Optimizing MRI Usage:

Reducing Unnecessary Examinations, Assessing the Impact of Private MRI Facilities, and AI's Role in Streamlining Referrals!

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a place of mind
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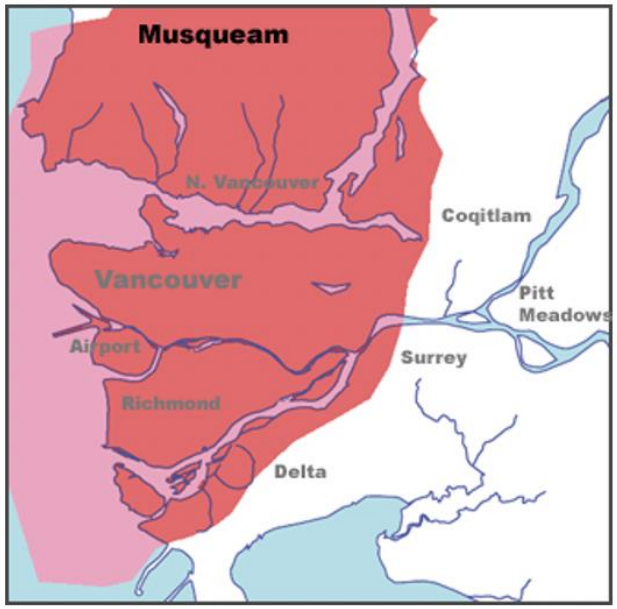
Vancouver IMAGING

We would like to acknowledge that we are gathered today on the traditional territories of the Musqueam, Squamish and Tsleil-Waututh peoples.

Source: www.johomaps.net/na/canada/bc/vancouver/firstnations/firstnations.html



No Disclosures

Learning Objectives

- Discuss “low-value” imaging, “appropriateness” and choosing the “right” test for commonly encountered clinical presentations
- Review existing resources intended to guide referring practitioners when requesting Medical Imaging
- Examine system challenges and the potential impact of private MRI facilities
- Address how AI may facilitate access to Medical Imaging and streamline referrals

What's the problem?

- ***Wait times and wait lists for medical imaging examinations in Canada are growing***
- ***Demand*** continues to exceed current capacity
- Current environment of ***resource limitation***
- ***Delay in access impacts patient care***
- ***Causes are multifactorial:***
  - Population growth
  - Aging population
  - Increasing demand (esp. ED)
  - Health Human Resource shortages; medical radiation technologists (MRTs), sonographers, other allied staff, radiologists
  - Need for MI equipment
  - Lack of investment in innovation, including AI

How big is the problem? CIHI CT wait times 2024

Canadian Institute for Health Information

Time frame

April 1 to September 30

Percentage meeting benc... | **50th and 90th percentiles**

Province/territory	50th percentile	90th percentile	Unit of measurement
Canada	16	128	Days
Newfoundland and Labrador	No data available.	No data available.	Days
Prince Edward Island	18	113	Days
Nova Scotia	45	192	Days
New Brunswick	No data available.	No data available.	Days
Quebec	No data available.	No data available.	Days
Ontario	8	113	Days
Manitoba	55	162	Days
Saskatchewan	21	85	Days
Alberta	34	116	Days
British Columbia	24	183	Days

How big is the problem?
CIHI MRI wait times 2024

Canadian Institute for Health Information

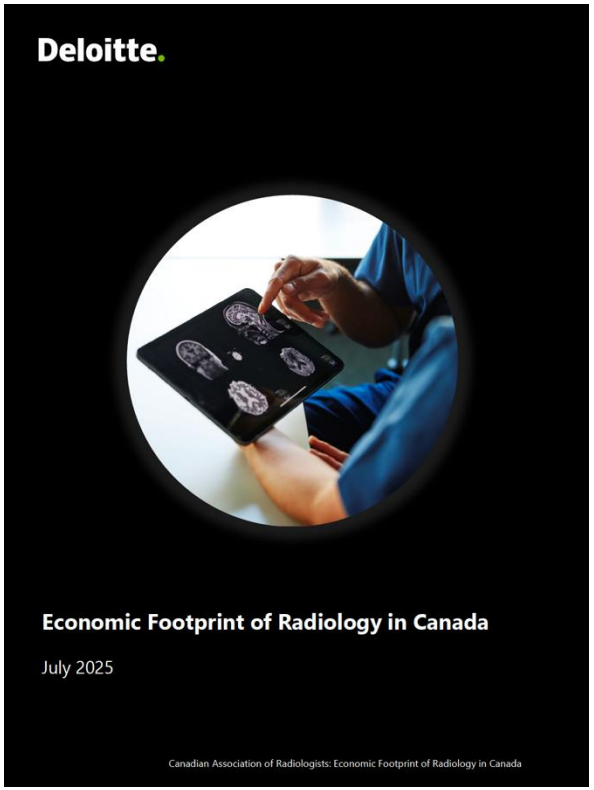
Time frame

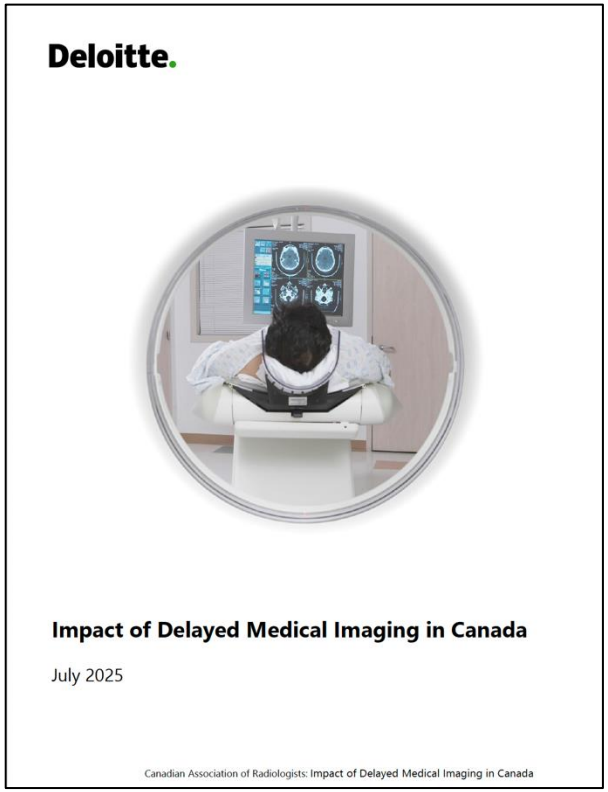
April 1 to September 30

Percentage meeting benc... | **50th and 90th percentiles**

Province/territory	50th percentile	90th percentile	Unit of measurement
Canada	57	198	Days
Newfoundland and Labrador	No data available.	No data available.	Days
Prince Edward Island	34	382	Days
Nova Scotia	77	366	Days
New Brunswick	No data available.	No data available.	Days
Quebec	No data available.	No data available.	Days
Ontario	46	179	Days
Manitoba	104	352	Days
Saskatchewan	48	217	Days
Alberta	63	217	Days
British Columbia	86	211	Days

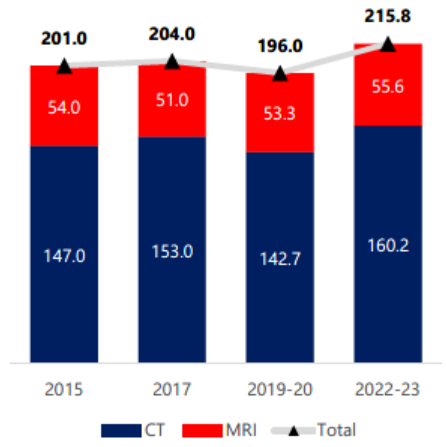
Canadian Association of Radiologists: Value of Radiology III (2025)





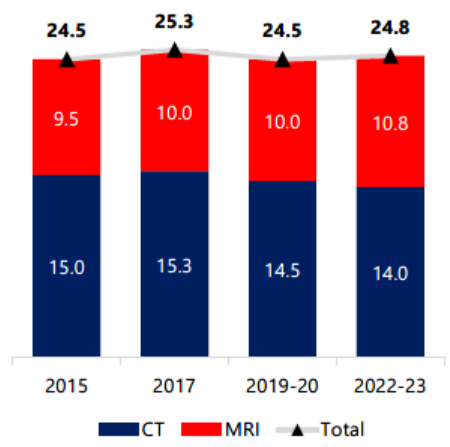
Profile of Radiology in Canada, 2025

Chart 1. Number of scans have outpaced population growth over the last decade
Number of exams per 1,000 population, Canada



Source: CADTH

Chart 2. Number of machines in the fleet have not grown significantly relative to population
Number of units per 1,000,000 population, Canada



Source: CADTH

Chart 3. Canada lags OECD peers in funding
Spending on diagnostic imaging per capita in USD ($) PPP converted, 2022 (current prices)

Source: OECD

Chart 4. Canada lags OECD peers in scans
Number of MRI and CT exams per 1,000 persons, 2022

Source: OECD

Rise in demand exacerbates challenges in a system already under pressure: *people, equipment, integration of technology*

What does this mean for patients?

