

Increasing Canada's Medical Imaging Capacity

Pre-Budget Submission to the Department of Finance

Canadian Association of Radiologists
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Canadian Association of Radiologists
L'Association canadienne des radiologistes

Executive Summary:

Increasing Canada's Medical Imaging Capacity

Canada's healthcare systems are facing an unprecedented capacity challenge. Across every province and territory, prolonged wait times for diagnostic imaging have created a systemic bottleneck. Radiology is the gateway to modern clinical care: virtually every patient navigating oncology, orthopedics, cardiology, stroke management, or emergency medicine requires diagnostic imaging to establish a timely diagnosis and begin treatment. When diagnostic imaging is delayed, downstream care stalls, resulting in severe clinical backlogs and escalating macroeconomic costs due to lost workforce productivity and delayed return-to-work timelines.

To address this crisis, the Canadian Association of Radiologists (CAR) recommends measures to **increase Canada's medical imaging capacity**. We can rapidly scale national diagnostic capacity through four targeted, complementary levers.

Designed to complement and leverage current federal initiatives in health infrastructure, connected care, and artificial intelligence, this strategy offers a high-impact pathway to expand imaging capacity, improve patient care, and deliver long-term economic dividends.

1. **Modernizing Infrastructure & Equipment:** Guide a targeted federal co-investment of **\$2 billion over 3 years** to replace obsolete radiology equipment (CT, MRI, ultrasound) and streamline site installation and preparation costs across provinces and territories.
2. **Sustain Health Human Resources:** Invest **\$5 million over 5 years** for a targeted Health Canada initiative to support radiology workforce planning, national training standards, expedited credentialing, and retention strategies for radiologists, Medical Radiation Technologists (MRTs), and sonographers.
3. **Optimize Capacity via Clinical Decision Support (CDS):** Allocate **\$50 million over 5 years** to launch a federal CDS Implementation & Scale-Up Fund that integrates evidence-based Clinical Decision Support (CDS) into provincial Electronic Medical Record (EMR) networks nationwide, directly operationalizing the interoperability mandates of Bill S-5 and scaling successful regional implementations.
4. **Multiply System Throughput via Clinician-Led AI:** Invest **\$50 million over 5 years** to establish and operationalize the Health Artificial Intelligence Validation Network (HAIVN) as an independent, clinician-governed entity for clinical validation, post-market surveillance, and data sovereignty of healthcare AI, aligned with the federal AI Missions Program.

Excessive diagnostic wait times cost Canada \$64B in GDP per year.

Diagnostic bottlenecks drain \$6B in unrealized tax revenues.

Medical imaging is a core national economic infrastructure essential to workforce participation, health system resilience, and economic sovereignty.

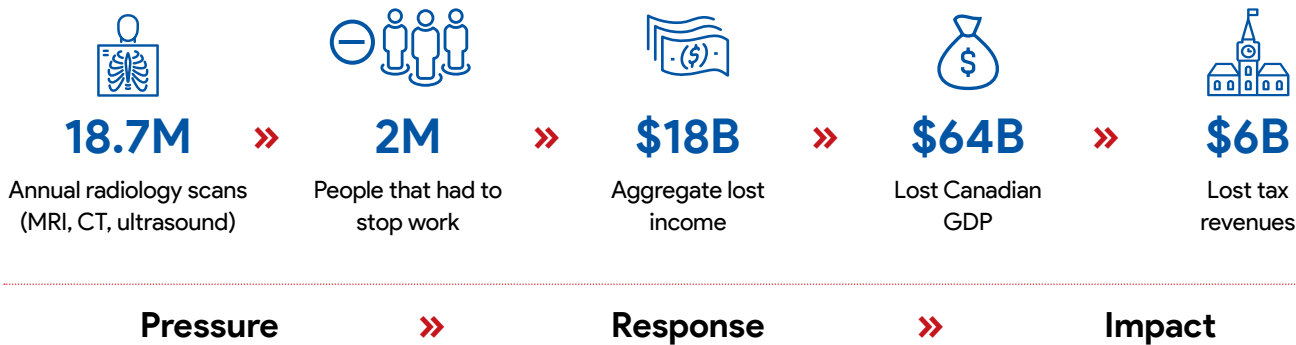
Source: Deloitte Canada

The Economic Case for Medical Imaging Investment

While Canada spends approximately 20% more per capita on healthcare than the OECD average, funding allocation has not been optimized to address foundational infrastructure bottlenecks. In 2023–2025, over 18.7 million diagnostic radiology scans (MRI, CT, ultrasound) were performed in Canada.¹ However, in 2024–2025, diagnostic delays forced nearly 2 million Canadians to stop working or reduce their work hours while awaiting scans and subsequent treatment.²

