

# NATIONAL MAXIMUM WAIT TIME ACCESS TARGETS FOR MEDICAL IMAGING (MRI AND CT)



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Canadian Association of Radiologists  
L'Association canadienne des radiologistes



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## EXECUTIVE SUMMARY

The Canadian Association of Radiologists (CAR) is a member of the Wait Time Alliance (WTA)<sup>1</sup>. Since 2005, the WTA has produced annual reports on the progress of addressing wait times in the five priority areas identified for focus in the 2004 First Ministers' Health Accord. One of those five priority areas was diagnostic imaging, particularly around MRI and CT. Clinical specialties established the national targets for wait times in these priority areas. Recognizing that any guidance that has been produced should undergo periodic review for continuing relevance in light of any new evidence or literature, the CAR determined that the medical imaging benchmarks for MRI and CT established in 2005 should be updated (the 2005 benchmarks are shared in Appendix A).

The CAR undertook an extensive process to accomplish this update. In this report, the CAR puts forward recommendations on definitions to be used in the collection, tracking and reporting of medical imaging wait time data. A glossary of definitions can be found in Appendix B. The new updated guidance is similar to the 2005 benchmarks in the emergent and urgent categories, with some further clarification on definitions and expansion of priority categories.

A systematic literature search failed to identify any articles relevant to patient outcomes and access to MRI or CT. The CAR, therefore, acknowledges that the evidence behind the recommendations are the best recommendations of a panel of participating experts, based on unsystematic and undocumented experience, reviewed and vetted through a wider, pan-Canadian consultation process.



<sup>1</sup><http://www.waittimealliance.ca>

## RECOMMENDATION I:

The CAR recommends a five-point priority classification system with priority definitions and maximum benchmark time interval targets as shared in the following table:

The priority definitions and maximum time interval targets are summarized in this table.

**NOTE:** It is important to emphasize that the patients in each category are heterogeneous in their clinical acuity. Clinical judgment, therefore, must determine when the patient’s examination should be performed.

**NOTE:** It is important to emphasize that patients on the wait list require clinical monitoring. If, during the course of the wait time, the patient’s clinical condition changes, the wait priority needs to be reconsidered.

**NOTE:** MRI = magnetic resonance imaging;  
CT = computed tomography

CAR PAN-CANADIAN MRI AND CT WAIT TIME BENCHMARKS	
Priority Category Definitions	Maximum Time Interval Target
<p><b>Priority 1 (P1)</b> Emergent: an examination necessary to diagnose and/or treat disease or injury that is immediately threatening to life or limb.</p>	<p><b>P1:</b> Same day – maximum 24 hours*</p> <p>* For emergent/life-threatening conditions, some patients require imaging in even less than an hour and these decisions are based on the clinical team’s judgment.</p>
<p><b>Priority 2 (P2)</b> Urgent: an examination necessary to diagnose and/or treat disease or injury and/or alter treatment plan that is not immediately threatening to life or limb. Based on provided clinical information, no negative outcome related to delay in treatment is expected for the patient if the examination is completed within the benchmark period.</p>	<p><b>P2:</b> maximum 7 calendar days**</p> <p>**There is a spectrum of “urgency” within the urgent category. In most instances, the exam should be completed as soon as possible after the referral is received. However, in some cases (depending on medical need as determined by the clinical team’s judgment), while the need is still urgent, a maximum wait time of seven days may be medically acceptable.</p>
<p><b>Priority 3 (P3)</b> Semi-urgent: an examination necessary to diagnose and/or treat disease or injury and/or alter treatment plan, where provided clinical information requires that the examination be performed sooner than the P4 benchmark period.</p>	<p><b>P3:</b> maximum 30 calendar days</p>
<p><b>Priority 4 (P4)</b> Non-urgent: an examination necessary to diagnose and/or treat disease or injury, where, based on provided clinical information, no negative long-term medical outcome related to delay in treatment is expected for the patient if the examination is completed within the benchmark period.</p>	<p><b>P4:</b> maximum 60 calendar days</p>
<p><b>Specified Procedure Date</b> The MRI or CT Scan appointment date requested by the ordering physician for the purpose of disease surveillance.</p>	<p>It is recommended to track performance against specified dates, as poor performance in P1-P4 categories may alter performance in this category, creating a serious concern in patient care for which strategies should be developed.</p>

## RECOMMENDATION 2:

The CAR recognizes that report turn-around time is a part of the patient wait, and recommends the following maximum time intervals for production of radiologist reports:

**NOTE:** Communication of the examination results is the most important part of the interpretive process. Any unexpected or critical findings must be communicated immediately and directly to the referring physician.

**NOTE:** Report turn-around time may be affected negatively by lack of voice recognition technology and, in academic departments, reporting by Residents and Fellows.

Radiologist Maximum Report Turn-Around Time	Maximum Time Interval Target
Emergent (P1) reports	Immediate reporting is the expectation, with a maximum time of 1 hour for finalized report completion. Additionally, direct verbal or immediate written communication is considered the standard of practice.
Urgent (P2) reports	Maximum reporting time of 12 hours. Depending on the clinical situation and based on medical need, direct verbal or immediate written communication may be necessary to expedite patient care in this category.
All other examination (P3 and P4) reports	Maximum four calendar days.

The CAR also makes the following recommendations on the referral, collection, tracking and reporting of MRI and CT wait times:

## RECOMMENDATION 3:

That the collection of data is for all patients waiting, including inpatients and emergency patients; excluded are to be only those who have a Specified Procedure Date or Dates Affecting Readiness to Treat/Examine (DARTs) associated with them – both as defined in this report – as these can skew performance measures.