NANOS RESEARCH

- Canadians are waiting an average of **84 days for an MRI scan**, and **66 days for a CT scan (May 2025)**
- Patients experiencing significant **personal and financial costs** waiting for medical imaging

CAR

Type of scan	MRI	CT	Ultrasound
% of Canadians who were referred for imaging by their doctor in the past 2 years	23%	17%	33%
Days waited for a scan (Mean)	84 days	66 days	30 days
Average patient falls within 60-day maximum non-urgent wait time	✖	✖	✓
% of imaging patients who had to quit work while waiting	18%	14%	9%
Days unable to work while waiting for a scan over the past 2 years (Mean)	121 days	N/A*	N/A*
Total income lost while waiting for a scan (Mean)	$25.9K	N/A*	N/A*

*Note: *Data suppressed in the survey due to an insufficient sample size; n<30.*

Canadian Association of Radiologists
Value of Radiology III

Canada produced $64 billion less because of excessive waits for MRI, CT, and Ultrasound scans in 2023

18.7M	2M	$18B	$64B	$6B
Annual radiology scans (MRI, CT, ultrasound)	People that had to stop work	Aggregate lost income	Lost Canadian GDP	Lost tax revenues

Deloitte.

Impact of Delayed Medical Imaging in Canada

July 2025

Delays in access to MI has negative patient consequences

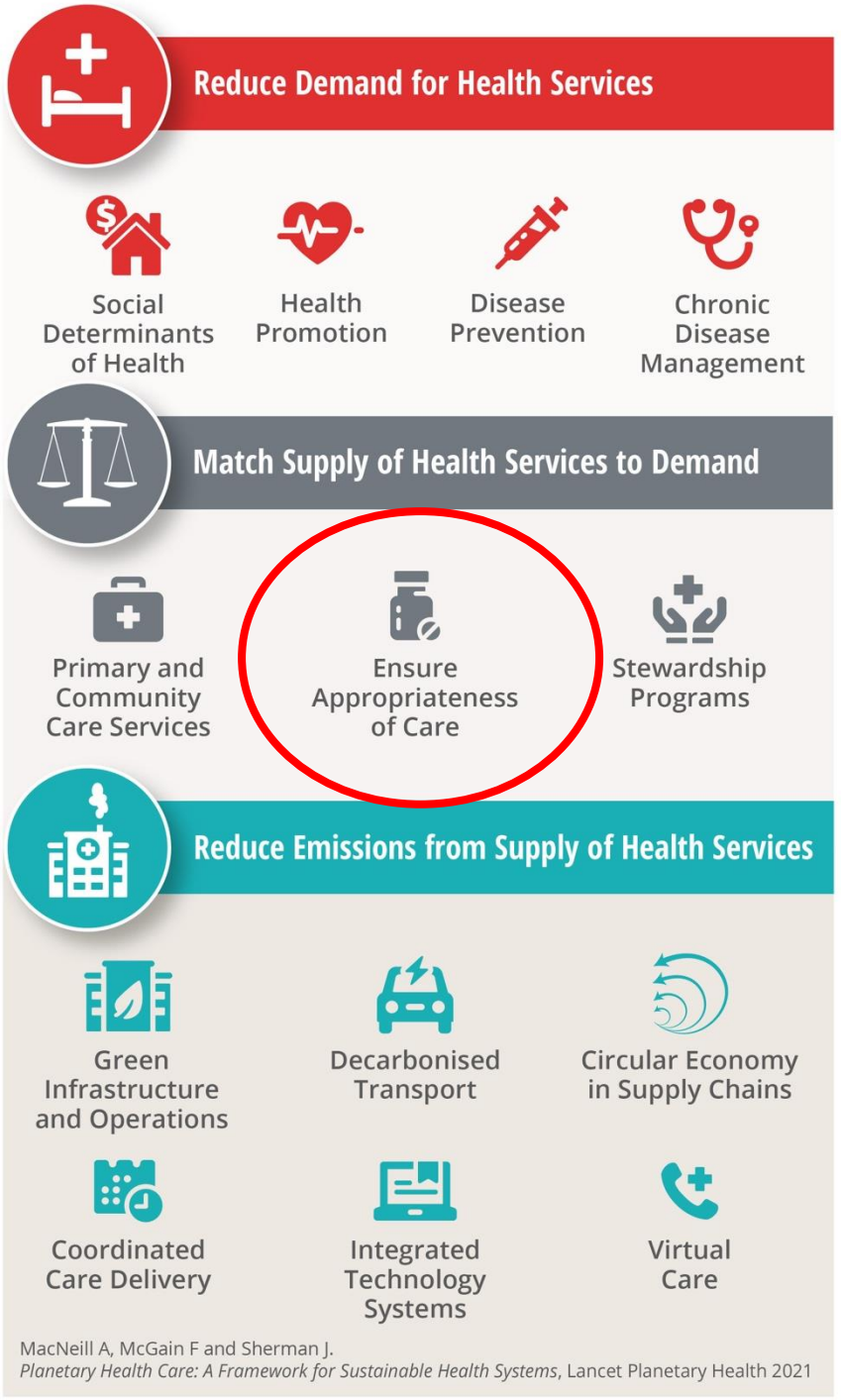
- Radiology is a **critical health care service**
- **Gateway to medical care**
- Extraordinary wait times across Canada
- People are experiencing **negative health consequences and unable to work** while waiting for MI examinations
- **Detriment to patient care, higher costs to the system, significant impact to the economy**

Strategies to increase throughput and improve access

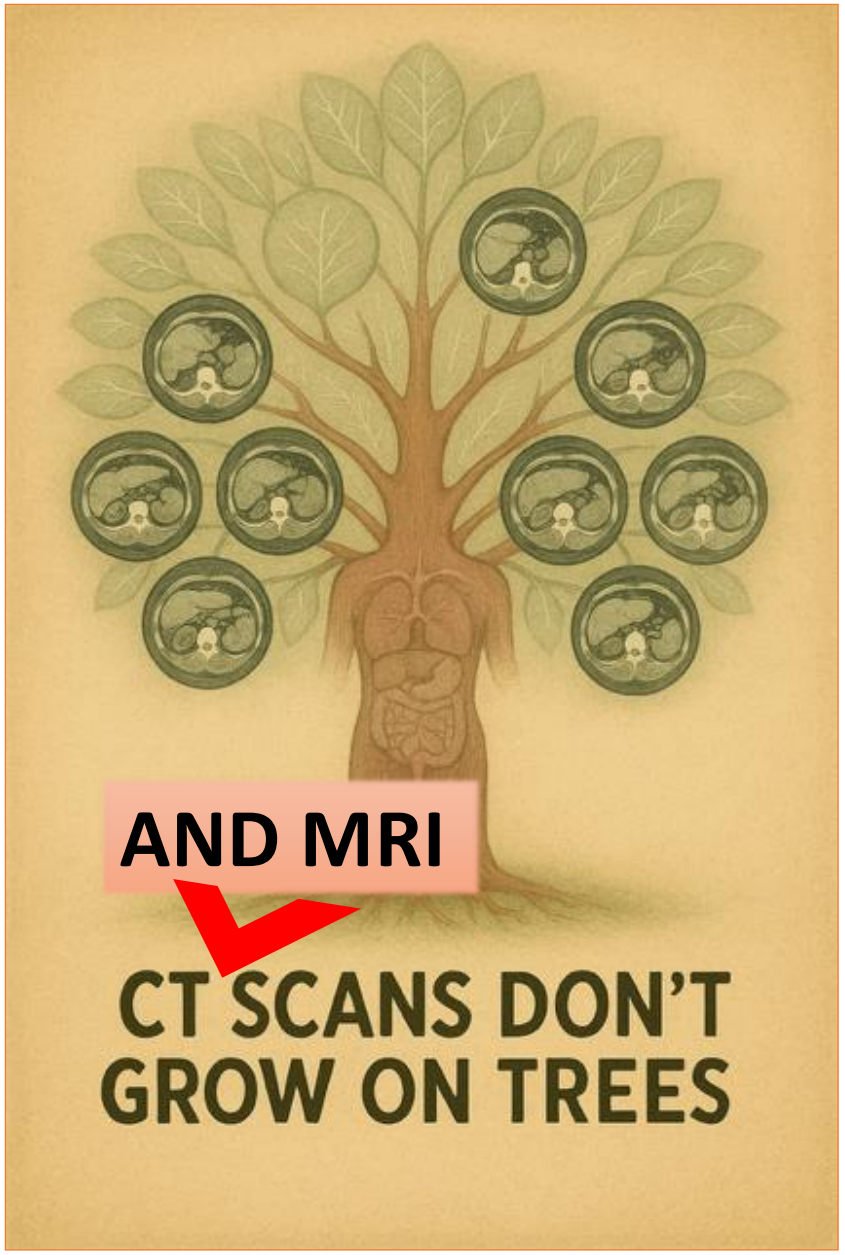
Chin S, Langan A, Walker R, Harris A, Soulez G, Kielar A. Improving Patient Throughput in Limited Resource Environments. *Canadian Association of Radiologists Journal*. 2025;77(1):50-57. doi:10.1177/08465371251361082

Strategies to reduce demand

Ensure	Ensure appropriateness of MI •"Right test, right time"
Reduce	Reduce "low-value care"
Decrease	Decrease "waste" in the health care system



Otherwise stated...!



