PICTURING INNOVATIVE HEALTHCARE FOR A STRONGER ECONOMY

PRESENTED ON BEHALF OF
THE CANADIAN ASSOCIATION OF RADIOLOGISTS
BY EMIL LEE MD, FRCPC

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CAR Canadian Association of Radiologists
L'Association canadienne des radiologistes

ABOUT THE CANADIAN ASSOCIATION OF RADIOLOGISTS

The Canadian Association of Radiologists (CAR) is the national specialty society for radiologists in Canada. We represent 2225 members who provide vital medical imaging for millions of patients. We are dedicated to maintaining the highest standards of care, promoting patient safety and helping radiologists contribute to the very best health care for patients. We work with governments, health professionals and technology leaders to make optimal use of diagnostic imaging.

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EXECUTIVE SUMMARY

The Canadian Association of Radiologists (CAR) is pleased to provide this submission to the Standing Committee on Finance as a part of its pre-budget consultation. The Committee asked which federal measures will help individuals and businesses become more productive and competitive. Investment in the healthcare system is a key component of increasing productivity. Maintaining a healthy labour force necessitates a resilient healthcare system that meets the needs of Canadians, which makes healthcare an essential component of lasting economic growth.

The CAR recommends:

1. Investing $612 million, over five years, to ensure that available imaging equipment meets the quality standards that patients deserve.
2. Investing $9 million, over three years, to fund projects demonstrating clinical decision support tools for diagnostic imaging to enhance the delivery of patient care in a measurable way.
3. Investing $10.5 million over three years to guide thoughtful implementation of artificial intelligence (AI) tools in medicine and healthcare.
4. Heeding the expertise of physicians as part of the consultation process on tax planning for CCPCs to reduce possible disruption to the comprehensive delivery of health services.

WE MUST ACT NOW

Healthcare represents nearly 11% of GDP, but Canada lags behind other OECD countries in health system performance across the domains of quality, access, efficiency, equity and expenditures. In 2017, the Commonwealth Fund ranked Canada 9th out of 11 nations.[i] There is ongoing concern about access, wait times, and the value that Canadian patients are receiving relative to the investments being made by the federal and provincial governments. Canada needs strategic investments in aspects of the healthcare system that will produce measurable outcomes that positively impact the lives of patients in every community.

Successful healthcare systems simultaneously improve the patient care experience, population health, and reduce the per capita costs of healthcare.[ii] It is imperative to harness the abundance of available data to address quality and health system sustainability.

HOW RADIOLOGY CAN HELP

Imaging is vital to the diagnosis and treatment of diseases and conditions, which places radiologists at the hub of professionals involved in caring for patients. In 2017, the Conference Board of Canada found that diagnostic and interventional radiology adds value to the healthcare system by reducing downstream treatment costs for progressive disease, by harnessing innovative technologies to improve access to care, and by contributing to initiatives geared at improving the appropriateness of tests and treatments.[iii]

IT'S TIME FOR INVESTMENT IN INNOVATION

In 2015, the Advisory Panel on Healthcare Innovation advocated for programs and funding, spearheaded by the federal government, to generate health system improvement. Subsequently, the Mandate Letter for the Minister of Health called for "pan-Canadian collaboration on health innovation to encourage the adoption of new digital health technology to improve access, increase efficiency and improve outcomes for patients".[iv] The recommendations outlined below are clearly in line with this call for health innovation, and will contribute to the overall resiliency of the Canadian economy.