Excessive wait times meant \$64B in lost GDP in 2023.

A well-resourced radiology workforce is not just a health imperative – it’s a national productivity strategy. Every scan read, every diagnosis made, is a step toward restoring lives and unlocking economic potential. *Source: Deloitte Economics*



Investing in diagnostic capacity provides a massive economic multiplier.³ Every scan read and every prompt diagnosis made accelerates return-to-work timelines, restores labor productivity, reduces expensive prolonged acute hospital stays, and captures lost tax revenue for public balance sheets.



Detailed Recommendations: Four Capacity Levers

Lever 1: Modernize Infrastructure and Streamline Installation

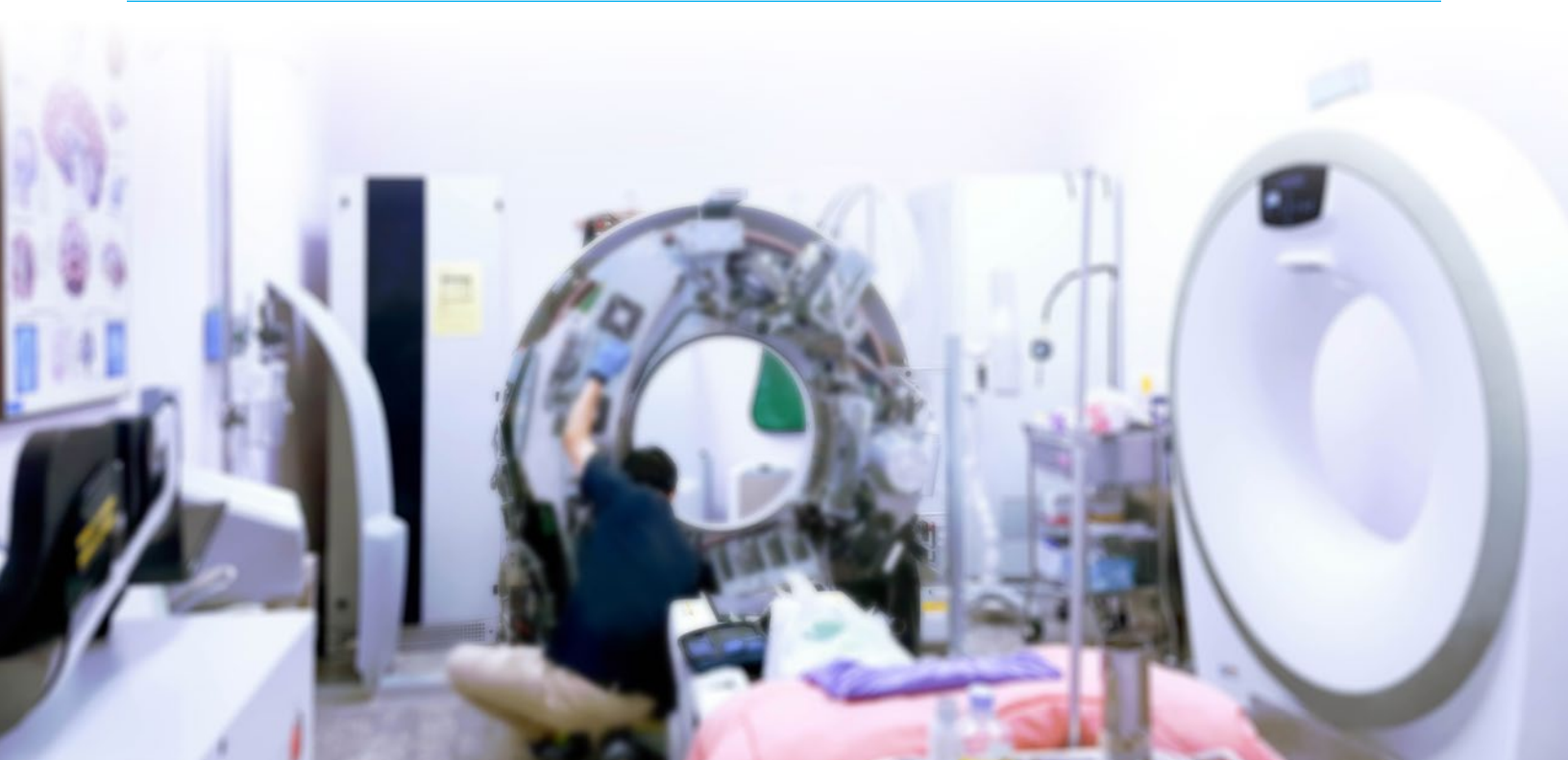
Recommendation: Establish a **\$2 Billion, 3-Year Federal-Provincial-Territorial (FPT) Diagnostic Infrastructure Co-Investment Fund** to modernize aging imaging machinery and streamline site-preparation costs, enabling provinces to expand scan capacity and reduce diagnostic wait times.

