# A National Plan to Re-invest in Radiology Through People, Technology and Equipment

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Canadian Association of Radiologists
L'Association canadienne des radiologistes

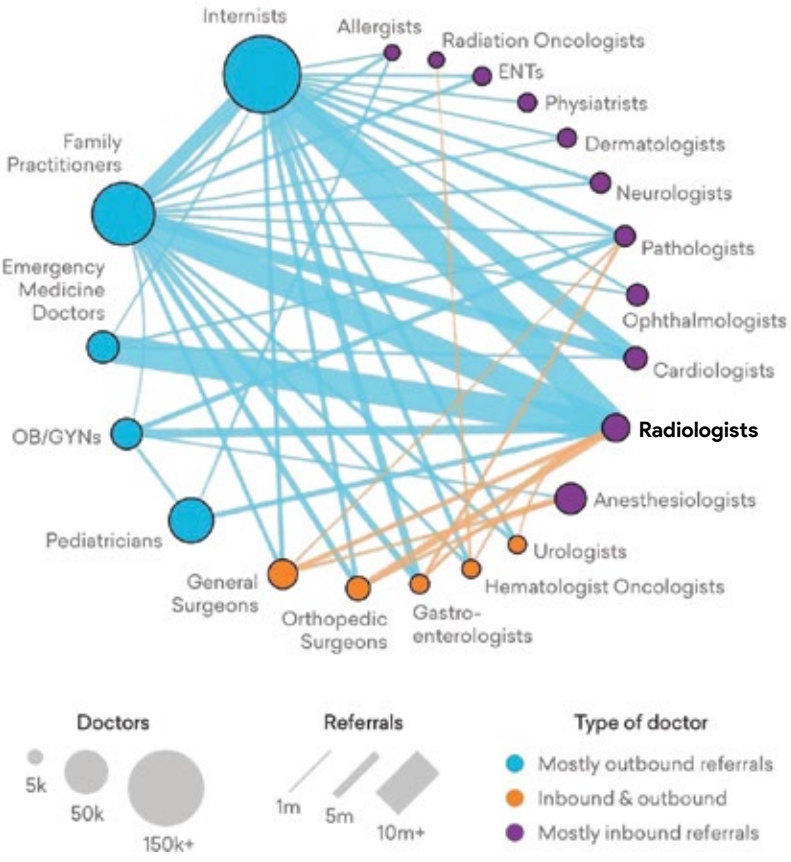
There is a measured connection between good health and a strong economy[i]. As American philosopher, Ralph Waldo Emerson once said, *"the first wealth is health"*. It is hard to be healthy when access to care is limited. Canada's healthcare system is in trouble and needs investment. The CAR recognizes the Federal Government's latest Healthcare Accord investment promised to the provinces, however, there is also a role for the government to play in upholding the *Canada Health Act* to ensure Canadians across the country have timely access to care. The time for federal leadership is now.

# Radiology is the key to medical treatment

**Figure 1: How doctors work together**

Top 50 most common doctor referrals based on patient volume[ii]

*Source: amino.com*




A 2018 Nanos[iii] poll confirms that 90 percent Canadians are aware of the value of radiology. Most patients with acute or chronic disease, unexplained symptoms or trauma will require medical imaging. Radiology is a crucial tool in decision making in all aspects of healthcare and is heavily relied upon for **cancer** screening, diagnosis as well as treatment (Figure 1). Right now, we are facing a crisis in radiology due to a shortage in medical radiation technologists (MRTs) and outdated equipment. This is adding pressure on an already stressed system.

# Recommendations

The CAR, in consultation with the Canadian Association of Medical Radiation Technologists (CAMRT) and Sonography Canada, are putting forward the following recommendations to help increase capacity within medical imaging, thus enabling our healthcare system to better care for patients. The Federal Government needs to:

### People

1. Invest in the hiring and retention of MRTs and sonographers as part of a health human resource strategy to reduce backlogs and improve health services. **Canada needs an additional 2,000 MRTs and sonographers in the next three years.**

### Technology

2. Take a leadership role in the implementation of **Clinical Decision Support** systems, to help streamline the imaging referral process and **ensure patients receive the right test at the right time**.
3. Demonstrate leadership in AI through the incorporation of the CAR's **Radiology Artificial Intelligence Validation Network's (RAIVN)** framework to improve the evaluation and regulation of AI in Canada as part of Health Canada's Medical Devices Directorate regulatory process.