GOAL: CLOSE THE GAP ON MEDICAL IMAGING EQUIPMENT FOR SAFER, MORE EFFICIENT CARE

Improving access to quality equipment is one of the best ways to ensure efficient imaging services for patients. In 2015, nearly 2 in 5 Canadian primary care doctors reported that their patients experienced difficulty scheduling and accessing specialized diagnostic imaging

tests; this is double the international average of 1 in 5.[v] In March 2017, the Canadian Institute for Health Information found that wait times for both MRI and CT scans have increased since 2012, and that there are considerable variations in wait times between provinces.[vi] Moreover, Canada appears below approximately half of the countries with data collected by the OECD in terms of number of CT and MRI units per million people, behind Poland.[vii] This figure is exacerbated by unequal distribution of units across the country, and by ageing units that are no longer as safe and effective as they need to be for optimal patient care.[viii]

Immediate access to imaging is an important determinant of wait times in the emergency department.[ix] For example, interventional therapies for stroke patients can save lives and lower morbidity if performed in the first seven hours after the onset of the symptoms. This requires proper equipment to perform diagnostic and interventional procedures performed in the imaging department.[x]

Recommendation: Invest $612 million, over five years, to ensure that available imaging equipment meets the quality standards that patients deserve.

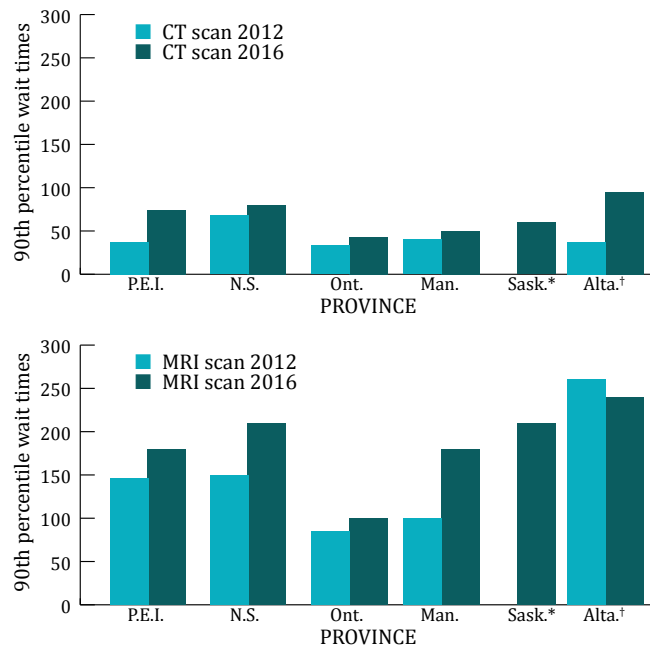## CANADA LAGS ON AVAILABILITY OF IMAGING EQUIPMENT

DIAGNOSTIC IMAGING UNITS, CANADA VS. OECD PER MILLION POPULATION
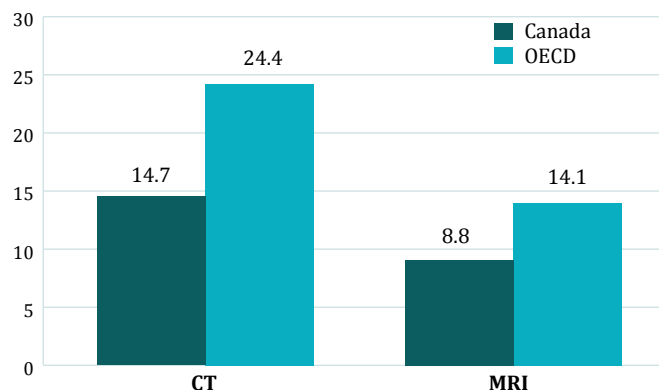
Source: OECD, *Health at a Glance 2015: Health Indicators*

WAIT TIMES HAVE INCREASED SINCE 2012

PROVINCIAL WAIT TIMES (IN DAYS) FOR CT AND MRI SCANS, APRIL TO SEPTEMBER, 2012 AND 2016, BY REPORTING PROVINCE

Source: CIHI, Wait Times for Priority Procedures, 2017
Notes
*   CT/MRI scan wait time data was not reported by Saskatchewan in 2012.
†   Excludes data from Edmonton region in 2012; 2016 data includes all regions.
Wait times for CT and MRI scans were unavailable for Newfoundland and Labrador, New Brunswick, Quebec and British Columbia.