Policy Alignment: Federal Health Infrastructure Funds & FPT Bilateral Funding Frameworks.

The Challenge: Severe Capital Depletion Fuels Diagnostic Bottlenecks

Canada's diagnostic imaging fleet is operating well past its designed lifecycle, creating severe operational friction across provincial health systems:

- **Equipment Obsolescence:** Over **one-third of Canada's CT (33.4%) and MRI (37.2%) scanners are over 10 years old**,¹ surpassing the threshold where machinery becomes maintenance-heavy and prone to unexpected mechanical downtime.
- **Decades of Federal Capital Underinvestment:** Fleet additions have not kept pace with population growth or diagnostic demand since the 2003 Diagnostic/Medical Equipment Fund. Aging scanners require longer acquisition times and experience frequent breakdowns, resulting in thousands of canceled patient appointments annually.
- **The Installation & Site-Prep Bottleneck:** Equipment replacement often stalls due to unfunded, complex site-preparation requirements (e.g., structural reinforcement, electrical retrofitting, and specialized cooling). Without dedicated installation funding, new machinery faces lengthy procurement and construction limbo before going live.



The Solution: High-Throughput Hardware & Turnkey Deployment

Modern CT and MRI platforms leverage advanced detector technology and hardware-level AI reconstruction to reduce individual scan acquisition times by **30% to 50%**.⁴ Replacing a 10-year-old scanner instantly increases daily patient throughput per room without requiring new physical real estate.

Co-funding both hardware procurement and site-preparation costs creates a turnkey deployment pipeline, allowing health authorities to rapidly replace obsolete assets and unblock diagnostic capacity.

The Mechanism: Collaborative Co-Investment & Fiscal Accountability

To support provincial health priorities while ensuring federal fiscal responsibility, access to the \$2B fund is structured through a voluntary, flexible co-investment model.