### Equipment

4. Guide an investment of **$2 billion over three years** for radiology equipment.

*"We have been sounding the alarm on the workforce situation across the country. Our research shows that MRTs are considering leaving the profession in all jurisdictions across the country. This is a real crisis and must be addressed immediately; the health and wellness of all Canadians is at stake."*

– Irving Gold, CEO, CAMRT

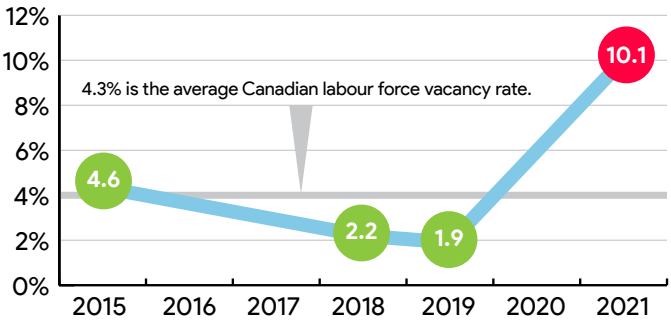
# Extreme shortage of MRTs and sonographers

We are experiencing a human resources crisis. Many radiology departments/clinics are open 24 hours to accommodate the demand for medical imaging, creating high levels of burnout among MRTs and sonographers. Over the pandemic, the income of MRTs and sonographers was less competitive compared to other healthcare professionals with similar training. They are working on the front line of our healthcare system and exposed to significant stress especially when working in the emergency room, ICU or in interventional radiology. The CAMRT and Sonography Canada reported that burnout was a troubling issue for the MRTs and sonographers even before the pandemic, with more than a third of the workforce reporting signs of burnout back in 2018.

A 2021 mental health survey conducted by the CAMRT shows that the pandemic pushed MRTs to the breaking point. 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.[ix] Similarly, in 2021, 56% of sonographers reported that they were feeling overextended at work to the point of emotional exhaustion, compared to 42% in 2018.[x] The added pressure and relative drop in real wages has led to a historic high vacancy rate for MRTs, especially for MRI. (Figure 2)

**Figure 2: Vacancy rates for MRI technologists**

*Source: Statistics Canada, Labour Force Survey, June 2023*




*MRI technologists vacancy rate at an all-time high (percentage)*

## Using technology to create a human resource force multiplier

Delayed imaging causes pain, anxiety and suffering to patients and costs the Canadian economy billions in lost output. Prior to the pandemic, patients faced significant wait times for medical imaging due to insufficient radiology human resources. In 2019, the Conference Board of Canada estimated that average wait times in 2022 would be 67 days for a CT and 133 days for an MRI, far exceeding the acceptable 30-day standard, and **resulting in a net loss to the economy of $3.5 billion in GDP.**[v] These wait times are concerning to radiologists, who want to provide timely lifesaving procedures for their patients. A Nanos Poll conducted in 2022 found that **nine out of ten Canadians support the Federal Government making new investments in medical imaging** to reduce wait times.[vi] In spite of this public support the latest data from CADTH shows a decline in CT units in Canada. (Figure 3)