Courtesy: Dr. Maura Brown, BCCA

Reducing Unnecessary Examinations

Definitions:

- **Medical Imaging Appropriateness:**

> *"Medical imaging exams are deemed appropriate when health benefits exceed any potential negative consequences or adverse effects."*

- Contribute towards improved patient care and patient safety by enabling quicker diagnosis and the right medical management
- **Inappropriate Medical Imaging:**

> *"An imaging test that does not meet the clinical indication criteria, or one that is repeated in an unjustified short period of time."*[3]

- Includes duplicate ordering, incorrect modality usage, absent/poor clinical information, unneeded repeated examinations and exams ordered before patient assessed

Vanderby S, Badea A, Sanchez JNP et al. A day in the life of MRI: The Variety and Appropriateness of Exams Being Performed in Canada. Canadian Association of Radiologists Journal 2018; 69: 151 - 161.

Inappropriate testing - what are the consequences?

Canadian studies suggest that 2%-24% of advanced imaging studies may be inappropriate

Varies greatly based on the jurisdiction, modality and referring group

Can occur as a response to patient expectation or while awaiting a more appropriate test

- Waitlists for ***needed imaging increase*** ⬆
- Further testing may be required for ***incidental findings***
- ***False positives*** can result in harm
- Unnecessary radiation and contrast exposure may occur (CT/MRI)
- Increases congestion in ER departments whilst waiting for testing

Eddy, Kathleen, et al. Appropriate use of CT and MRI in British Columbia. BC Medical Journal. 2013 February; 55:22-25.

Fraser, James; Reed, Martin. Appropriateness of Imaging in Canada. Canadian Association of Radiologists Journal. 2013 May; 64(2):82-4.

Why we should do better

Patient factors:

- Need to provide timely patient access
- Address inequities in access to health care
- Improve patient outcomes
- Recognize economic burden and cost of waiting

Manage system challenges:

- Increasing demand
- Resources are constrained
  - HHR
  - Equipment
  - Funding
- Consider long waitlists & wait times
- Variation between facilities/regions

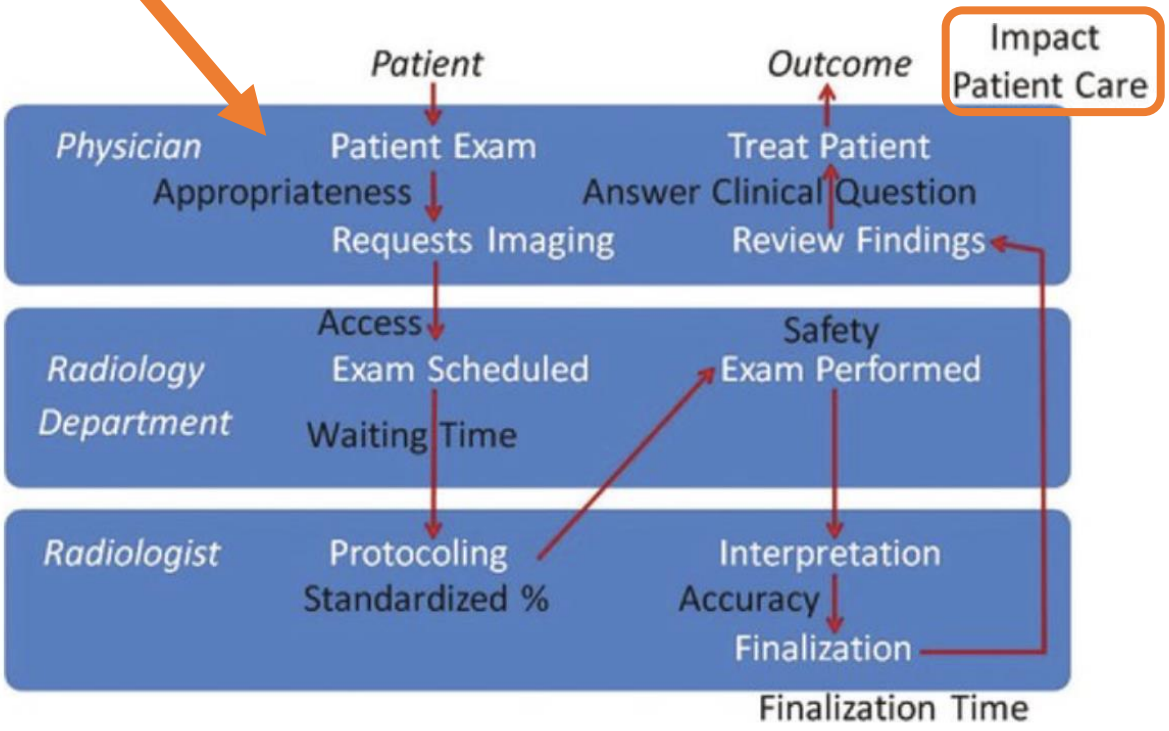
Tools in selecting an “appropriate” test?

- Use of ***evidence-based guidelines*** support clinical decision-making
- Assist referring practitioner in selecting the most appropriate imaging modality
- Aim to ***improve quality and consistency of referrals***
- Aim to reduce unnecessary imaging and promote patient centered care
- ***E.g. Canadian Association of Radiologists Imaging Referral Guidelines (completed 2025) - available car.ca***

CAR Canadian Association of Radiologists

Where does appropriateness fit in?

Patient journey through MI



AM Kelly & P Cronin Radiographics 35 (6):1630-1642

Tools and guidelines

- **National**
  - Choosing Wisely, CW Canada
  - Canadian Association of Radiologists Referral Guidelines (2025)
  - Canadian Task Force on Preventative Health
- **Provincial**
  - BC Guidelines (D of BC)
- **Local**
  - Central Intake Office for MRI with Appropriateness check lists (ACLs) for certain imaging tests (MR lumbar spine, hips/knees/shoulders)

Choosing Wisely®
An initiative of the ABIM Foundation

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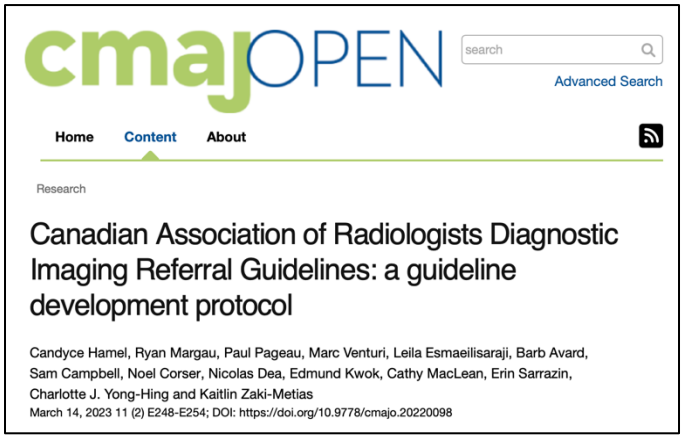
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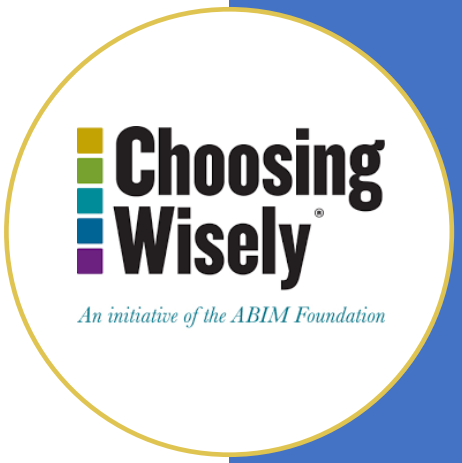
Canadian Association of Radiologists Diagnostic Imaging Referral Guidelines: a guideline development protocol
Candyce Hamel, Ryan Margau, Paul Pageau, Marc Venturi, Leila Esmaeilisaraji, Barb Avard, Sam Campbell, Noel Corser, Nicolas Dea, Edmund Kwok, Cathy MacLean, Erin Sarrazin, Charlotte J. Yong-Hing and Kaitlin Zaki-Metias
March 14, 2023 11 (2) E248-E254; DOI: https://doi.org/10.9778/cmajo.20220098