## RECOMMENDATION 4:

That the radiology information systems (RIS) have the capacity to capture DARTs to facilitate data assessment for accurate determination of wait times performance.

## RECOMMENDATION 5:

That tracking performance for achieving Specified Procedure Date targets be performed, recognizing that over-capacity volumes or delays in achieving the P1-P4 categories may impact patient care. Mitigation strategies need to be developed in this setting.

## RECOMMENDATION 6:

That the MRI or CT Scan Order Received Date also be tracked, in addition to the MRI or CT Scan Order Completed Order Received Date – both as defined in this report – to capture any wait time that occurs to obtain a completed referral, which is a part of the entire patient wait; tracking this wait will allow jurisdictions to determine if strategies are required to address delays in this area.

**RECOMMENDATION 7:**

That, in addition to tracking the Wait Time for Report – as defined in this report - institutions that do not have new technologies that allow reports to be accessed by the referring physician as soon as signed by the radiologist, track and report this time, as this additional wait is a part of the entire patient wait; tracking this wait will allow jurisdictions to determine if strategies are required to address delays in this area.

**RECOMMENDATION 8:**

That the 90th Percentile, Median and Average wait time calculations be used as valuable assessments of retrospective data for MRI and CT wait time targets, with the 90th percentile being the preferred retrospective measurement. For prospective data assessment, the N3 (third next available appointment) time is encouraged for additional perspective – as defined in this report.

**RECOMMENDATION 9:**

That all referrals for MRI and CT scans should comply with national guidelines, such as the Canadian Association of Radiologists' referral guidelines.

**RECOMMENDATION 10:**

That it is the referring physician's responsibility to follow the patient clinically while they are on a waiting list and to communicate to the radiology department any changes in the patient's clinical condition that would merit changing the examination priority category.

**RECOMMENDATION 11:**

That the patient and the referring physician be given the appointment date as soon as it is established, so that both parties are aware of the length of the wait.

**RECOMMENDATION 12:**

That, to ensure data accuracy and reporting compliance, national standards for data collection and auditing be established and implemented.

**RECOMMENDATION 13:**

That the definition and prioritization for wait times for MRI and CT be further sub-categorized to allow more refined prioritization. This can be done as a future step to capture the complexities of decision-making for medical imaging (e.g. by body area and/or specific conditions like oncology).

Finally, moving forward, the CAR plans to undertake further work in the following areas of medical imaging benchmarks and access, if appropriate:

- Expansion of wait time guidance into sub-category areas for MRI and CT for prioritization classification.
- Expansion of CAR wait time guidance into other modalities, such as Ultrasound and Fluoroscopy, amongst others.
- Collection and review of existing medical imaging access to care strategies and best practices used in Canada to facilitate the sharing of these strategies and best practice strategies that may benefit other jurisdictions.

## BACKGROUND

The Canadian Association of Radiologists (CAR) is the national voice of radiologists in Canada, advocating for patient safety and quality in medical imaging. The CAR is a member of the Wait Time Alliance (WTA)<sup>2</sup> which was formed following the 2004 First Ministers' Health Accord. The Accord identified wait times as a priority area for Canadian health care. Specifically, the First Ministers acknowledged the importance of wait times in their *10-Year Plan to Strengthen Health Care*<sup>3</sup> and committed to developing benchmarks for medically acceptable wait times in five priority areas — cancer, cardiac care, diagnostic imaging (DI), joint replacement, and sight restoration. For diagnostic imaging, wait times for MRI (magnetic resonance imaging) and CT (computed tomography) were pinpointed as the areas of focus.

In 2012, the Standing Senate Committee on Social Affairs, Science and Technology undertook a review of the 2004 Health Accord and reported on the progress of the 10-year plan to strengthen health care. In its report, *Time for Transformative Change*<sup>4</sup>, the Committee recommended that “provinces and territories continue to develop strategies to address wait times in all areas of specialty care...” and that “the federal government work with provinces, territories and relevant health care and research organizations to develop evidence-based pan-Canadian wait time benchmarks for all areas of specialty care that start when the patient first seeks medical help.”

Since 2005, the WTA has produced annual reports on the progress of addressing wait times in the five priority areas. Clinical specialties established the national targets for

wait times in these priority areas. More recently, the WTA, through the work of participating clinical specialty organizations, has expanded its list of areas to be tracked (for a complete list see the most recent *2012 WTA report card*)<sup>5</sup>. The 2012 WTA report card also clearly highlights that there has been almost no progress in medical imaging wait times for MRI and CT, in spite of the wait time focus of the 2004 Health Accord. Recognizing any guidance that has been produced should undergo periodic review for continuing relevance in light of any new evidence or literature, the CAR has determined that the medical imaging benchmarks for MRI and CT, which were established in 2005, should be updated.

Pan-Canadian medical imaging wait time benchmarks are needed to provide a standardized national measurement tool and methodology which can support progress.

There is wide variation in current national practice with respect to collection and assessment of medical imaging wait times. Provincial activities range from minimal to full implementation of provincial benchmarks. Information obtained from pan-Canadian medical imaging wait time benchmarks can provide an objective assessment of access. This information can be used to support and promote equitable access to imaging based on medical need, regardless of geographic challenges. The CAR report hopes to bring benefit to provincial processes by creating standardized definitions and methodology for wait times and measurements that will enable consistent collection, tracking and reporting of medical imaging wait time data across Canada. The report outlines the process the CAR undertook for that review and its recommendations.

Pan-Canadian medical imaging wait time benchmarks are needed to provide a standardized national measurement tool and methodology which can support progress.