THE FEDERAL GOVERNMENT HAS HELPED BEFORE AND CAN AGAIN

In spite of demonstrated need and strain on the system, radiology has not received targeted investment from the federal government to address the equipment gap in over a decade. In 2004, the Government invested $2.5 billion over five years in the *Diagnostic and Medical Equipment Fund*, which was dispersed to provinces on a per capita basis to support the purchase of equipment.

Renewed attention to the equipment needs of Canadian imaging providers will have cascading benefits for patients. Beyond the immediate impact on patient comfort and safety, updated equipment integrates with health IT systems, facilitates data collection, and contributes to the development of a learning healthcare system.

RECOMMENDED YEARLY INVESTMENT – MEDICAL IMAGING EQUIPMENT

	2018	2019	2020	2021	2022
Investment	$75 million	$75 million	$100 million	$150 million	$212 million

GOAL: BRING THE BENEFITS OF A HOMEGROWN TECHNOLOGY BACK TO CANADA, SO THAT PATIENTS AND PROVIDERS CAN BENEFIT FROM IMPROVED SYSTEM PERFORMANCE

Clinical decision support (CDS) for diagnostic imaging is an example of a data-driven tool developed by innovative firms here in Canada.[xi] CDS systems are software platforms that integrate into existing clinical workflows to help physicians to make optimal decisions about which diagnostic test to order, ensuring that every patient gets the right test, at the right time. Ultimately, CDS systems help to ensure that imaging resources are allocated efficiently, based on evidence.[xii] Targeted investment into CDS would operationalize millions of dollars of investments already made by Canada Health Infoway and the provincial governments, so that the digital health system can work smarter, not harder.

> **Recommendation: Invest $9 million over three years to fund projects demonstrating clinical decision support tools for diagnostic imaging.**

Optimizing access to appropriate imaging services requires collaboration on innovative digital health initiatives. Harnessing big data in medicine can enable researchers and clinicians to tackle system challenges. Information science can be harnessed to establish a learning healthcare system, one "designed to generate and apply the best evidence for the collaborative healthcare choices of each patient and provider; to drive the process of discovery as a natural outgrowth of patient care; and to ensure innovation, quality, safety, and value in healthcare". [xiii]

IGNITE A LEARNING HEALTHCARE SYSTEM

When CDS is integrated into existing electronic health record (EHR) frameworks, researchers can collect data which can then be mobilized to drive improvement as part of a national, evidence-based approach to quality

Clinical decision support tools for diagnostic imaging are a tangible demonstration of Choosing Wisely Canada's core mandate: to reduce unnecessary tests, treatments, and procedures while helping physicians and patients make effective decisions to promote high-quality care. By integrating clinical guidelines to empower physicians to make evidence-based referrals, CDS pilot projects are an opportunity to evaluate and hone best practices to improve the patient experience, provider engagement with the tools, and create a framework for scalable, lasting solutions to health system challenges like unnecessary testing and wait times.

—Dr. Wendy Levinson
Chair, Choosing Wisely Canada

measurement and reporting. Such an approach would provide Canadians with comprehensive information about how well the system is working and equip providers with the tools to systematically address disparities in care and drive quality improvement.

PROJECTS UNDERWAY NEED A FEDERAL SPARK

Projects to demonstrate the value and effectiveness of CDS are already underway – at St. Michael's Hospital in Toronto, in the Saskatoon Health Region, and at Vancouver Island Health Authority.[xiv] What they need now is the federal spark to capitalize on the investments that governments have already made into EMR/EHR platforms, Choosing Wisely Canada, and other health innovation initiatives. Targeted funding is needed to support these and other projects, and to link them in a robust clinical network. Such a project fits with Health Canada's stated priority to pursue innovative approaches to measure and improve health system performance.[xv]

The CAR recommends that funding for CDS projects be administered through the Health Canada Health Care Policy Contribution Program, in line with the program's mandate that contributions to be used to develop, implement, and disseminate knowledge, best practices and strategies for healthcare delivery. A small but powerful investment will go a long way in igniting these projects and the subsequent performance enhancements that they will bring to the healthcare system.