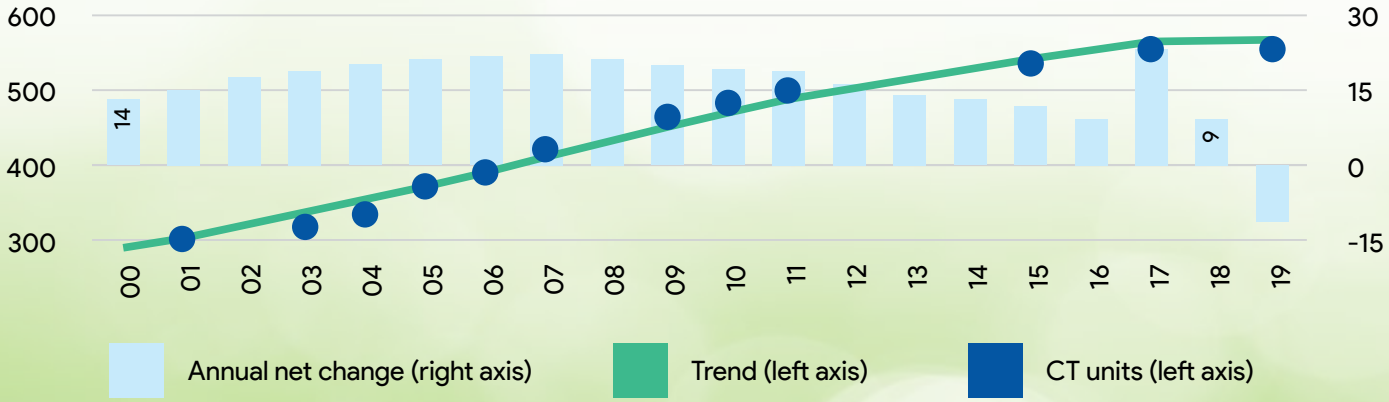
In 2022, the Canadian Institute for Health Information reported that **90% of patients are waiting an average 160 days for an MRI and 90 days for a CT.**[iv]

The Canadian Cancer Society (CCS) has been advocating for rapid access to care for those suspected of having cancer, with an emphasis on equitable access to screening, diagnostics, and treatment regardless of where someone lives. One study predicts the possibility of more than **20,000 additional cancer-related deaths over the next 10 years**. This could be reduced by almost 80% if cancer care, including diagnostic, is increased by 10% above pre-pandemic levels.[viii]

# Investment in radiology capital equipment is at a 20-year low

**FIGURE 3: STAGNANT GROWTH TRENDS IN CT UNITS**[v]

CT Machines, total units and annual net change, 2000–2019 *Source: Conference Board, CADTH and CIHI*



*"Without new investments in human resources we worry that the quality of diagnostic imaging and the care provided will decline as a result of burnout among sonographers. Recruiting and retaining staff in the future is going to be even more daunting if we continue overstretching our healthcare system."*

– Susan Clarke, CEO, Sonography Canada

# Response

The CAR recommends that the Federal Government, working with the provinces, target investments specific to radiology. This includes strategies to recruit and retain radiologists, MRTs and sonographers as part of a national HHR strategy.

Even if the fiscal fire hose was opened completely, the current system could not train and integrate MRTs and sonographers fast enough over the next three years. **We must also invest in smart technologies and infrastructure to decrease the pressure on our workforce**.

## The right test at the right time

The Federal Government needs to take a leadership position in integrating Clinical Decision Support (CDS) systems to help ensure that Canadians get the right test at the right time. Canadian radiology departments/clinics are experiencing a massive influx of patients, adding to the existing waitlists for medical imaging.

CDS systems can ensure the most effective and cost-efficient test is ordered and help prioritize those who need the most urgent access to medical imaging. We need to work with referring health professionals to ensure that they have access to the latest Canadian imaging guidelines through the implementation of CDS systems. With CDS we can prioritize imaging as effectively and efficiently as possible to help ensure that every patient receives the right test at the right time. CDS has been implemented successfully abroad in countries such as the UK and the US and there is evidence to support its value.

**We are asking for the Federal Government's support in helping provinces integrate CDS into their EMR systems.**

## Artificial intelligence – helping to enhance system sustainability

The CAR has developed a process to review and monitor AI-driven radiology solutions through a post market evaluation framework. This is part of the recommendations made in the Federal government's "Building a Learning Health System for Canadians"[xi]. The CAR's RAIVN goes beyond safety in assessing the efficacy of the application, the benefits, risks, and opportunities of working with a particular technology. The RAIVN evaluation is done by a panel of imaging expert advisors to assess the accuracy and efficacy of AI solutions in medical imaging in a Canadian environment. In addition, RAIVN would provide ongoing clinical monitoring of the solution to provide confidence to Canadians. At a national level, a strategic approach is necessary for post-market reviews for both the safety and efficacy of AI driven products to ensure the safe application of these technologies in Canada. Patients deserve an effective regulatory process and RAIVN is an opportunity to incorporate this system of checks and balances in Health Canada's medical devices review process.