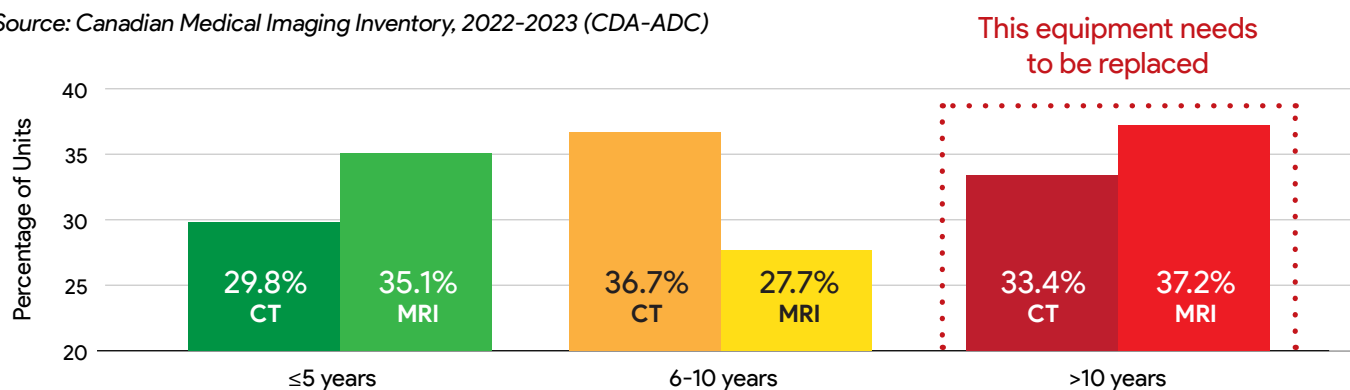
Importantly, funding for site preparation, installation, and related infrastructure upgrades could be drawn from the **Health Infrastructure Fund**, established within the federal government's **Build Canada Strong Communities Fund in Budget 2025**. While diagnostic imaging equipment was not specifically identified as an eligible stream, dedicating a portion of the Health Infrastructure Fund to imaging modernization would directly advance the fund's objective of strengthening health system capacity and improving access to care.

- **Federal Capital Matching:** The federal government provides **50% matching capital for scanner procurement and up to 100% support for qualified site-preparation costs**, directly lowering the capital barrier for provincial health authorities.
- **Shared Accountability:** Funding is unlocked through flexible bilateral agreements where provinces agree to:
 1. **Co-Invest Capital:** Provide matching provincial/health authority capital for equipment procurement.
 2. **Maximize Operational Utility:** Optimize the operational hours of newly funded high-throughput scanners based on regional demand and staffing capacity.
 3. **Shared Performance Metrics:** Report baseline equipment age, uptime, and throughput metrics to track the national impact of fleet modernization.

This approach positions the **federal government as a constructive capital partner**. With targeted co-investment in high-throughput hardware and turnkey site preparation, **federal funding directly solves the physical infrastructure bottleneck while fully respecting provincial healthcare delivery and operational autonomy**.

Age Distribution of CT and MRI Equipment in Canada

Source: Canadian Medical Imaging Inventory, 2022-2023 (CDA-ADC)



Lever 2: Secure Health Human Resources for Continuous Operation

Recommendation: Invest \$5 Million over 5 years to establish a targeted Health Canada **Diagnostic Workforce Intelligence & Integration Initiative** in partnership with national professional bodies to accelerate foreign credential recognition, standardize HHR planning, and reduce reliance on costly agency locums.

Policy Alignment: Pan-Canadian Health Human Resources Strategy & Foreign Credential Recognition Program (Employment and Social Development Canada).

The Challenge: Severe Capacity-Workforce Mismatch

Equipment investments alone cannot expand patient access without the qualified professionals required to operate scanners and interpret exams. The diagnostic workforce faces a severe structural gap:

- **Surging Demand vs. Stagnant Workforce:** Between 2004 and 2023, per-capita CT exam volumes surged by **85.4%** and MRI volumes jumped by **131.7%**, while the Medical Radiation Technologist (MRT) workforce grew by only **32.1%**.⁵
- **Declining Per-Capita Density:** Post-pandemic population growth and retirements have reduced per-capita active imaging professionals across Canada, with active medical physicists down 9.7%, radiologists down **4.8%**, and MRTs down **3.0%**.
- **Equipment Underutilization:** Vacancies have quadrupled for MRI technologists and tripled for nuclear medicine technologists since 2018. Millions of dollars in advanced diagnostic machinery sit idle during evenings and weekends simply due to staffing shortages.
- **Fiscal Drain of Locums & Burnout:** Overburdened staff face unprecedented stress. Health authorities are forced to rely on exorbitant private agency locums to keep imaging departments open, draining operational budgets.