Choosing Wisely

- Launched by American Board of Internal Medicine Foundation (ABIMF) in 2012
- Developed to address over-ordering and inappropriate use of tests and treatments
- 103 high-volume imaging examinations are identified as “low-value” by the CW initiative (Levin & Rao, 2017)
- Potential to reduce waste and ensure tests performed are appropriate



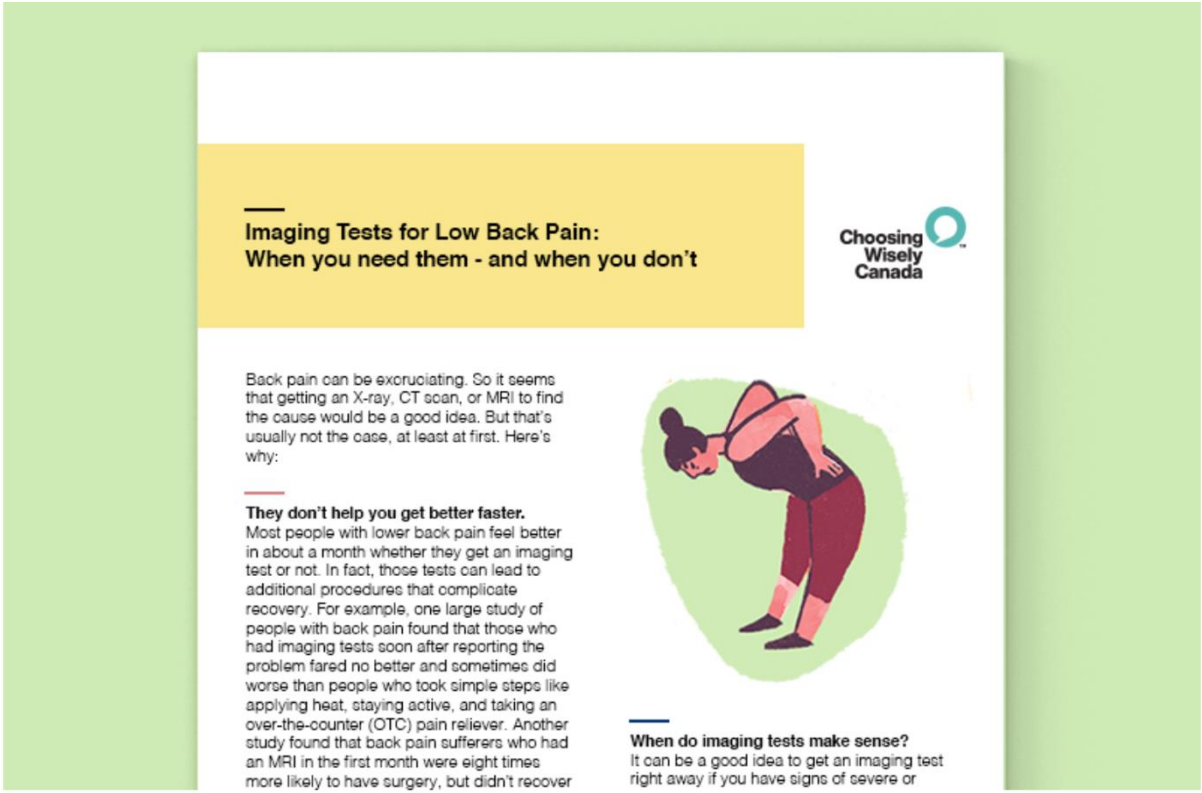
Choosing Wisely Canada

- **Similar evidence-based guidelines for Canada**
- Recognizes that every patient situation is unique
- ***Canadian Association of Radiologists*** endorses 8 clinical scenarios:
  - Imaging not recommended for:
  1. Lower back pain
  2. Minor head trauma
  3. Uncomplicated headache

  } Unless red flags are present

  4. Don't do CT for appendicitis in children unless after ultrasound has been considered as an option
  5. Don't do ankle X-ray series for minor injury
  6. Don't order MRI without considering US for assessment of rotator cuff pathology and bursitis
  7. Don't order MRI hip based on x-ray features of FAI unless there are signs/symptoms of joint impingement
  8. Don't order MRI of hip or knee when x-ray demonstrates greater than mild OA unless recommended by an MSK specialist

Patient educational resources are critical



Imaging Tests for Low Back Pain: When you need them - and when you don't

Choosing Wisely Canada

Back pain can be excruciating. So it seems that getting an X-ray, CT scan, or MRI to find the cause would be a good idea. But that's usually not the case, at least at first. Here's why:

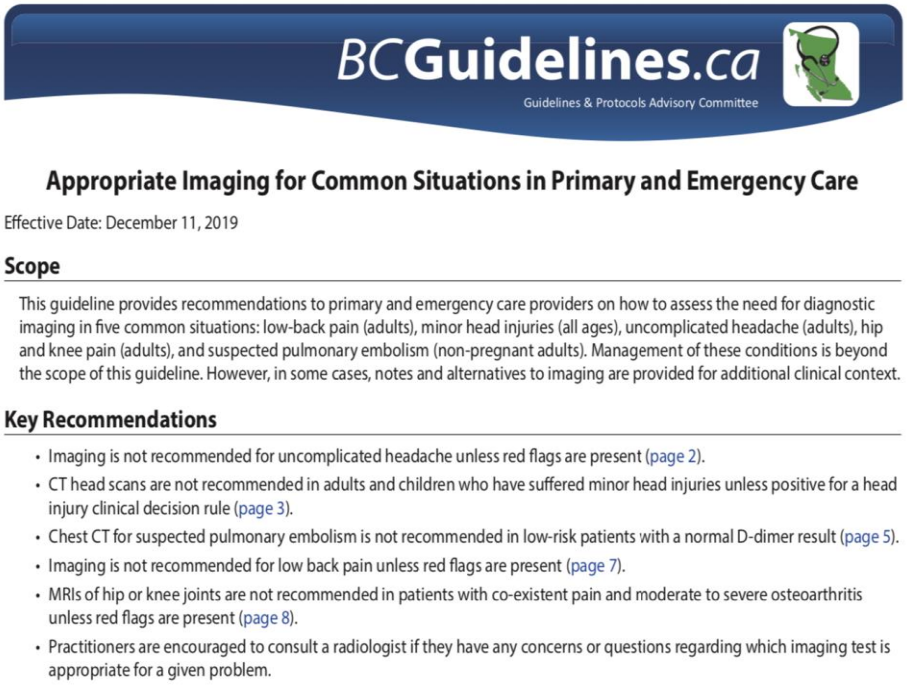
They don't help you get better faster.
Most people with lower back pain feel better in about a month whether they get an imaging test or not. In fact, those tests can lead to additional procedures that complicate recovery. For example, one large study of people with back pain found that those who had imaging tests soon after reporting the problem fared no better and sometimes did worse than people who took simple steps like applying heat, staying active, and taking an over-the-counter (OTC) pain reliever. Another study found that back pain sufferers who had an MRI in the first month were eight times more likely to have surgery, but didn't recover

When do imaging tests make sense?
It can be a good idea to get an imaging test right away if you have signs of severe or

Choosing Wisely Patient Pamphlets are meant to help patients learn about the tests, treatments, and procedures to question, when they are necessary and when they are not, and what patients can do to improve their health.

BC Guidelines

- 5 scenarios
- Overlap with CW Canada
- Add: CT for pulmonary embolism is not recommended in low-risk patients with normal D-dimer (non-pregnant adults)
- Key messages, practitioner and patient/caregiver resources are provided
- Provide advice on alternatives such as physiotherapy



BCGuidelines.ca

Guidelines & Protocols Advisory Committee

Appropriate Imaging for Common Situations in Primary and Emergency Care

Effective Date: December 11, 2019

Scope

This guideline provides recommendations to primary and emergency care providers on how to assess the need for diagnostic imaging in five common situations: low-back pain (adults), minor head injuries (all ages), uncomplicated headache (adults), hip and knee pain (adults), and suspected pulmonary embolism (non-pregnant adults). Management of these conditions is beyond the scope of this guideline. However, in some cases, notes and alternatives to imaging are provided for additional clinical context.

Key Recommendations

- Imaging is not recommended for uncomplicated headache unless red flags are present (page 2).
- CT head scans are not recommended in adults and children who have suffered minor head injuries unless positive for a head injury clinical decision rule (page 3).
- Chest CT for suspected pulmonary embolism is not recommended in low-risk patients with a normal D-dimer result (page 5).
- Imaging is not recommended for low back pain unless red flags are present (page 7).
- MRIs of hip or knee joints are not recommended in patients with co-existent pain and moderate to severe osteoarthritis unless red flags are present (page 8).
- Practitioners are encouraged to consult a radiologist if they have any concerns or questions regarding which imaging test is appropriate for a given problem.

