Caring for Canadians in the Wake of the Pandemic: Recommendations for Restoring Timely Access to Medical Imaging for Patients

By: The Canadian Association of Radiologists

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L'Association canadienne des radiologistes

Recommendations

The Canadian Association of Radiologists recommends that:

1. The Government make a $1.5 billion investment to enhance the resilience of medical imaging in Canada;
2. The Government create a National Imaging Data Institute to harness AI for the strategic prioritization of health human resources, technology, and infrastructure for medical imaging in the wake of this pandemic and beyond.

Executive Summary

The first wave of the COVID-19 pandemic appears to have reached its peak. In order to meet the challenge of a potential second wave while recovering from the disruption caused by the outbreak, Canada must have the proper health protocols in place to care for patients appropriately, while minimizing the stress on the economy. COVID-19 postponed diagnostic imaging for hundreds of thousands of Canadians, including lifesaving procedures for cancer patients.[1]

Decreased capacity to safely care for patients is severely limiting throughput in radiology. In many jurisdictions, there are significant demands on the existing infrastructure to treat patients, given physical distancing protocols and limitations on health human resources to operate extended hours. All of this has exacerbated existing strains on medical imaging resources and caused waitlists to increase to levels not seen in years.

The Canadian Association of Radiologists recommends that the Government invest in medical imaging equipment, health human resources, infrastructure, and advanced technology to meet the needs of patients whose care has been adversely affected by the pandemic and to better prepare our healthcare system to address the challenges of the future.

[1] Canadian Association of Radiologists. Radiology Resumption of Clinical Services. Report Published May 8, 2020. Available from: https://car.ca/wp-content/uploads/2020/05/CAR-Radiology-Resumption-of-Clinical-Services-Report-May-En-Final-May-13.pdf.

A strong public health response to COVID-19 was necessary for the safety of Canadians during the initial phases of the pandemic. However, the adjustments made to the delivery and prioritization of healthcare services resulted in a 50-70% decrease in radiology services across the country. This led to a dramatic increase in already-excessive wait times for patients across the country, with a corresponding impact on health outcomes.

The COVID effect – increased strain and lengthened wait times

With the resumption of safe medical imaging, radiologists are concerned with the backlog that COVID-19 has created in the healthcare system. Prior to the pandemic, patients were already facing significant waitlists for medical imaging across the country. The Conference Board of Canada's ***Value of Radiology Part II Report*** estimated 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. This would result in a net loss to the economy of **$3.5 billion** in lost gross domestic product.[2] These wait times are alarming to radiologists, who want to provide lifesaving procedures and imaging for their patients in a timely fashion.

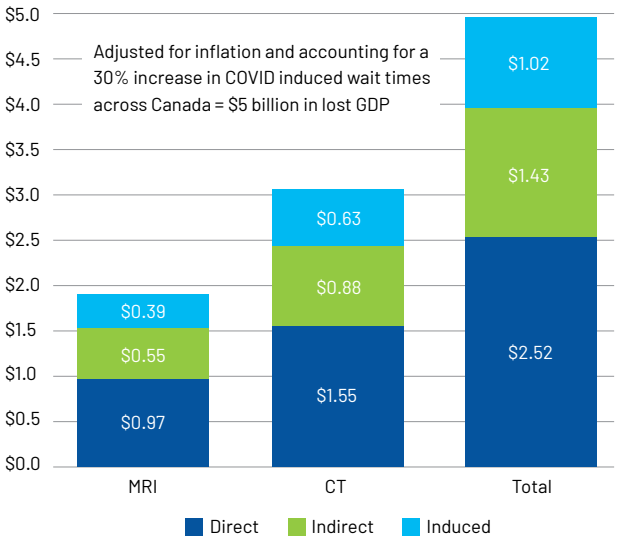
Economic impact of failing to invest in radiology

If the 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 of lost GDP due to people being unable to work while waiting for imaging procedures. This means a loss of nearly **$5 billion in GDP for 2020**. For the sake of patient health and the economy, innovative investment is needed before the situation grows any more dire.

The cost of COVID on diagnostic imaging in Canada

Excessive national wait times cost the economy $3.54 billion in lost GDP in 2018. With the additional health and economic burden of the pandemic, this will result in an estimated $5 billion in lost GDP for 2020.

Direct, Indirect and Induced Impact on Canadian GDP (billions, $)



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

We expect in the coming months that data will illuminate the full cost of delaying medical imaging over the course of the pandemic. In addition, the delays and reduced capacity will necessitate a re-analysis of wait times across Canada. The cost of resolving excessive wait times may require additional resources beyond what we have already identified. **We need to act now by making an investment in medical imaging equipment and health human resources across the country to support the influx of referrals and existing waitlists**. Doing so is an investment in patients that will facilitate our long-term economic recovery from the pandemic.

[2] Sutherland, Greg, Nigel Russell, Robyn Gibbard, and Alexandru Dobrescu. The Value of Radiology, Part II. Ottawa: The Conference Board of Canada, 2019. [Web] Accessed 9 July 2020, p. 22. Available from: https://www.conferenceboard.ca/e-library/abstract.aspx?did=10328.