<sup>2</sup> <http://www.waittimealliance.ca>

<sup>3</sup> <http://www.hc-sc.gc.ca/hcs-sss/delivery-prestation/fptcollab/2004-fmm-rpm/index-eng.php>

<sup>4</sup> <http://www.parl.gc.ca/Content/SEN/Committee/411/soci/rep/rep07mar12-e.pdf>

<sup>5</sup> [http://www.waittimealliance.ca/media/2012reportcard/WTA2012-reportcard\\_e.pdf](http://www.waittimealliance.ca/media/2012reportcard/WTA2012-reportcard_e.pdf)



## METHODS

The project was led by an Expert Panel and augmented by a Consensus Group of the Canadian Association of Radiologists (CAR).

The Expert Panel and Consensus Group were comprised of a pan-Canadian group of radiologists as listed in Appendix C. The Expert Panel and Consensus Group undertook two processes, a systematic literature review and a consensus-building process in the creation of its recommendations.

The Expert Panel undertook a landscape review to identify current activities in all provinces regarding medical imaging benchmarks. It undertook a review of existing priority grading systems, as well as current indicators related to medical imaging access tracking and reporting.

### LITERATURE SEARCH

The Expert Panel also undertook a targeted literature review of Diagnostic Imaging wait times, access delays and patient outcomes. The search strategy was performed in MEDLINE. The strategy for MEDLINE is summarized in Appendix D.

### STUDY SELECTION CRITERIA

All systematic reviews and primary studies that address the question of interest were included.

The inclusion criteria for systematic reviews were:

- Contained evidence related to change in patient management, clinical outcomes;
- Dedicated to wait times for diagnostic imaging.

The inclusion criteria for clinical trials were:

- Prospective clinical studies related to wait times for diagnostic imaging;
- Study published in a peer-reviewed journal;
- Study reported evidence related to change in patient management, clinical outcomes.

The citations and abstracts from the literature search were reviewed by an expert panel member and marked as relevant or not relevant, according to the inclusion criteria.

A bibliography of documents reviewed by the group is listed in Appendix E.

From the systematic review, 69 articles were identified. An expert panel member reviewed the abstracts for each of these articles. No systematic review or clinical trial was identified through the search that met the systematic search inclusion criteria.

## CONSENSUS-BUILDING PROCESS

A consensus approach was used in developing this report. Two methods are commonly used for consensus-based guidelines: nominal group or Delphi. The nominal technique involves repeated discussions in a round-table setting, with a mediator facilitating the process by soliciting differing perspectives and reducing misunderstandings. In the Delphi method, two or more rounds of postal surveys are used, with feedback of results to participants after each round. Both methods were used in the development of the recommendations in this report.

The Expert Panel was expanded to create a Consensus Group and the consensus approach included several teleconferences and an online survey of questions related to all sections of this report as contained in Appendix F. Survey responses were considered by the Consensus Group to reach consensus on the report content.

A process of external review of the draft report was also undertaken to allow input by the full CAR membership and various stakeholder organizations as listed in Appendix G.

Responses to the external review were then considered by the Consensus Group, following which this final report was prepared.



# RESULTS AND RECOMMENDATIONS

## INCLUSION/EXCLUSION POPULATIONS

Currently, some jurisdictions across Canada only capture data for wait times for outpatients and do not capture data for other areas such as inpatients, emergency and pediatrics.

The CAR, in considering who to include in the tracking and reporting of MRI and CT wait times, recommends the following:

**Inclusion: All patients waiting for an MRI or CT scan**

**Exclusion: Defined by Dates Affecting Readiness to Treat/Examine (DARTs) on page 13 of this report**

The Canadian Association of Radiologists supports the collection of data for all patients waiting, with the exception of those who have Dates Affecting Readiness to Treat/Examine (DARTs) associated with them.

## DEFINING THE MEDICAL IMAGING WAIT TIME

The CAR recommends that the following definitions be used in collecting, tracking and reporting MRI and CT wait times.

**MRI or CT Scan Referral Date:** The date on which a request for consultation for an MRI or CT Scan is completed and signed by the referring clinician.

**MRI or CT Scan Order Received Date:** The date on which the requisition for an MRI or CT Scan is received at the Medical Imaging Booking (clerical) office.

**MRI or CT Scan Completed Order Received Date:** The date on which the completed requisition for an MRI or CT Scan is received at the Medical Imaging Booking (clerical) office.

**MRI or CT Scan Completed Order:** An order that has all required patient, physician, clinical, and MRI and CT safety information and has been protocolled by the radiologist.

**MRI or CT Scan Finished Date:** The date on which the MRI or CT Scan is successfully finished, as per the expected protocol.

**Priority Coding Date:** The date on which a radiologist has officially assigned the priority code for an MRI or CT examination.

Note: Priority Coding Date is another date that is encouraged to be monitored locally, as this may contribute to the entire wait time if radiologists are not completing this promptly.

**Report Signed Date:** The date on which a radiologist has officially signed off on the written report for an MRI or CT examination. This includes electronic signature.

**Cancellation List:** A list of patients and their contact information, whose requisitions have been reviewed and protocolled, who are available to attend an MRI or CT Scan appointment at short notice, due to a last-minute availability in the MRI or CT schedule.

## DEFINING HOW WAIT TIMES ARE MEASURED

The CAR recommends that the following definitions be used in measuring MRI and CT wait times.

**Measurement:** Wait times are measured in calendar days.

**Wait Time:** MRI or CT Scan Completed Order Received Date to MRI or CT Scan Finished Date. The wait time from the date a completed referral for a medical examination is received until the date the examination is finished.