**There is an opportunity for Canada to become a world leader in AI regulation.**

## Investing in capital equipment

What if the MRI experiences a significant down time and has a turn-around time 50% less efficient than newer equipment? Is it because it is over 15 years old? As demonstrated in Figure 4, capital investment in medical imaging is stagnant despite an increase in demand related to the growth and aging of our population.

**The Federal Government can use its power to convene the provinces to close the gap in investment in equipment.**

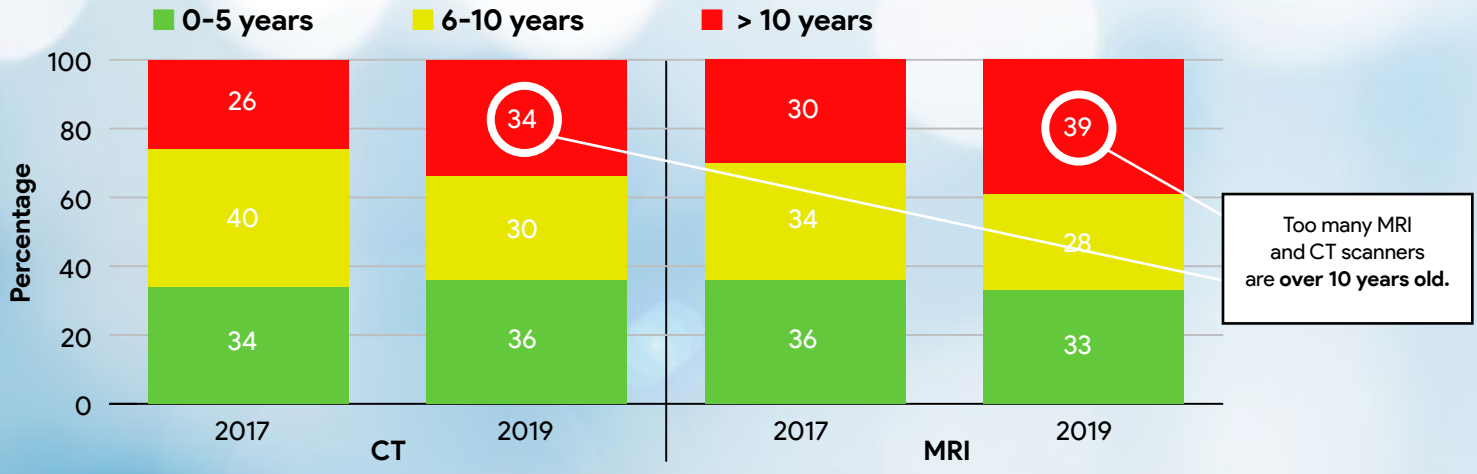
The age of medical imaging equipment also has an impact on wait times. A 2019 report by the Conference Board of Canada benchmarked the age of imaging equipment in Canada compared to other OECD countries and determined that our equipment supply is outdated and fails to meet the needs of patients and providers.[v]

**A guided federal investment in new medical imaging equipment is required to meet our current population needs.**

**Figure 4: Compliance with the Golden Rule**

Aging equipment is not compliant with the Golden Rule on medical imaging equipment replacement, and the situation is getting worse.

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




*Investing in radiology is key to safeguarding patient health and preventing further losses to the Canadian economy. 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 care they need and deserve in a timely manner.*

## About the Canadian Association of Radiologists

The 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 2,900 radiologists who provide vital medical imaging for millions of patients.

## References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ii 2016 data from 211 million Doctor Referrals. https://www.linkedin.com/pulse/data-211-million-referrals-shows-how-doctors-really-work-marcus/

iii A 2018 Nanos Research survey found that nearly all Canadians say the work of a radiologist in our healthcare system is valuable or somewhat valuable. Over 9/10 Canadians say they are generally or somewhat familiar with what radiologists do. A new survey is in the field August 2023. https://nanos.co/wp-content/uploads/2021/04/2018-1134-Radiologists-June-Populated-report-with-tabs.pdf

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viii 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 Mortality in Canada." *International Journal of Cancer* 150, no. 8 (April 15, 2022): 1244–54. https://doi.org/10.1002/ijc.33884.

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xi Building a Learning Health System for Canadians. https://cifar.ca/wp-content/uploads/2020/11/AI4Health-report-ENG-10-F.pdf