The Solution: Targeted Federal Acceleration & Workforce Intelligence (\$5M over 5 Years)

A targeted \$5M federal investment provides the foundational HHR infrastructure to support provincial health authorities and regulatory bodies in three high-impact areas:

- **Accelerated Integration of Internationally Educated Professionals:** Align federal immigration streams (ESDC) with provincial regulatory pathways to streamline Practice-Ready Assessment (PRA) frameworks for foreign-trained radiologists, MRTs, and sonographers, reducing integration timelines from years to months without compromising clinical standards.
- **National HHR Benchmarking & Workload Models:** Establish standardized national workload benchmarks and multi-shift staffing data to assist provincial health regions in mitigating burnout, improving retention, and expanding rural clinical training placements.
- **Locum Dependency Reduction:** Stabilize regional workforce pipelines to reduce health authority reliance on emergency agency locums, directly preserving public operational funds for frontline clinical care.

Capital equipment is useless without workforce capacity. A modest \$5M investment in national credential acceleration and workforce planning unblocks existing scanner capacity, reduces expensive agency locum costs, and protects the return on public health investments.

Lever 3: Optimize Existing Capacity via Clinical Decision Support (CDS)

Recommendation: Allocate \$50 million over 5 years to establish a federal CDS Implementation & Scale-Up Fund that integrates evidence-based Clinical Decision Support (CDS) systems into provincial Electronic Medical Record (EMR) networks nationwide, directly operationalizing the interoperability mandates proposed in Bill S-5.

Policy Alignment: Bill S-5 (*Connected Care for Canadians Act*) and Federal Digital Health Interoperability Frameworks.

The Challenge: Low-Value Referrals Waste Critical System Capacity

Evidence indicates that a meaningful share of imaging referrals are low-value scans that do not alter management or improve outcomes.^{6,7} This creates severe structural bottlenecks across all health regions:

- **Low-value scans consume scarce CT and MRI slots,** artificially inflate diagnostic waitlists for urgent cancer, trauma, and stroke patients, and expose individuals to unneeded radiation or contrast.
- **Lack of Point-of-Care Guidance:** Primary care and emergency physicians lack real-time, evidence-based guidance at the point of care. Busy clinicians are forced to navigate static requisitions without instant access to centralized, up-to-date referral criteria.
- **Fragmented “Islands of Excellence”:** Leading Canadian health networks have successfully deployed CDS tools to curb low-value referrals,^{8–12} but these implementations remain isolated pilot projects due to a lack of dedicated federal capital for cross-jurisdictional scaling.



The Solution: Operationalize Bill S-5 to Unblock Imaging Capacity

Clinical Decision Support (CDS) is a clinical use-case that **could harness Bill S-5's interoperability framework to increase front-line capacity**. By establishing national standards for health data exchange, Bill S-5 would allow CDS to be seamlessly embedded directly into electronic medical record (EMR) ordering workflows, acting as an automated, evidence-based assistant at the moment an imaging test is requested.

How Bill S-5 Enables CDS	What the \$50 Million Fund Delivers
Leverages Bill S-5 Standards Bill S-5 would establish the statutory foundation for open, standardized data exchange across health information networks, enabling smooth CDS integration across all primary care and hospital EMR platforms nationwide.	National Scale-Up Grants (\$20M) Provides seed money and matching grants for provinces and territories to standardize and embed Canadian-curated referral guidelines across all provincial EMR platforms.
Real-Time Point-of-Care Guidance When a physician orders a scan, the CDS engine provides instant, evidence-based feedback, suggesting a higher-yield test (e.g., ultrasound instead of MRI) or confirming when imaging is not clinically indicated.	Pan-Canadian Network Integration (\$15M) Federates and links isolated hospital-level CDS engines into unified provincial and pan-Canadian health information networks.
	Digital Health Equity Support (\$10M) Delivers targeted roll-out grants to smaller, rural, and northern health authorities to ensure equitable access to modern digital health tools.
	National Appropriateness Analytics (\$5M) Establishes national dashboards to track imaging appropriateness trends, monitor system efficiency gains, and drive continuous quality improvement.