Although for the purpose of tracking wait time performance against MRI and CT maximum time interval targets, the 'wait time' is defined as the wait from Completed Order Received Date to MRI or CT Scan Finished Date, the CAR also recommends that the MRI or CT Scan Order Received Date also be recorded and tracked. This will allow capturing any wait time that occurs to obtain a completed referral for a medical examination, where the referral must be returned to the referring physician for more information. This is an important part of the entire wait for the patient, and tracking it will allow jurisdictions to determine if strategies are required to address delays in this area.

**Wait Time for Report:** The time interval from the MRI or CT Scan Finished Date to Report Signed Date.

With respect to the 'wait time to report,' with new technologies, the reports can be reviewed by the referring physician as soon as they are signed. In institutions without these technologies, there may be an additional wait from the time the report is signed to the time that the referring physician has access to the report. The CAR recommends that for these institutions, this time interval should also be tracked and reported.

## DEFINING HOW WAIT TIMES ARE REPORTED

The CAR recommends that the following definitions be used in reporting MRI and CT wait times. These are based on retrospective data.

The patients in each priority category have diverse medical conditions. The 90th percentile is the preferred measurement for multimodal distributions.

**90th Percentile Wait Time:** 90% of patients waited less than or equal to this number of days between the MRI or CT Completed Order Received Date and the MRI or CT Scan Finished Date.

**Median Wait Time:** The point at which half the patients have had their medical imaging examination and the other half are still waiting, with the wait time defined as the wait between the MRI or CT Completed Order Received Date and the MRI or CT Scan Finished Date.

**Average Wait Time:** The average (or mean) length of time a patient waited to have their medical imaging examination, with the wait time defined as the wait between the MRI or CT Completed Order Received Date and the MRI or CT Scan Finished Date.

The CAR also encourages reporting on **prospective data** for MRI and CT wait times with the following definition:

**N3 Time:** The time in calendar days until the third next available appointment in the appropriate priority (P) category.

Although not critical, this N3 data provides an additional perspective on the wait time.

## DEFINING THE MRI AND CT WAIT TIMES PRIORITIZATION CLASSIFICATION SYSTEM

The CAR recommends using a five-point classification system in the collection, tracking and reporting of MRI and CT wait times.

### Five-point classification system

1. Priority 1 (P1)
2. Priority 2 (P2)
3. Priority 3 (P3)
4. Priority 4 (P4)
5. Specified Procedure Date

The CAR recommends that the following priority definitions be used in the prioritization, tracking and reporting of MRI and CT wait times.

**NOTE:** It is important to emphasize that patients on the wait list require clinical monitoring. If, during the course of the wait time the patient's clinical condition changes, the wait priority needs to be reconsidered.

#### Priority 1

**P1:** Emergent: an examination necessary to diagnose and/or treat disease or injury that is immediately threatening to life or limb.

#### Priority 2

**P2:** Urgent – an examination necessary to diagnose and/or treat disease or injury and/or alter treatment plan that is not immediately threatening to life or limb. Based on provided clinical information, no negative outcome related to delay in treatment is expected for the patient if the examination is completed within the benchmark period.

#### Priority 3

**P3:** Semi-urgent – an examination necessary to diagnose and/or treat disease or injury and/or alter treatment plan, where provided clinical information requires that the examination be performed sooner than the P4 benchmark period.

#### Priority 4

**P4:** Non-urgent – an examination necessary to diagnose and/or treat disease or injury, where, based on provided clinical information, no negative long-term medical outcome related to delay in treatment is expected for the patient if the examination is completed within the benchmark period.

For patients in the P4 category, it is important to acknowledge that although they would not be expected to have any long-term negative medical outcome when waiting for medical imaging, the patient's quality of life is impacted during this wait period. The CAR, therefore, highlights the need to attend to these imaging needs as expeditiously as possible.

#### Specified Procedure Date

**Specified Procedure Date:** The MRI or CT Scan appointment date requested by the ordering physician for the purpose of disease surveillance.

The CAR recommends that when assessing data for wait time performance, patients falling into this category not be used in the data analysis (as is also suggested for patients with DARTs associated with them - see page 13 for a list of DARTs), as this can lead to an inaccurate assessment of wait time performance in general. However, it is important to track whether patients do, in fact, receive their imaging on the Specified Procedure Date and, if not, when they receive it. It is recommended to track performance against specified dates, as poor performance in P1-P4 categories may alter performance in this category, creating a serious concern in patient care for which strategies should be developed.

It is important to emphasize that patients on the wait list require clinical monitoring. If, during the course of the wait time the patient's clinical condition changes, the wait priority needs to be reconsidered.

## DEFINING MAXIMUM TIME INTERVAL TARGETS

The CAR recommends that the following maximum time interval targets be used in the tracking and reporting of MRI and CT wait times.

### P1 Maximum Time Interval Target for MRI and CT

**P1:** Same day - 24 hours\*

\* For emergent/life-threatening conditions, some patients require imaging in even less than an hour and these decisions are based on the clinical team's judgment.

### P2 Maximum Time Interval Target for MRI and CT

**P2:** 7 calendar days\*

\*There is a spectrum of "urgency" within the urgent category. In most instances the exam should be completed as soon as possible after the referral is received. However, in some cases (depending on medical need as determined by the clinical team's judgment), while the need is still urgent, a maximum wait time of seven days may be medically acceptable.

### P3 Maximum Time Interval Target for MRI and CT

**P3:** 30 calendar days

### P4 Maximum Time Interval Target for MRI and CT

**P4:** 60 calendar days

### Radiologist Maximum Report Turn-Around Time

- Emergent (P1) reports – Immediate reporting is the expectation, with a maximum time of 1 hour for finalized report completion. Additionally, direct verbal or immediate written communication is considered the standard of practice.
- Urgent (P2) reports – Maximum reporting time of 12 hours. Depending on the clinical situation and based on medical need, direct verbal or immediate written communication may be necessary to expedite patient care in this category.
- All other examinations (P3 and P4) reports – Maximum four calendar days.