Osteoarthritis of the knee

Challenges with guidelines

- Practitioner may not be aware of guideline
- Too difficult to look up in pressured clinical scenario
- Recommended tests not locally available
- Expectation of patient to have an imaging test even if not recommended
- Concurrent medical condition/s may require imaging outside of the standard guideline

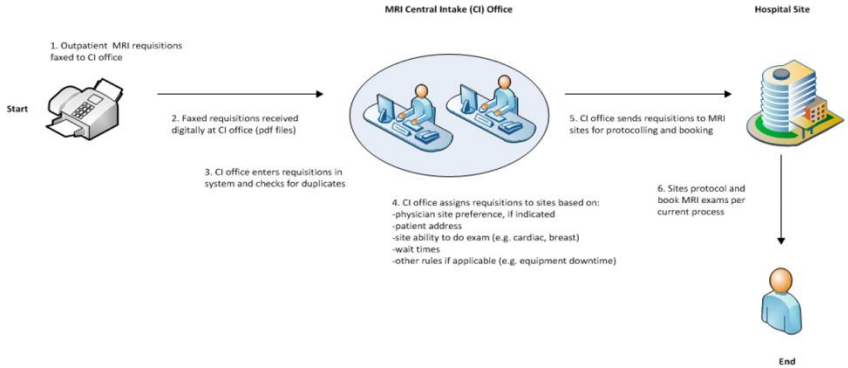
Local initiatives to streamline Medical Imaging services

LMMI Central Intake Office (CIO) for MRI

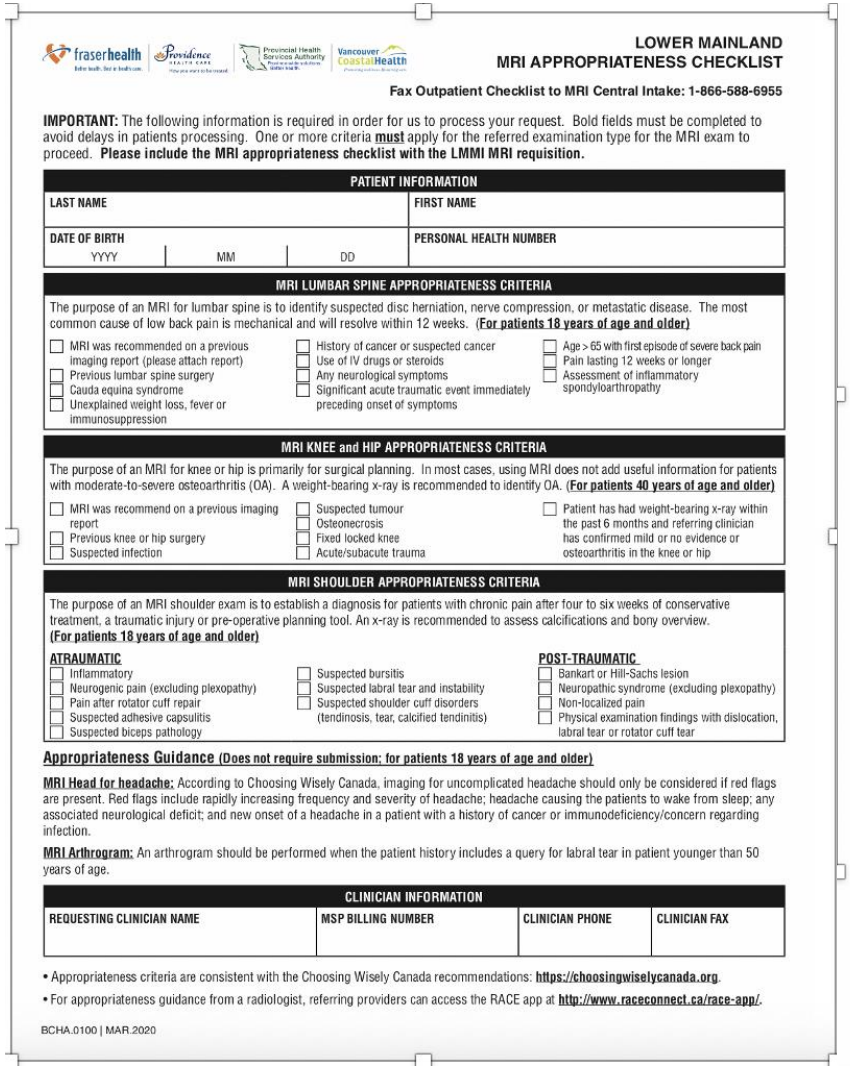
- Centralized intake for referrals for 11 MRI sites across LMMI
- Response to MoH directive in 2015 that sought to address the anticipated increase in MRI referrals
- Internal audit prior to implementation identified duplicate bookings and wide variation in wait times ranging from 3 – 24 months
- Central fax #, ability to request a particular site, referrals distributed based on factors such as postal code, ability of site to perform exam
- Appropriateness checklists (ACLs) implemented for low-back pain and hip/knee MRI

CIO Workflow

The workflow developed for the launch of CIO has remained relatively unchanged in its first year. The following diagram shows the high-level workflow of the CIO:



Standardized request forms with ACLs for lumbar spine and hip/knee MRI



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LOWER MAINLAND
MRI APPROPRIATENESS CHECKLIST

Fax Outpatient Checklist to MRI Central Intake: 1-866-588-6955

IMPORTANT: The following information is required in order for us to process your request. Bold fields must be completed to avoid delays in patients processing. One or more criteria **must** apply for the referred examination type for the MRI exam to proceed. **Please include the MRI appropriateness checklist with the LMMI MRI requisition.**

PATIENT INFORMATION

LAST NAME			FIRST NAME
DATE OF BIRTH YYYY / MM / DD			PERSONAL HEALTH NUMBER

MRI LUMBAR SPINE APPROPRIATENESS CRITERIA

The purpose of an MRI for lumbar spine is to identify suspected disc herniation, nerve compression, or metastatic disease. The most common cause of low back pain is mechanical and will resolve within 12 weeks. **(For patients 18 years of age and older)**

- ☐ MRI was recommended on a previous imaging report (please attach report)
- ☐ Previous lumbar spine surgery
- ☐ Cauda equina syndrome
- ☐ Unexplained weight loss, fever or immunosuppression
- ☐ History of cancer or suspected cancer
- ☐ Use of IV drugs or steroids
- ☐ Any neurological symptoms
- ☐ Significant acute traumatic event immediately preceding onset of symptoms
- ☐ Age > 65 with first episode of severe back pain
- ☐ Pain lasting 12 weeks or longer
- ☐ Assessment of inflammatory spondyloarthropathy

MRI KNEE and HIP APPROPRIATENESS CRITERIA

The purpose of an MRI for knee or hip is primarily for surgical planning. In most cases, using MRI does not add useful information for patients with moderate-to-severe osteoarthritis (OA). A weight-bearing x-ray is recommended to identify OA. **(For patients 40 years of age and older)**

- ☐ MRI was recommend on a previous imaging report
- ☐ Previous knee or hip surgery
- ☐ Suspected infection
- ☐ Suspected tumour
- ☐ Osteonecrosis
- ☐ Fixed locked knee
- ☐ Acute/subacute trauma
- ☐ Patient has had weight-bearing x-ray within the past 6 months and referring clinician has confirmed mild or no evidence or osteoarthritis in the knee or hip

MRI SHOULDER APPROPRIATENESS CRITERIA

The purpose of an MRI shoulder exam is to establish a diagnosis for patients with chronic pain after four to six weeks of conservative treatment, a traumatic injury or pre-operative planning tool. An x-ray is recommended to assess calcifications and bony overview. **(For patients 18 years of age and older)**

ATRAUMATIC
- ☐ Inflammatory
- ☐ Neurogenic pain (excluding plexopathy)
- ☐ Pain after rotator cuff repair
- ☐ Suspected adhesive capsulitis
- ☐ Suspected biceps pathology
- ☐ Suspected bursitis
- ☐ Suspected labral tear and instability
- ☐ Suspected shoulder cuff disorders (tendinosis, tear, calcified tendinitis)

POST-TRAUMATIC
- ☐ Bankart or Hill-Sachs lesion
- ☐ Neuropathic syndrome (excluding plexopathy)
- ☐ Non-localized pain
- ☐ Physical examination findings with dislocation, labral tear or rotator cuff tear

Appropriateness Guidance (Does not require submission; for patients 18 years of age and older)

MRI Head for headache: According to Choosing Wisely Canada, imaging for uncomplicated headache should only be considered if red flags are present. Red flags include rapidly increasing frequency and severity of headache; headache causing the patients to wake from sleep; any associated neurological deficit; and new onset of a headache in a patient with a history of cancer or immunodeficiency/concern regarding infection.