The Impact: Unlocking Capacity Without Hardware Costs

Deploying CDS nationwide yields immediate operational and financial returns for federal and provincial health budgets:

- **Frees Up Existing Scanner Capacity:** Eliminating low-value scans immediately opens tens of thousands of CT and MRI slots nationwide for high-priority cases, without spending a single dollar on new physical hardware or extra facility overhead.
- **Maximizes the Return on Bill S-5:** Transforms raw digital infrastructure and legal data-interoperability requirements into a practical, front-line productivity engine for clinicians.
- **Reduces Health System Waste:** Directs limited health human resources and operational budgets toward high-yield, necessary diagnostic procedures.

Passing Bill S-5 provides the digital highway for health data, but CDS is the vehicle that drives clinical productivity. A targeted \$50M federal investment converts fragmented provincial EMR systems into a unified national demand-management tool, recovering diagnostic capacity without recurring capital costs.

Lever 4: Multiply System Throughput via Clinician-Led AI Infrastructure (HAIVN)

Recommendation: Invest **\$50 million over 5 years** (allocated from ISED's AI Missions Program) to establish and operationalize the **Health Artificial Intelligence Validation Network (HAIVN)** as Canada's independent, clinician-led certification authority and continuous surveillance network for medical AI.

Policy Alignment: *AI for All: Canada's National Artificial Intelligence Strategy (ISED) – AI Missions Program (Health).*

The Challenge: Unvalidated AI & Fragmented Health Infrastructure

The federal government launched the first AI Missions Program – featuring a flagship health mission to accelerate the adoption of AI in diagnostics, patient care, and system efficiency – to deliver faster, better care while strengthening Canada's health innovation ecosystem. However, medical imaging accounts for over 80% of all diagnostic health data, and unvalidated AI cannot be safely integrated into live clinical workflows, creating severe structural bottlenecks:

- **Fiscal & Administrative Duplication:** Individual hospital networks independently attempt to evaluate AI software. This duplicates administrative costs across 13 provinces and territories, stalls procurement, and wastes public funds.
- **The “Trust & Safety Gap”:** Health authorities cannot deploy unvalidated AI into live clinical workflows without exposing patients to liability, demographic bias, or algorithm performance drift.
- **Loss of Canadian IP & Innovation:** Domestic health-tech startups face a fragmented domestic market, forcing them to sell abroad while Canadian hospitals remain reliant on unvalidated foreign software.



The Solution: A Dedicated National Validation Infrastructure

HAIVN fills this critical operational gap by establishing a centralized, clinician-governed network to test, certify, and continuously monitor medical AI across all 13 provinces and territories.

What is the Health AI Validation Network?	What Does \$50 Million Build?
HAIVN is Canada's independent, non-profit certification and oversight body for healthcare AI, operating on a public-interest governance model similar to Canadian Blood Services or the Canadian Standards Association (CSA). While Health Canada approves software for safety at a static point of entry, HAIVN provides the operational bridge between regulatory approval and real-world clinical adoption. HAIVN unites medical specialty associations, health authorities, and technical experts to establish a single, pan-Canadian standard for testing, certifying, and monitoring medical AI tools across all 13 provinces and territories.	The requested \$50 million over 5 years would build the core national infrastructure needed to validate, deploy, and monitor health AI safely across Canada: National Secure Validation Sandboxes (\$20M): Creates secure, federated testing environments where AI tools can be assessed against synthetic and anonymized multi-centre Canadian health data for accuracy, bias, interoperability, privacy, and data residency compliance. Pan-Canadian Clinical Certification Infrastructure (\$15M): Establishes specialty-specific expert panels, beginning with high-volume diagnostic areas such as medical imaging, to set benchmarks, audit tools, and issue national HAIVN certification for safe clinical deployment. National Post-Market Algorithmic Surveillance Engine (\$10M): Deploys real-time monitoring across participating health networks to detect algorithm drift, performance variation, or safety concerns before they affect patient care. Transition to Self-Sustaining Cost Recovery (\$5M): Supports early organizational scale-up and the design of a cost-recovery model so that, by Year 5, HAIVN can sustain operations through risk-adjusted vendor certification fees and health-system monitoring subscriptions.

This request does not require new fiscal allocation. It represents a targeted **\$50M carve-out over 5 years from the existing \$200M AI Missions Program for Health**, establishing the foundational infrastructure required to unlock the full return on investment for federal health AI funding.

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