The CAR maximum interval time targets are a tool that can be used to obtain measurements nationally that define the current wait time and access environment for medical imaging care. These targets can be used as a standard against which future measurements can be referenced for benchmarking medical imaging care access into the future.

These targets can be used as a standard against which future measurements can be referenced for benchmarking medical imaging care access.

## DEFINING DATES AFFECTING READINESS TO TREAT/EXAMINE (DARTS)

The method and term of Dates Affecting Readiness to Treat/Examine (DARTs) is what is commonly used in Ontario for DI (and surgery) to identify patient-related and systems-related delays for MRI and CT Scans. We have chosen to use this term in this report, although other jurisdictions may use other equally acceptable terminology.

Examples of DARTs include:

- Patient chooses to defer
- Patient is a no-show for appointment
- Patient preference
- Patient is claustrophobic
- Patient does not follow required preparation leading up to scan
- New disclosure of contrast allergy by patient
- Patient cannot be contacted
- Patient is now an inpatient at another health care facility
- Incomplete MRI or CT Scan requisition
  - Undisclosed body habitus
  - Undisclosed renal function
- Additional follow-up required for MRI safety reasons
- Patient required orbit x-rays, pre-MRI
- Patient requiring general anesthetic
- Patient requiring infusion for imaging
- Patient not properly notified by doctor's office of appointment
- Patient cannot find scanner location or appeared at wrong location

As DARTs skew performance measures, the CAR recommends that radiology information systems (RIS) have the capacity to capture DARTs and that cases with DARTs not be included in the data to assess wait time performance.



## DEFINING CLINICAL SCENARIOS WITHIN THE PRIORITY CATEGORIES

Recognizing the complexities of decision-making for medical imaging care, including the impact medical imaging has on determining management of patient care, the CAR recommends the future definition and prioritization of wait times for MRI and CT in sub-category areas. Appropriate sub-categories to be used within the priority categories are still to be determined but may include, among others, the following:

Neuro	Pediatrics	Cardiac
MSK	Breast MRI	Thoracic
Body	Oncology	Obstetrical MRI

Following further consultation, the Canadian Association of Radiologists will undertake this body of work in 2013–2014, if appropriate.

## DEFINING THE REFERRAL FORM AND PROCESS

The Canadian Association of Radiologists promotes the following approach to referral forms for medical imaging requests:

- All referrals for MRI and CT scans should comply with national guidelines, such as the Canadian Association of Radiologists' referral guidelines.

Concerning the referral process, the Canadian Association of Radiologists recommends:

- That it is the referring physician's responsibility to follow the patient clinically while they are on a waiting list and to communicate to the radiology department any changes in the patient's clinical condition that would merit changing the examination priority category.
- That the patient and the referring physician be given the appointment date as soon as it is established, so that both parties are aware of the length of the wait.

## DEFINING DATA QUALITY

The Canadian Association of Radiologists promotes the following approach to data quality in tracking and reporting wait times:

- To ensure data accuracy and reporting compliance, national standards for data collection and auditing should be established and implemented.



# CONCLUSION

The recommendations in this report are geared towards supporting clear and consistent collecting, tracking and reporting on wait times for MRI and CT medical imaging examinations throughout Canada.

Moving forward, the CAR plans to undertake further work in the following areas of medical imaging benchmarks and access, if appropriate:

- Expansion of wait time guidance into sub-category areas for MRI and CT for prioritization classification.
- Expansion of CAR wait time guidance into other modalities, such as Ultrasound and Fluoroscopy, amongst others.
- Collection and review of existing medical imaging access to care strategies and best practices used in Canada to facilitate the sharing of these strategies and best practice strategies that may benefit other jurisdictions.

## APPENDIX A – 2005 WTA BENCHMARKS

**The 2005 Benchmarks established by the CAR for the Wait Time Alliance (WTA) were as follows:**

- Emergency cases - Immediate to 24 h
- Urgent cases - Within 7 days
- Scheduled cases - Within 30 days

Priority or urgency levels are defined as follows:

- Emergency = Immediate danger to life, limb or organ
- Urgent = Situation that is unstable and has the potential to deteriorate quickly and result in an emergency admission
- Scheduled = Situation involving minimal pain, dysfunction or disability (also called “routine” or “elective”).

## APPENDIX B – GLOSSARY

**MRI or CT Scan Referral Date:** The date on which a request for consultation for an MRI or CT Scan is completed and signed by the referring clinician.

**MRI or CT Scan Order Received Date:** The date on which the requisition for an MRI or CT Scan is received at the Medical Imaging Booking (clerical) office.

**MRI or CT Scan Completed Order Received Date:** The date on which the completed requisition for an MRI or CT Scan is received at the Medical Imaging Booking (clerical) office.

**MRI or CT Scan Completed Order:** An order that has all required patient, physician, clinical, and MRI and CT safety information and has been protocolled by the radiologist.

**MRI or CT Scan Finished Date:** The date on which the MRI or CT Scan is successfully finished, as per the expected protocol.

**Priority Coding Date:** The date on which a radiologist has officially assigned the priority code for an MRI or CT examination.

**Report Signed Date:** The date on which a radiologist has officially signed off on the written report for an MRI or CT examination. This includes electronic signature.

**Cancellation List:** A list of patients and their contact information, whose requisitions have been reviewed and protocolled, who are available to attend an MRI or CT Scan appointment at short notice, due to a last-minute availability in the MRI or CT schedule.