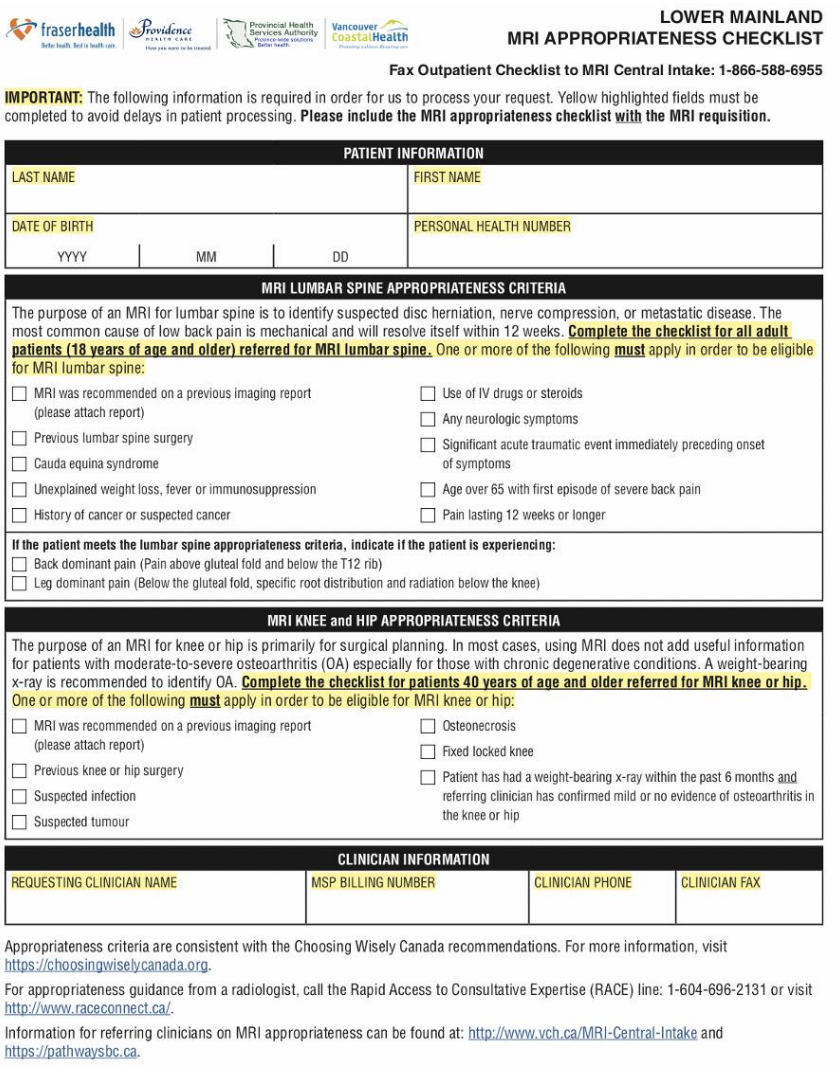
MRI Arthrogram: An arthrogram should be performed when the patient history includes a query for labral tear in patient younger than 50 years of age.

CLINICIAN INFORMATION

REQUESTING CLINICIAN NAME	MSP BILLING NUMBER	CLINICIAN PHONE	CLINICIAN FAX

- Appropriateness criteria are consistent with the Choosing Wisely Canada recommendations: **https://choosingwiselycanada.org**.
- For appropriateness guidance from a radiologist, referring providers can access the RACE app at **http://www.raceconnect.ca/race-app/**.

BCHA.0100 | MAR.2020



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LOWER MAINLAND
MRI APPROPRIATENESS CHECKLIST

Fax Outpatient Checklist to MRI Central Intake: 1-866-588-6955

IMPORTANT: The following information is required in order for us to process your request. Yellow highlighted fields must be completed to avoid delays in patient processing. **Please include the MRI appropriateness checklist with the MRI requisition.**

PATIENT INFORMATION

LAST NAME			FIRST NAME
DATE OF BIRTH YYYY / MM / DD			PERSONAL HEALTH NUMBER

MRI LUMBAR SPINE APPROPRIATENESS CRITERIA

The purpose of an MRI for lumbar spine is to identify suspected disc herniation, nerve compression, or metastatic disease. The most common cause of low back pain is mechanical and will resolve itself within 12 weeks. **Complete the checklist for all adult patients (18 years of age and older) referred for MRI lumbar spine.** One or more of the following **must** apply in order to be eligible for MRI lumbar spine:

- ☐ MRI was recommended on a previous imaging report (please attach report)
- ☐ Previous lumbar spine surgery
- ☐ Cauda equina syndrome
- ☐ Unexplained weight loss, fever or immunosuppression
- ☐ History of cancer or suspected cancer
- ☐ Use of IV drugs or steroids
- ☐ Any neurologic symptoms
- ☐ Significant acute traumatic event immediately preceding onset of symptoms
- ☐ Age over 65 with first episode of severe back pain
- ☐ Pain lasting 12 weeks or longer

If the patient meets the lumbar spine appropriateness criteria, indicate if the patient is experiencing:
- ☐ Back dominant pain (Pain above gluteal fold and below the T12 rib)
- ☐ Leg dominant pain (Below the gluteal fold, specific root distribution and radiation below the knee)

MRI KNEE and HIP APPROPRIATENESS CRITERIA

The purpose of an MRI for knee or hip is primarily for surgical planning. In most cases, using MRI does not add useful information for patients with moderate-to-severe osteoarthritis (OA) especially for those with chronic degenerative conditions. A weight-bearing x-ray is recommended to identify OA. **Complete the checklist for patients 40 years of age and older referred for MRI knee or hip.** One or more of the following **must** apply in order to be eligible for MRI knee or hip:

- ☐ MRI was recommended on a previous imaging report (please attach report)
- ☐ Previous knee or hip surgery
- ☐ Suspected infection
- ☐ Suspected tumour
- ☐ Osteonecrosis
- ☐ Fixed locked knee
- ☐ Patient has had a weight-bearing x-ray within the past 6 months and referring clinician has confirmed mild or no evidence of osteoarthritis in the knee or hip

CLINICIAN INFORMATION

REQUESTING CLINICIAN NAME	MSP BILLING NUMBER	CLINICIAN PHONE	CLINICIAN FAX

Appropriateness criteria are consistent with the Choosing Wisely Canada recommendations. For more information, visit https://choosingwiselycanada.org.

For appropriateness guidance from a radiologist, call the Rapid Access to Consultative Expertise (RACE) line: 1-604-696-2131 or visit http://www.raceconnect.ca/.

Information for referring clinicians on MRI appropriateness can be found at: http://www.vch.ca/MRI-Central-Intake and https://pathwaysbc.ca.

Value of the CIO

- Compliance of >95% for ACLs
- Decrease of 2-3% referrals for lumbar spine and knee/hip MRI
- ACLs provide valuable education for patients/practitioners
- ***Other initiatives in development:***
  - Standardized eForms
  - Aim to integrate with EMRs
  - ***Clinical Decision Support (CDS)***
  - End-to-end MRI triaging system scalable to the province and other modalities

SharedCare
Partners for Patients

SA-CME

Clinical Decision Support Decreases Volume of Imaging for Low Back Pain in an Urban Emergency Department

Adam Min[a], Vivian W. Y. Chan, MPH, PhD[b], Ruben Aristizabal, MMOR[b], Ed R. Peramaki, MD[c,d], David B. Agulnik, MD[a], Nardia Strydom, MD[f], Damon Ramsey, MD[g], Bruce B. Forster, MSc, MD[c,e]

Abstract

Purpose: To determine whether point-of-care clinical decision support can effectively reduce inappropriate medical imaging of patients who present to the emergency department (ED) with low-back pain (LBP).

Materials and Methods: This was a prospective, single-center study of lumbar imaging referrals made by 43 emergency physicians at a major acute care center. Each physician saw at least 10 LBP cases in both pre- and post-intervention periods. A point-of-care checklist of accepted red flags for LBP was designed by a working group of physicians and embedded in the computerized order entry form for lumbar imaging. We compared imaging rates of LBP and physician variation in imaging ordering before and after the implementation of the checklist. We then measured the potential harms of reduced imaging.

Results: After intervention, the proportion of LBP patients with an imaging order fell significantly (median: 22% to 17%; mean: 23% to 18%; $P = .0002$) compared with pre-intervention baseline. The percentage of patients without imaging who were later imaged at a hospital outpatient clinic within 30 days was 2.3% before intervention and 2.2% after ($P = .974$). In addition, the proportion of patients discharged from the ED without imaging who returned to the ED within 30 days was 8.2% before intervention and 6.9% after ($P = .170$). One minor thoracic spine compression fracture was missed, but management was not impacted. No serious diagnoses were missed.

Conclusion: Clinical decision support integrated in electronic order entry forms can safely and effectively reduce imaging orders for LBP patients in the ED.

Key Words: Low back pain, clinical decision support, diagnostic imaging, appropriateness, Choosing Wisely, emergency department

J Am Coll Radiol 2017;14:889-899.