GOAL: PROMOTE TARGETED INVESTMENT VIA THE PAN-CANADIAN ARTIFICIAL INTELLIGENCE STRATEGY TO DEVELOP AND IMPLEMENT TOOLS THAT HARNESS INFORMATION SCIENCE, DEEP LEARNING, AND BIG DATA FOR USE IN MEDICINE

Canada is a perennially innovative nation, which is poised to cement its position as the world leader in AI and deep learning (DL).[xvi] Mobilizing fundamental AI and DL research for applications in medicine and the health system will define the way that the next generation of Canadians access and experience care. In its 2017 budget, the Government funded the Pan-Canadian Artificial Intelligence Strategy. As a technology-driven specialty, radiology is uniquely positioned to lead the introduction and implementation of AI tools in medicine, and to ensure that the fundamental research is harnessed for better patient outcomes. Additionally, research and development of AI applications will have a positive impact on Canadian economic growth.

> *Recommendation: Invest $10.5 million over three years to begin establishing frameworks to regulate the implementation of AI tools in medicine and healthcare.*

The research currently underway to make computers better at seeing patterns and making accurate predictions based on those patterns has direct and immediate implications for diagnostic imaging. The CAR wants to work with the Government to guide and facilitate the appropriate development and implementation of AI tools to help radiologists improve imaging care. The 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. Small investments made now will have significant benefits to the Canadian AI ecosystem and its impact on Canadian patients down the line.

We envision the development of a pan-Canadian AI research network in imaging in collaboration with

different stakeholders. Such a network will develop best practices pertaining to patient consent, enforcement of confidentiality, data ownership, and potential clinical applications relevant to big data and AI. The CAR has a panel of experts to guide the adoption of AI in the clinical workflow.

GOAL: ENSURE THAT CHANGES TO SMALL BUSINESS TAX STRUCTURES DO NOT WEIGH ON PATIENT ACCESS TO IMAGING SERVICES

Canadian physicians are highly-skilled professionals, who provide an important public service and make a significant contribution to the knowledge economy. Due to the design of Canada's healthcare system, the majority of radiologists are incorporated into group structures that enable the delivery of comprehensive imaging services. Group medical structures were not formed for tax purposes, but rather to deliver provincial and territorial health priorities, primarily in the academic health setting, such as teaching, medical research and patient care.

> *Recommendation: Heed the expertise of physicians as part of the consultation process on tax planning for CCPCs to reduce possible disruption to the comprehensive delivery of health services.*

