will be freely available to help guide healthcare professionals' decision-making processes, enhance care and enable better communication among healthcare providers. Other countries have successfully implemented CDS systems for medical professionals referring to radiology, and Canada is behind many industrialized countries when it comes to e-referrals underpinned by CDS.

Working Smarter and Not Harder

- As a front-line healthcare provider, it can be difficult to determine an illness or disease without medical imaging.
- MI is central to the healthcare system and can detect pathologies not visible via the human eye.
- Integration of all information technologies related to imaging (PACS, RIS, scheduling software) with full interoperability with the EMR is needed.
- Medical imaging should be easily accessible to all physicians within a province (and eventually across Canada) to improve patient management and avoid unnecessary duplicate exams.
- Healthcare providers must have the necessary information to assist and recommend the type of imaging their patients will receive.
- Ready access to referral guidelines would assist referring health professionals in selecting the most effective diagnostic procedure.
- CDS systems would be available electronically and incorporated into EMR systems across the county using the CAR's evidence-based referral guidelines.

There are a few facilities in Canada that are piloting CDS systems in Alberta, Quebec and Ontario. Internationally, other countries such as the UK and US have integrated these systems and are committed to investing millions in the development of CDS tools.

The stakeholders included in this document recommend that the government take a strong leadership position in putting forward a national directive for all provinces and territories to have clinical decision support systems available for referring professionals when consulting with patients.

Conclusion

Now is the time to act. Patients have been suffering for too long. The current healthcare framework for radiology departments is not sustainable and cannot keep up with demand. We need to find tangible solutions that help support our MI workforce and provide patients with improved access to medical imaging. The overall impact of the recommendations provided in this briefing will yield better outcomes for patients, reduce costs to the health system and limit strain on radiologists, MRTs and sonographers. The multistakeholder partnership would welcome the opportunity to work with the Federal government in a consultative manner to implement strategies improving access to MI for all Canadians.