"It's literally gone from one to two years for an MRI, to anywhere from less than a month for serious cancers to nine months for non-urgent issues," she explains. "It's easily saved the average patient at least a year, since that initial meeting I had with Shared Care and the Ministry."

Other resources

- Ultrasound, CT and MRI Prioritization Guidelines
- Suggested wait times for common indications
- Guidance notes for alternative test if there is a lack of availability
- Degree of urgency and prioritization based on CAR classification system

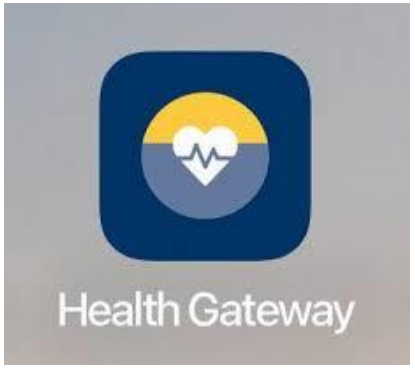
BCGuidelines.ca

Priority Level	Clinical Example	Maximum Suggested Wait Time
P1	An examination immediately necessary to diagnose and/or treat life-threatening disease. Such an examination will need to be done either stat or not later than the day of the request.	Immediately to 24 hours
P2	An examination indicated within one week of a request to resolve a clinical management imperative.	Maximum 7 calendar days
P3	An examination indicated to investigate symptoms of potential importance.	Maximum 30 calendar days
P4	An examination indicated for long-range management or for prevention.	Maximum 60 calendar days
P5	Timed follow-up exam or specified procedure date recommended by Radiologist and/or clinician.	

Additional phone and electronic resources for practitioners and patients

RACE
RAPID ACCESS TO CONSULTATIVE EXPERTISE

eCASE
eLECTRONIC CONSULTATIVE ACCESS TO SPECIALIST EXPERTISE



✓ Enhance communication to patients: portal for access to Radiology reports

Whole-body MRI Screening in Asymptomatic Individuals

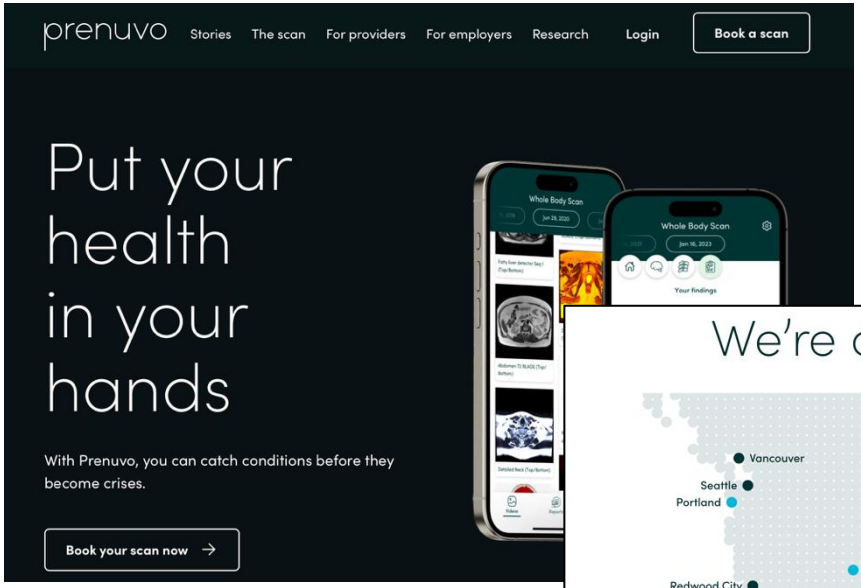
VANCOUVER SUN

Full-body MRIs are causing a buzz online — here are a few things to know

Celebrity support, health care concerns prompting increased discussion about preventive screenings.

By **Aleesha Harris**

Published Jan 04, 2024 Last updated Jan 04, 2024 8 minute read 32 Comments



Whole-body MRI of Asymptomatic Individuals

- Differs from WB MRI for certain ***clinical*** indications such as screening for patients with cancer predisposition (Li-Fraumeni syndrome)
- Non-contrast, not targeted, limited sequences
- Lack of clinical benefit*
- Frequently reveals ***incidentalomas*** that require follow-up, additional investigations, biopsies**
- Systematic review of 12 studies showed substantial number indeterminate findings***
- Can lead to patient anxiety

*Davenport MS. Incidental Findings and Low-Value Care. Am J Roentgenol. 2023;221(1):117-123. doi:10.2214/AJR.22.28926

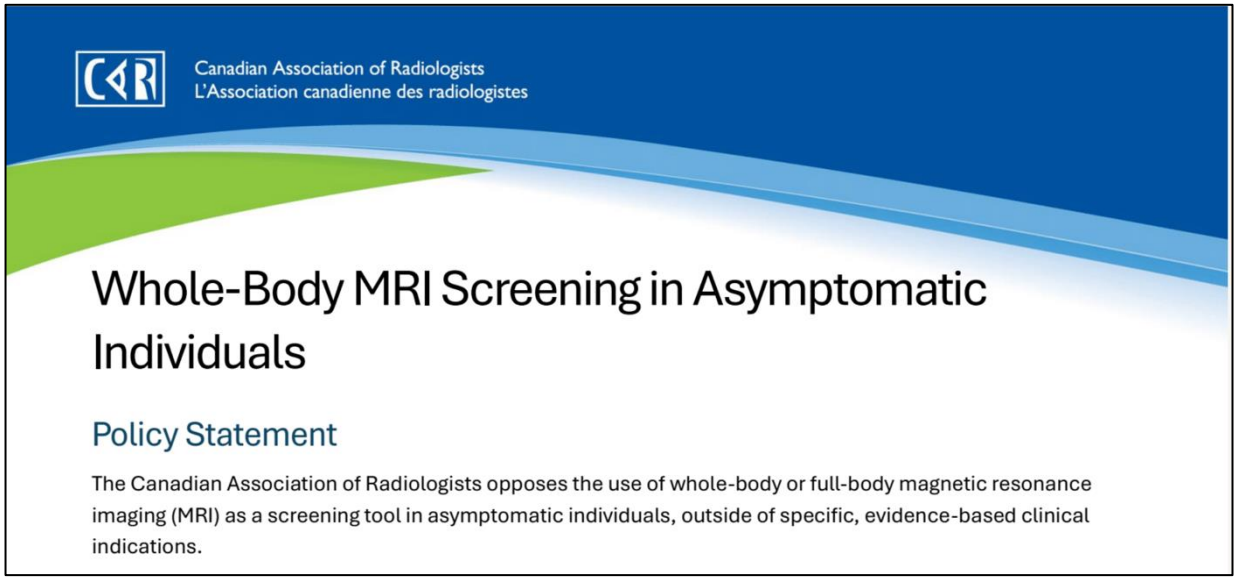
**Ganguli I, Simpkin AL, Lupo C, et al. Cascades of Care After Incidental Findings in a US National Survey of Physicians. JAMA Netw Open. 2019;2(10):e1913325. doi:10.1001/jamane

***Kwee RM, Kwee TC. Whole-body MRI for preventive health screening: A systematic review of the literature. J Magn Reson Imaging. 2019 Nov;50(5):1489-1503. doi: 10.1002/jmri.26736.tworkopen.2019.133

Whole-body MRI of asymptomatic individuals: downsides

- Adds strain to already overburdened system due to work-up of incidental findings
- Contributes to health inequities
- Private pay
- Further testing adds to public waitlists displacing needed exams
- Recruits HHR from public system
- Creates illusion of "*preventative*" care; marketed as a tool for empowerment/peace of mind
- Can lead to overdiagnosis and potential harm

CAR Statement: June 2025



Canadian Association of Radiologists
L'Association canadienne des radiologistes

Whole-Body MRI Screening in Asymptomatic Individuals

Policy Statement

The Canadian Association of Radiologists opposes the use of whole-body or full-body magnetic resonance imaging (MRI) as a screening tool in asymptomatic individuals, outside of specific, evidence-based clinical indications.

The Canadian Association of Radiologists supports patient autonomy and preventive care grounded in evidence. However, until there is clear data demonstrating that whole-body MRI screening improves health outcomes in asymptomatic individuals, we do not endorse its use. In a healthcare system under strain, we must be thoughtful stewards of limited resources and prioritize imaging that is medically necessary, clinically justified, and patient centered.

Current Practice Standards in BC

- Facilities receive DAP accreditation issued with limited scope regarding charging for uninsured services
- College guidance exists for advertising and communicating with the public
- MOH Bill 92 – enacted to address “queue jump” facilities
- However, still presents a ***grey area as any follow up occurs in public system***

AI's Role in Streamlining Referrals

Is there a role for AI to potentially streamline referrals?