**Measurement:** Wait times are measured in calendar days.

**Wait Time:** MRI or CT Scan Completed Order Received Date to MRI or CT Scan Finished Date. The wait time from the date a completed referral for a medical examination is received until the date the examination is finished.

**Wait Time for Report:** The time interval from the MRI or CT Scan Finished Date to Report Signed Date.

**90th Percentile Wait Time:** 90% of patients waited less than or equal to this number of days between the MRI or CT Scan Completed Order Received Date and the MRI or CT Scan Finished Date.

**Median Wait Time:** The point at which half the patients have had their medical imaging examination and the other half are still waiting, with the wait time defined as the wait between the MRI or CT Scan Completed Order Received Date and the MRI or CT Scan Finished Date.

**Average Wait Time:** The average (or mean) length of time a patient waited to have their medical imaging examination, with the wait time defined as the wait between the MRI or CT Scan Completed Order Received Date and the MRI or CT Scan Finished Date.

**Specified Procedure Date:** The MRI or CT Scan appointment date requested by the ordering physician for the purpose of disease surveillance.

**N3 Time:** The time in calendar days until the third next available appointment in the appropriate priority (P) category.

## APPENDIX C – CAR EXPERT PANEL AND CONSENSUS GROUP

The Expert Panel which undertook the initial work comprised:

- Dr. Julian Dobranowski, ON, Chair
- Dr. Paul Babyn, SK
- Dr. Rick Bhatia, NL
- Dr. Bruce Forster, BC
- Dr. Walter Kucharczyk, ON
- Dr. Blake McClarty, MB
- Dr. Christine Molnar, AB
- Dr. Mark Schweitzer, ON

The group was further expanded as below to undertake an additional consensus process.

The CAR Consensus Group comprised:

- Dr. Julian Dobranowski, ON, Chair
- Dr. John Allan, NB
- Dr. Paul Babyn, SK
- Dr. Rick Bhatia, NL
- Dr. Alan Brydie, NS
- Dr. Bruce Forster, BC
- Dr. Walter Kucharczyk, ON
- Dr. Blake McClarty, MB
- Dr. Christine Molnar, AB
- Dr. Viviane Nicolet, QC
- Dr. Mark Schweitzer, ON

## APPENDIX D – MEDLINE SEARCH

MEDLINE Search strategy – Systematic review on MRI/CT wait times/Access and clinical outcomes

Search run December 5, 2012

Retrieval period from 1946 to December 2012

### Ovid MEDLINE®

- 1 exp Morbidity/ (333436)
- 2 exp mortality/ (259647)
- 3 1 or 2 (569775)
- 4 exp Waiting Lists/ (7828)
- 5 (wait adj time:).ti,ab. (829)
- 6 (delay: or wait: or timing or time).ti. (191013)
- 7 4 or 5 or 6 (196757)
- 8 exp Randomized Controlled Trial/ (342532)
- 9 exp Controlled Clinical Trial/ (85711)
- 10 random allocation/ (76622)
- 11 double blind method/ (118555)
- 12 exp Single-Blind Method/ (17105)
- 13 (clin: adj trial:).ti,ab. (179063)
- 14 ((singl: or doubl: or tripl: or trebl:) adj (mask: or blind:)).ti,ab. (116159)
- 15 random:.ti,ab. (587100)
- 16 research design/ (68723)
- 17 exp cohort studies/ (1235060)
- 18 ((control: adj3 (group: or condition:)) or (control: adj2 (trial: or study or studies))).tw. (513172)
- 19 (cohort adj (study or studies or trial or trials)).tw. (66080)
- 20 prospective studies/ (334412)
- 21 intervention studies/ (5705)
- 22 exp case control studies/ (586769)
- 23 exp Meta-Analysis/ (37995)
- 24 exp Practice Guideline/ (17497)
- 25 exp \*Diagnostic Imaging/ (589328)
- 26 exp \*Magnetic Resonance Imaging/ (114121)
- 27 exp \*Tomography, X-Ray Computed/ (87297)
- 28 25 or 26 or 27 (589328)
- 29 or/8-24 (2426104)
- 30 3 and 7 and 28 and 29 (69)

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# APPENDIX F – CONSENSUS GROUP SURVEY

The following is the list of questions asked on the Consensus Group survey.  
Each question allowed the opportunity to respond as follows:

Yes \_\_\_

No \_\_\_

If no, what do you recommend as an alternative? \_\_\_\_\_

## PART I: DEFINING THE MEDICAL IMAGING WAIT TIME

### 1. Do you agree with the following definition for “MRI or CT Scan Referral Date”?

**MRI or CT Scan Referral Date:** The date on which a request for consultation for an MRI or CT Scan is completed and signed by the referring clinician.

**NOTE:** This data currently cannot be captured

### 2. Do you agree with the following definition for “MRI or CT Scan Order Received Date”?

**MRI or CT Scan Order Received Date:** The date on which the requisition for an MRI or CT Scan is received at the Medical Imaging Booking (clerical) office.

**NOTE:** Question 3 captures the issue of receipt of “completed” request

### 3. Do you agree with the following definition for “MRI or CT Scan Completed Order Received Date”?

**MRI or CT Scan Completed Order Received Date:** The date on which the completed requisition for an MRI or CT Scan is received at the Medical Imaging Booking (clerical) office.

**NOTE:** Since there may be considerable delay related to completion of the requisition, this time period must be captured

### 4. Do you agree with the following definition for “Medical Imaging Scan Completed Date”?

**Medical Imaging Scan Completed Date:** The date on which the MRI or CT Scan is successfully completed as per the expected protocol.