POSTPONED CANCER SCREENING – WE NEED TO ACT NOW

The onset of the pandemic postponed many essential services, causing patients to live in uncertainty regarding their health and well-being. Dr. Jean Seely, President of the Canadian Society of Breast Imaging and radiologist at the Ottawa Hospital describes the situation as critical: *"we need to move forward with non-COVID-19 related testing and treatment for disease. We must focus on diagnosing and treating all our patients."*

There are thousands of patients waiting for lifesaving treatments in Canada. The longer we wait to deliver these necessary services, the greater the risk to patient survival. Dr. Seely describes an example of one patient, diagnosed at the beginning of March 2020 with high grade breast cancer: *"the patient was scheduled to undergo surgery four weeks post-diagnosis, however, due to COVID-19 the surgery was postponed for an undetermined amount of time. Now the patient must endure another biopsy to see if they are eligible for chemotherapy while they wait for this lifesaving surgery. The chances of a full recovery are significantly reduced the longer they wait. There are many Canadian patients in similar situations across the country. We need to act now,"* said Seely.

Transitioning to a "new normal"

In the transition to the "new normal," healthcare facilities will face the dual challenge of maintaining operations during stay-at-home orders while simultaneously planning for the future. In May, the CAR published a national report focused on the resumption of radiology clinical services in Canada. This served as a guide for provincial health authorities to resume medical imaging procedures safely. Resuming services is essential to protect patient health and to prevent further losses to the Canadian economy.

The safe and efficient resumption of radiology services requires investment in medical imaging capacity. A **$1.5 billion investment** in medical imaging equipment and health human resources (HHR) over three years will support Canadians and ensure the integration of technology that will help imaging run more efficiently and effectively. Federal leadership is needed to ensure that each provincial and territorial jurisdiction can get the support that it needs to properly care for Canadians and safeguard their health.

The reality is that COVID-19 postponed medical imaging services in every jurisdiction across Canada. In some cases, the backlog may prove insurmountable and lower-priority patients will simply not be seen. In order to tackle existing waitlists and prepare for the future, we need to invest in updated imaging equipment that integrates with IT infrastructure and emerging AI systems that permit the entire health system to work smarter, eliminating old barriers to efficient care. Moreover, we need more radiologists, medical radiation technologists, nurses, and support staff to ensure that we can run our imaging departments at optimal capacity.

Advanced technologies will be key to recovery

COVID-19 and our recovery from the pandemic will lead to even higher volumes of patients requiring advanced imaging as we tackle waitlists that were disrupted and lengthened by the postponement of health services. By harnessing AI, we can prioritize patients as effectively and efficiently as possible and ensure the appropriateness of referrals. Moreover, we can facilitate medical imaging protocoling and optimize workflows using data sets and tools that are already being developed in hospitals and academic institutions across the country.

Harnessing AI as a force multiplier – in a thoughtful way

To augment investments made in capital equipment and HHR, we recommend creating a **National Imaging Data Institute** to consolidate efforts already underway to **thoughtfully integrate AI into medical imaging** and the rest of the health 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. The Institute will assess the utility of AI algorithms, facilitate the management of data on a national level while providing support for clinicians and data scientists to collaborate on projects that apply AI methods to tangible challenges that are facing Canadian healthcare today.

Canada is 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. However, the recent report of the CIFAR Artificial Intelligence for Health Taskforce observed that while Canadian innovators and scientists have led the way on AI, there is no guarantee that Canadian patients and society as a whole will continue to reap the benefits of our achievements without ongoing Federal leadership and investment. Furthermore, if Canada is to maintain its position as a leader in AI, strategic specialization in AI for health is the best way forward.[3]

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, particularly in the context of medical imaging**.[4]

COVID-19 has laid bare some of the challenges that exist in meeting the real needs of Canadian patients. The Government can make targeted, strategic investments to reduce barriers to accessing essential medical imaging services. With proper investment and **pooling of resources** and expertise, the Government can simultaneously prepare the healthcare system to meet future challenges head-on, using data-driven innovative approaches that help the existing system work smarter and more efficiently.

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. Radiologists interpret images that help to diagnose illness and disease using X-ray, CT, MRI, or ultrasound. If you or a family member has ever been diagnosed with cancer, broken a bone, or had a back injury you've likely been seen by a radiologist.

[3] Evans, Tim, David Naylor, Elissa Strome, Alan Bernstein, David Dodge, et al. Building a Learning Health System: Report of the Artificial Intelligence for Health Taskforce. Toronto: CIFAR, 2020. [Web] Accessed 23 July 2020. Available from: https://www.cifar.ca/docs/default-source/ai-reports/ai4health-report-eng-f.pdf

[4] Jaremko JL, Azar M, Bromwich R, et al. Canadian Association of Radiologists White Paper on Ethical and Legal Issues Related to Artificial Intelligence in Radiology. Can Assoc Radiol J. 2019;70(2):107-118. doi:10.1016/j.carj.2019.03.001

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