- ***Growing number of AI applications in healthcare***
- ***AI can potentially assist with***:
  - Scheduling of diagnostic and interventional imaging, including patient reminders
  - Radiology department staff scheduling
  - Protocolling of imaging requests
  - Triaging of studies to be performed/read
  - Identifying duplicate orders
  - Reducing image acquisition time (CT and MRI)
  - Aid image reconstruction and post-processing
  - Prioritizing urgent studies for timely reporting
  - Provides reporting support for radiologists
- ***Not yet widely implemented – cost, system upgrades and need for ongoing validation***

Potential role of AI in the Radiology patient journey

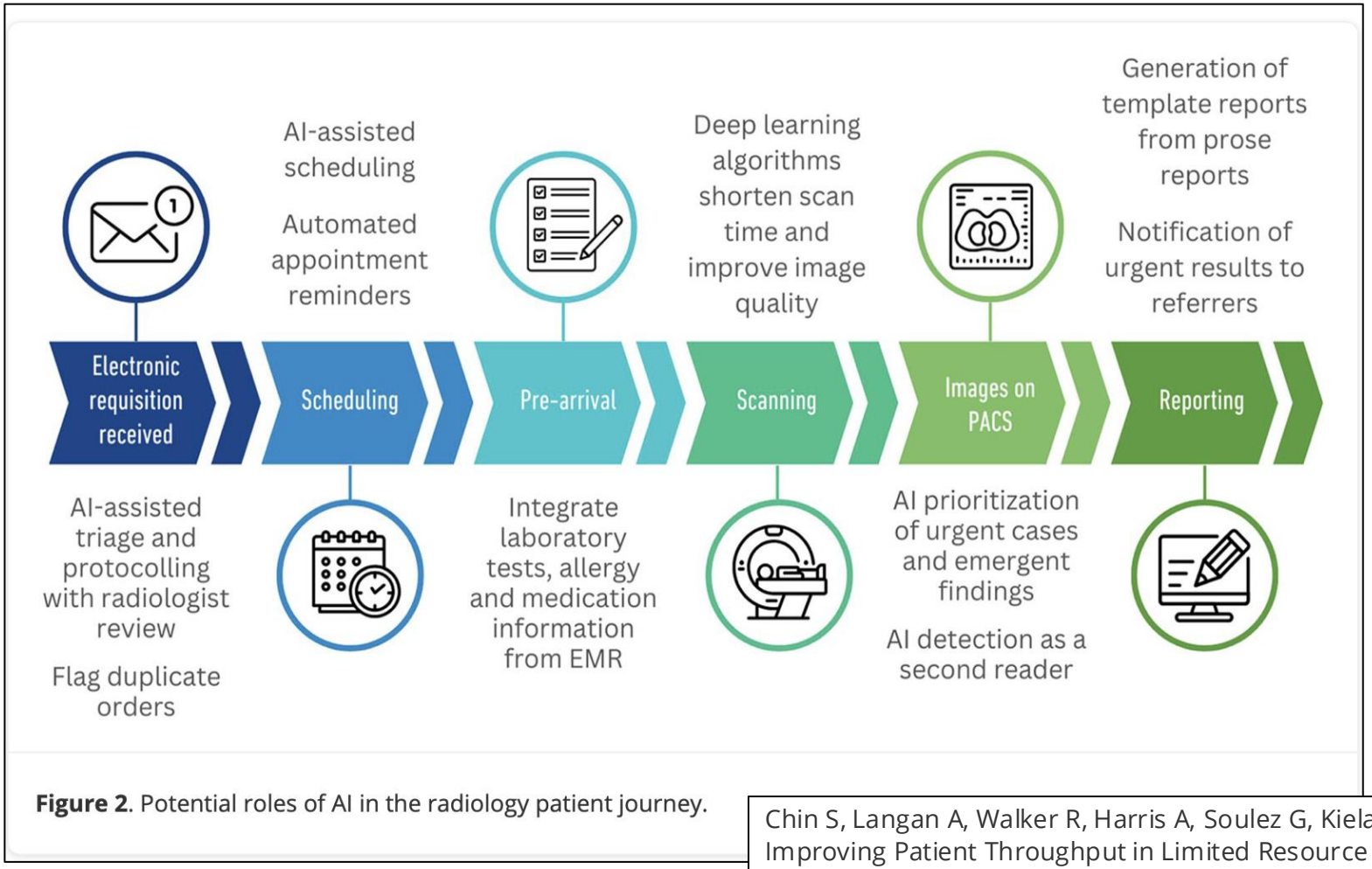


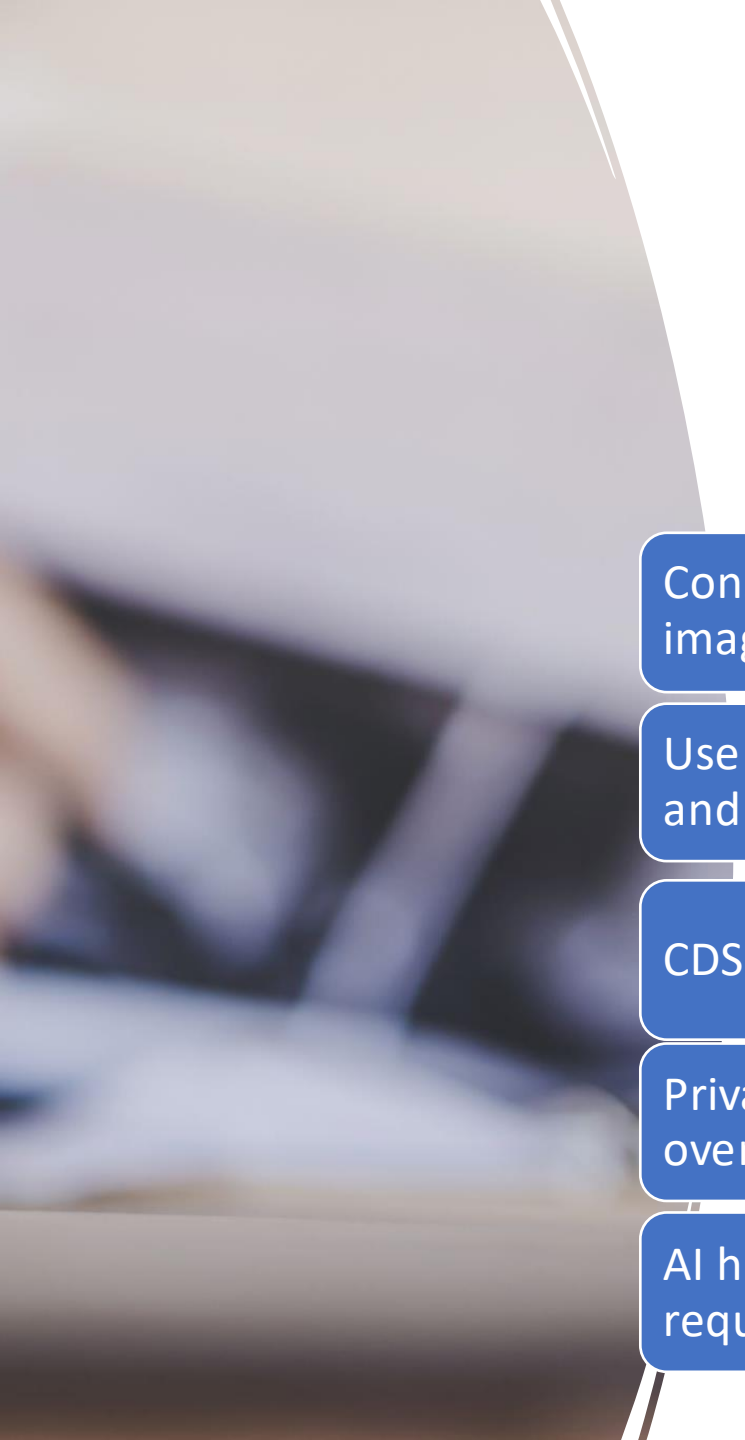
Figure 2. Potential roles of AI in the radiology patient journey.

Chin S, Langan A, Walker R, Harris A, Soulez G, Kielar A. Improving Patient Throughput in Limited Resource Environments. *Canadian Association of Radiologists Journal*. 2025;77(1):50-57. doi:10.1177/08465371251361082

Other opportunities for improved digital systems integration….

Connect patient's EMR in community to hospital facilities → Provincial EMR → Regional or province-wide picture archiving and communication systems (PACS)

Incorporate standardized imaging pathways and e-forms to streamline referrals → Integrate CDS into EMRs



Closing thoughts

- Consider “**appropriateness**” when requesting medical imaging and need to reduce ”**low-value**” examinations
- Use frameworks such as Choosing Wisely, BC Guidelines and CAR referral guidelines to help select best test
- CDS can be incorporated into EMRs and imaging pathways
- Private MRI facilities are expanding although risk overdiagnosis and incidental findings that require workup
- AI has the potential to streamline workflow however requires funding, integration, validation and oversight

Thank you!

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Interventions in the patient journey