### 5. Do you agree with the following definition for “Report Verified Date”?

**Report Verified Date:** The date on which a radiologist has officially signed off on the written report for an MRI or CT examination. This includes electronic signature.

**NOTE:** Actual white paper will include a statement regarding academic centers, residents and fellows

**NOTE:** Significant delays can occur in centers without voice recognition and relying on transcription

### 6. Do you agree with the following definition for “Cancellation List”?

**Cancellation List:** A list of patients and their contact information, whose requisitions have been reviewed and protocolled, who are available to attend an MRI or CT Scan appointment at short notice, due to a last-minute availability in the MRI or CT schedule.



## **PART 2: DEFINING HOW WAIT TIMES ARE MEASURED**

### **7. Do you agree with the following approach for wait time “measurement”?**

**Measurement:** Wait times are measured in calendar days.

### **8. Do you agree with the following definition for “wait time”?**

**Wait time:** MRI or CT Scan Order Received Date to Medical Imaging Scan Completed date. The wait time from when a referral for a medical examination is received until the examination is completed.

**NOTE:** Question 9 has an alternate definition

### **9. Do you agree with the following definition for “wait time”?**

**Wait time:** MRI or CT Scan Completed Order Received Date to Medical Imaging Scan Completed date. The wait time from when a completed referral for a medical examination is received until the examination is completed.

**NOTE:** Question 8 has an alternate definition

### **10. Do you agree with the following definition for “wait time for report”?**

**Wait time for report:** The time interval from when the exam has been completed to when the report is made available to the referring physician.

## **PART 3: DEFINING HOW WAIT TIMES ARE REPORTED**

### **11. Do you agree that the following approach should be used in reporting on data on wait times?**

**90th percentile**

**NOTE:** Question on definition follows in question 15

### **12. Do you agree that the following approach should be used in reporting on data on wait times?**

**Median wait time**

**NOTE:** Question on definition follows in question 16

### **13. Do you agree that the following approach should be used in reporting on data on wait times?**

**Average wait time**

**NOTE:** Question on definition follows in question 17

### **14. Do you agree that the following approach should be used in reporting on data on wait times?**

**N3 time**

**NOTE:** Question on definition follows in question 18

### **15. Do you agree with the following definition for “90th percentile” for reporting on wait times?**

**90th percentile wait time:** 90% of patients waited less than or equal to this number of days between the date their referral was received and the date of the examination.

**16. Do you agree with the following definition for “median wait time” for reporting on wait times?**

**Median wait time:** This is the point at which half the patients have had their medical imaging examination and the other half are still waiting.

**17. Do you agree with the following definition for “average wait time” for reporting on wait times?**

**Average wait time:** This is the average (or mean) length of time a patient waited to have their medical imaging examination.

**18. Do you agree with the following definition for “N3 time” for reporting on wait times?**

**N3 time:** This is time in calendar days until the third next available appointment in the appropriate priority (P) category.

#### **PART 4: THE MEDICAL IMAGING WAIT TIMES PRIORITIZATION CLASSIFICATION/CATEGORIES THAT APPLY TO BOTH MRI AND CT**

**19. Do you agree with using the following five-point priority classification system for reporting on wait times?**

P1

P2

P3

P4

Specified Procedure Date

**NOTE:** Priority definitions are noted in questions 20-24

#### **PART 5: DEFINING THE MEDICAL IMAGING WAIT TIMES PRIORITIZATION CLASSIFICATION/CATEGORIES**

**20. Do you agree with the following definition for P1 (priority 1) for MRI and CT in a priority system classification?**

**P1: Emergent/Immediate:** an examination necessary to diagnose and/or treat disease or injury that is immediately threatening to life or limb.

**21. Do you agree with the following definition for P2 (priority 2) for MRI and CT in a priority system classification?**

**P2: Urgent:** an examination necessary to diagnose and/or treat disease or injury and/or alter treatment plan that is not immediately threatening to life or limb. Based on provided clinical information, no negative outcome related to delay in treatment is expected for the patient if the examination is completed within the benchmark period.

**22. Do you agree with the following definition for P3 (priority 3) for MRI and CT in a priority system classification?**

**P3:** Semi-urgent: an examination necessary to diagnose and/or treat disease or injury and/or alter treatment plan where clinical symptoms require that the examination be performed sooner than the P4 benchmark period.

**23. Do you agree with the following definition for P4 (priority 4) for MRI and CT in a priority system classification?**

**P4:** Non-urgent: an examination necessary to diagnose and/or treat disease or injury where, based on clinical information, no negative outcome related to delay in treatment is expected for the patient if the examination is completed within the benchmark period.

**24. Do you agree with the following definition for Specified Procedure Date for MRI and CT in a priority system classification?**

**Specified Procedure Date:** The MRI or CT Scan appointment date requested by the ordering physician for the purpose of disease surveillance.