Radiologists working in groups understand local needs, and have the ability to hire and manage the right mix of general and sub-specialty trained radiologists to provide comprehensive services. To deliver seamless imaging services, radiologists work cooperatively and share the delivery of care.
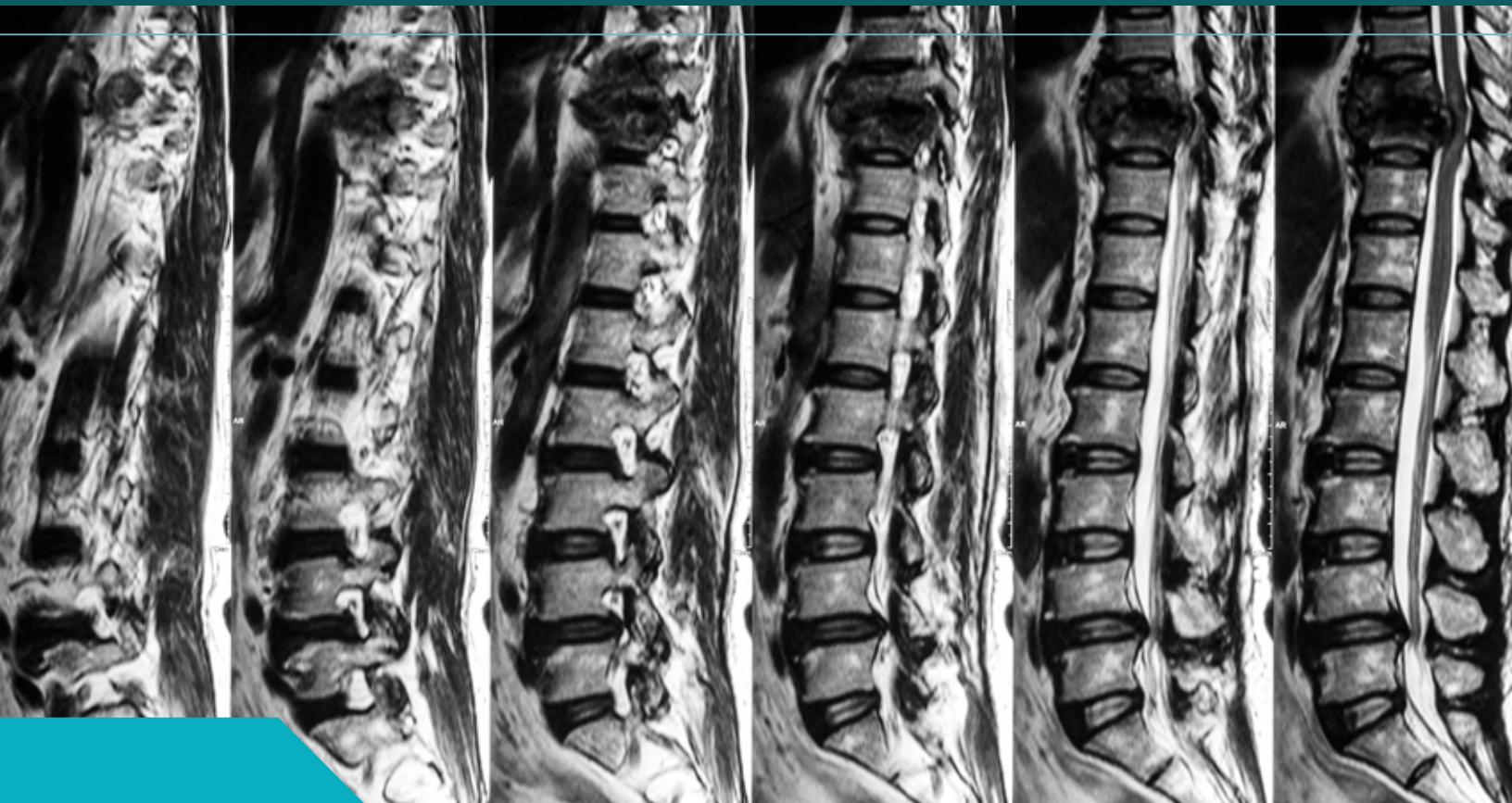
Further changes to the tax structure for incorporated physicians have been proposed. In order for radiologists to deliver optimal services for patients without disruption, provisions must be put in place to ensure that incorporation remains a viable model for physicians who are also small business owners – contributing to the Canadian economy.

CONCLUSION

The CAR recommends strategic investment in innovative solutions to challenges currently facing the healthcare system, in the interest of spurring further economic growth and ensuring that Canadian patients get access to the services that they deserve. Targeted funding for imaging equipment, clinical decision support, and cutting-edge technologies like AI will ensure that Canada's healthcare system is resilient and able to meet the needs of the population that it serves. Ensuring tax fairness for incorporated physicians who are contributing to the economy is vital to ensure that Canada's care providers are able to serve their communities. The CAR would welcome the opportunity to provide further information and to elaborate on each recommendation.

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