

The Joint Department of MEDICAL IMAGING
University Health Network • St. Michael's Hospital • St. Joseph's Hospital

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MRI Rapid Diagnostic Pilot

Why

- Increase capacity
- Improve patient experience
- Keep costs constant

Outcomes

- **40% faster** scans
- Opened up **766** hours
- **2,322** more patients

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The Pilot

- **6 month** trial
- **1,200 scans completed**
- **Stakeholder Feedback:** identified delay causes, shared success strategies and process improvements
- **Auditing:** Monitored exam time & risk related to new protocols, ensured quality

The Goal

1. Create rapid MRI exam protocols for new patient populations
2. Expand model to other MRI departments

Setup

- **Team:** Radiologists, technologists, booking staff, administrators
- **Population:** Patients requiring less complex MRI scans

Results

- **Capacity increase:** opened up a potential **766 MRI hours**, for an **extra 2,322** rapid patients per year
- **Quality remained comparable**
- Increased **workload** was **manageable** through streamlined processes
- Program under development to **expand** the MRI Rapid Diagnostic model to other MRI Centres

Project Timeline

Jan 2013

Pilot Design

Team assembled
A multi-disciplinary team of radiologists, technologists, booking staff, and administrators

Patient population identified & rapid protocols developed

Neuro

- Rapid Brain
- Rapid IAC

MSK

- Rapid Knee
- Rapid Shoulder

Abdo

- Rapid Pancreas
- Rapid Post UFE
- Rapid Fistula

Exclusions were made based on specific indications to manage safety and risk in each population. Examples include indications of: tumor, surgery history, trauma

Pilot Design (continued)

Mar 2013

Defined pilot measures

Process Measures					
Demand	Volumes	Booking turnaround time	Scan processing time	Room turnaround time	Report turnaround time

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Outcome Measures					
Pilot wait times	Pilot call back wait times	Wait list	Scans per hour	Call back rate	Report quality* (image quality)

Mar 2013

Pilot Rollout



Conducted scans

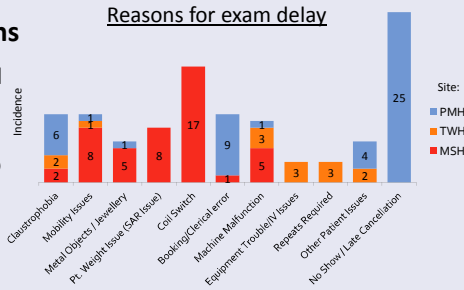
- 1,200 rapid scans completed as part of the pilot

Completed audits and observations

- Ensured that exam times were within reasonable range of the 20 minute target
- Ensured that pilot data was complete, accurate, and valid
- Recorded and investigated any issues experienced in booking or performing rapid exams

Recorded issues, shared solutions

Clerical and technologist staff recorded instances of specific issues that caused delays or poor data quality. Additionally, staff gathered regularly to share progress, raise issues, and solve problems together. Progress on wait times, exam durations, and other metrics were reviewed regularly, to avoid risks to quality of care, but also to gather suggestions for improvement in each area. As expected, several metrics – including exam durations – improved over the course of the pilot thanks to this regular review.



Jul 2013

Evaluation



Analyzed pilot measures

Body Area	Rapid (mins)	Routine (mins)	Time Savings	Annual Demand	Additional Patients
Knee	18.98	32.98	42%	1620	1195
Shoulder	20.43	32.92	38%	657	402
Brain	19.97	33.42	40%	835	562
IAC	22.28	32.22	31%	362	145
Post UFE	24.97	26.30	5%	110	6
Fistula	40.77	44.08	8%	59	5
Pancreas	31.17	46.22	33%	16	8

Measured and confirmed quality

Image quality remained high: 1 of over 1,200 patients required a repeat MRI due to sub-par images. A physician-led quality assurance review of over 200 cases did not identify a single case where a peer review of the diagnosis differed from the original diagnosis. The success in diagnostic quality can be attributed to requisite diagnostic image quality produced by the new protocols.

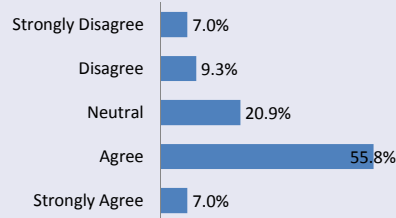
Jul 2013

Evaluation (continued)



Staff satisfaction measured

"I feel that my department worked collaboratively to solve problems during the pilot execution"



Cost measures

Due to capacity to scan a greater number of cases per year, cost implications of additional image storage were considered. Assessment of these costs proved them negligible.

Additionally, implications of contrast medium costs due to increased cases per year was considered. Due to the small proportion of contrast cases participating in the pilot, contrast media cost was found to be low.



Ongoing

Transition to Operations



Adopted		Not adopted
<input type="checkbox"/> Rapid Knee	<input type="checkbox"/> Rapid IAC	<input type="checkbox"/> Rapid Fistula
<input type="checkbox"/> Rapid Brain	<input type="checkbox"/> Rapid Post-UFE	
<input type="checkbox"/> Rapid shoulder	<input type="checkbox"/> Rapid Pancreas	

Next Steps

The recommendations included implementing the MRI Rapid Diagnostic model at other MRI centres in Ontario. This could be supported by the development of a toolkit for implementing the model; and to address change management challenges, a provincial program engagement can be designed to assist and facilitate rapid protocol implementation across Ontario's hospitals.

The MRI Rapid Diagnostic Pilot was sponsored by the Toronto Central LHIN (Local Health Integration Network)

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