**NOTE:** Specified Procedure Date is different than Dates Affecting Readiness to Treat/Examine (DARTS)

**PART 6: BENCHMARK TIMES**

**25. Do you agree with the following for “P1 maximum time interval target” for MRI and CT in a priority system classification?**

**P1:** Same day - 24 hours

**26. Do you agree with the following for “P2 maximum time interval target” for MRI and CT in a priority system classification?**

**P2:** 14 calendar days

**27. Do you agree with the following for “P3 maximum time interval target” for MRI and CT in a priority system classification?**

**P3:** 30 calendar days

**28. Do you agree with the following for “P4 maximum time interval target” for MRI and CT in a priority system classification?**

**P4:** 60 calendar days

**NOTE:** A 90-day target has also been discussed

**29. Do you agree with the following for the “radiologist report turn-around time” target?**

Radiologist report turn-around time: Urgent reports – same day

All other examinations - two calendar days

**NOTE:** Actual white paper will include a statement regarding academic centers, residents and fellows

**NOTE:** Significant delays can occur in centers without voice recognition and relying on transcription

## **PART 7: DEFINING DATES AFFECTING READINESS TO TREAT/EXAMINE (DART)**

### **30. Do you agree that DART lists should be compiled and DARTs should be captured and excluded from wait time calculations?**

**Dates Affecting Readiness to Treat/Examine (DART)** - are used to identify patient-related delays for MRI and CT Scans. Examples of DARTs include:

- Patient chooses to defer
- Patient is a no-show
- Patient preference
- Patient is claustrophobic
- Patient does not follow required preparation leading up to scan
- New disclosure of contrast allergy by patient
- Patient cannot be contacted
- Patient is now an Inpatient at another healthcare facility
- Incomplete MRI or CT Scan requisition
  - Undisclosed body habitus
  - Undisclosed renal function
- Additional follow-up required for MRI safety reasons
- Patient required orbit x-rays, pre-MRI
- Patient requiring general anesthetic
- Patient requiring infusion for imaging
- Patient not properly notified by doctor's office of appointment
- Patient cannot find scanner location or appeared at wrong location

**NOTE:** Specified Procedure Date is reviewed in question 24

## **PART 8: DEFINING CLINICAL SCENARIOS FALLING UNDER THE PRIORITY CATEGORIES**

**31. Do you agree that it would be valuable for the Canadian Association of Radiologists in future to further define wait times for MRI and CT in the following sub-categories?**

Neuro	Yes ___	No ___
Spine	Yes ___	No ___
MSK	Yes ___	No ___
Body	Yes ___	No ___
Oncology	Yes ___	No ___
Pediatrics	Yes ___	No ___
Breast MRI	Yes ___	No ___
Obstetrical MRI	Yes ___	No ___
Cardiac	Yes ___	No ___
Prostate	Yes ___	No ___

**NOTE:** In future, some of the categories may be grouped together

## **PART 9: DEFINING THE REFERRAL FORM**

**32. Do you believe that the Canadian Association of Radiologists should promote the following approach to referral forms for medical imaging requests?**

All referrals for MRI and CT scans should comply with the national referral standards.

## **PART 10: DEFINING DATA QUALITY**

**33. Do you believe that the Canadian Association of Radiologists should promote the following approach to data quality in tracking and reporting wait times?**

To ensure data accuracy and reporting compliance, national standards for data collection and auditing should be implemented.

**PART 11: INCLUSION/EXCLUSION POPULATIONS**

Inclusion: All patients waiting for an MRI or CT scan

Exclusion: Defined by DARTS (question 30)

**34. Currently, some jurisdictions only capture data for wait times for outpatients and do not capture data for other areas, such as inpatients, emergency, pediatrics, and others. Do you believe that all patients waiting for an MRI or CT scan should be captured in the data?**

**PART 12: WORKING GROUP (WG) PARTICIPATION AND ADDITIONAL INPUT**

**35. The methods used by the WG to develop the national imaging maximum wait time targets were transparent (circle one).**

Strongly agree	Agree	Disagree	Strongly disagree
1	2	3	4

Comments: \_\_\_\_\_

**36. The methods used by the WG to develop the national imaging maximum wait time targets were appropriate.**

Strongly agree	Agree	Disagree	Strongly disagree
1	2	3	4

Comments: \_\_\_\_\_

**37. I am satisfied with my opportunities to develop the national imaging maximum wait time targets.**

Strongly agree	Agree	Disagree	Strongly disagree
1	2	3	4

Comments: \_\_\_\_\_

**38. What are possible barriers that you foresee to reaching the targets in your province, other than financial and human resource? \_\_\_\_\_**

# APPENDIX C – STAKEHOLDER OUTREACH

## All CAR members

### Medical imaging organizations:

Canadian Interventional Radiology Association  
Canadian Association of Medical Radiation Technologists  
Canadian Association of Nuclear Medicine (also a Wait Time Alliance member)  
Canadian Society of Diagnostic Medical Sonographers  
Canadian Organization of Medical Physicists  
British Columbia Radiological Society  
Alberta Society of Radiologists  
Manitoba Association of Radiologists  
Radiological Society of Saskatchewan  
Ontario Association of Radiologists  
Association des radiologistes du Québec  
Nova Scotia Association of Radiologists  
Prince Edward Island Association of Radiologists  
New Brunswick Association of Radiologists  
Newfoundland & Labrador Association of Radiologists

### Wait Time Alliance members:

Canadian Anesthesiologists' Society  
Canadian Association of Emergency Physicians  
Canadian Association of Gastroenterology  
Canadian Association of Paediatric Surgeons  
Canadian Association of Radiation Oncology  
Canadian Cardiovascular Society  
Canadian Medical Association  
Canadian Ophthalmological Society  
Canadian Orthopaedic Association  
Canadian Psychiatric Association  
Canadian Society of Plastic Surgeons  
Society of Obstetricians and Gynaecologists of Canada

### Wait Time Alliance partners:

Canadian Association of General Surgeons  
College of Family Physicians of Canada  
Canadian Geriatrics Society

### Other:

Canadian Medical Association and Provincial/Territorial Medical Associations  
Provincial/territorial governments wait times representatives



Canadian Association of Radiologists  
L'Association canadienne des radiologistes

613 860-3111 [INFO@CAR.CA](mailto:INFO@CAR.CA) [WWW.CAR.CA](http://WWW.CAR.CA)