

Evaluating Ontario's Provincial MRI Process Improvement Project

MRI PIP Overview

The **Provincial MRI Process Improvement Project (MRI PIP)** was a part of the province of Ontario's Wait Time Strategy to improve patient access to MRI services by decreasing wait times. The project used Lean Six Sigma methodology, which strives to improve processes and reduce variation by eliminating bottlenecks and standardizing workflow.

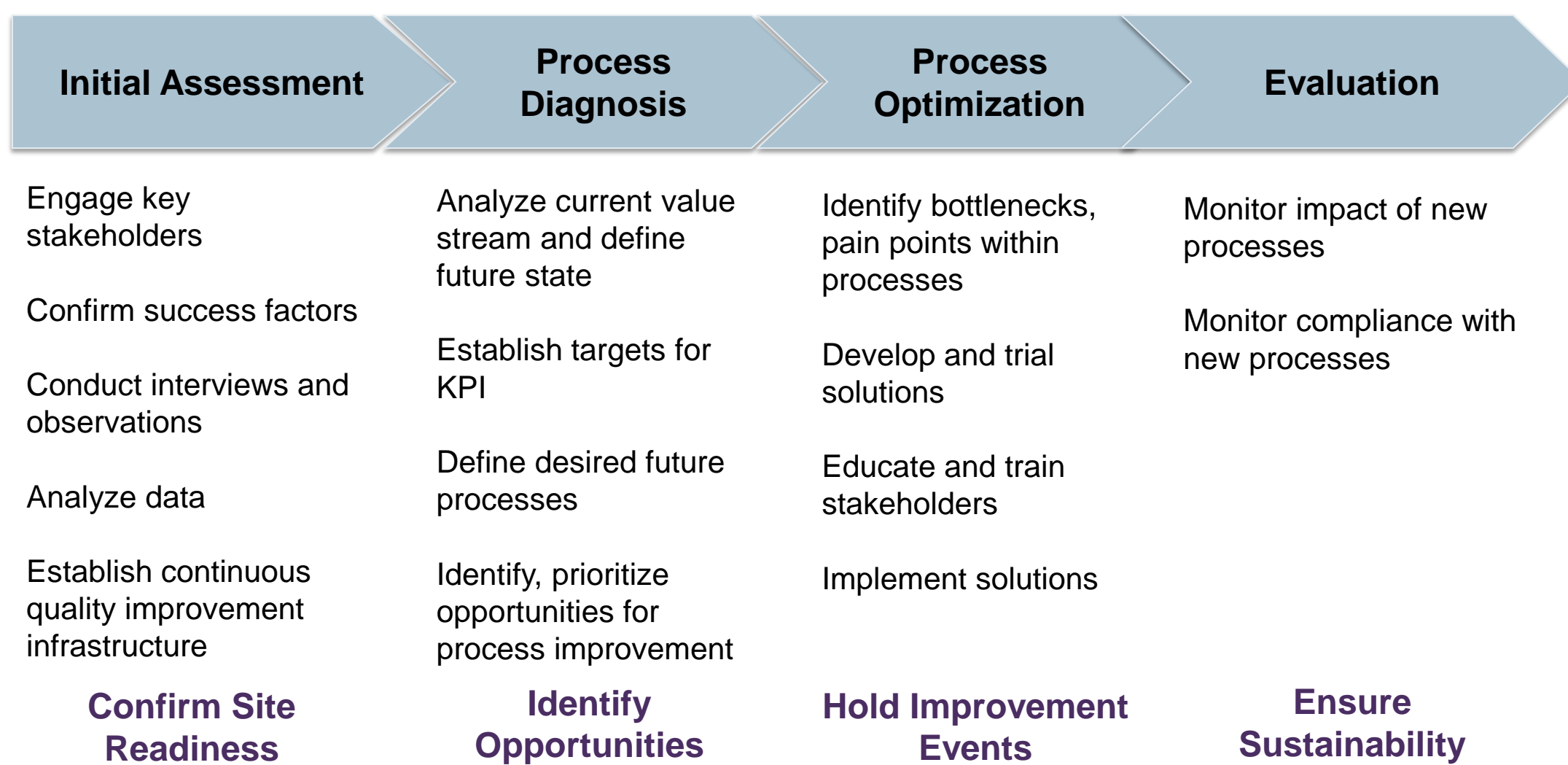
MRI PIP focused on:

- Improving MRI **capacity** on existing machines
- Creating **sustainable improvements** in patient flow and access to services
- Optimizing **resource utilization** and streamlining processes

MRI PIP was executed at 57 sites over four years. Three different engagement models were used.

| Model 1 1 Year Intensive (22 sites) | Model 2 7 Month Condensed (19 sites) | Model 3 Light Touch (16 sites) |
|---|---|--|
| <ul style="list-style-type: none"> • For sites with wait times greater than 112 days • intensive on-site support, Lean training | <ul style="list-style-type: none"> • For sites with wait times between 70 to 112 days • Included on-site support, Lean training | <ul style="list-style-type: none"> • For sites with wait times between 28 and 70 days • Two day best practices workshop and one 1.5 hour interactive webinar |

MRI PIP Approach



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The team would like to thank all of the hospitals and coaches that we had the honour of working with over the past 4 years.

Tracking MRI PIP Progress

High Level Measures

| | |
|---|--|
| Wait Time Days between order received and performed (90 th percentile) | Patients/Operating Hour Count of orders completed/Sum of operating hours |
| Patient Volume Count of orders completed | Demand Count of orders received |

Booking Measures

| | |
|--|---|
| Booking Turnaround Time Average time between requisition received and appointment made | Planned Operating Hour Utilization Sum of planned scan time/ Sum of operating hours |
|--|---|

Day of Exam Measures

| | |
|---|--|
| No Show Rate Sum of no-show patients / Total appointments made | Urgent Time Utilization Sum of urgent scan time / urgent hours allocated in the schedule |
| Room Turnaround Time Time between the patient exiting the scan room and the next patient entering | Actual Operating Hour Utilization Sum of actual scan time/Sum of operation hours |

MRI Best Practices www.mritoolkit.ca

The most common issues and the solutions that resulted in sustained improvements were documented on the MRI PIP website www.mritoolkit.ca.

| Booking Process | Allocation of MRI Time | Flow on Day of Exam |
|--|---|---|
| <ul style="list-style-type: none"> • Ensure adequate time to fill schedule • Minimize information hand-offs • Develop standard protocols • Ensure patients are informed of MRI requirements in advance | <ul style="list-style-type: none"> • Align amount of time planned for exams with actual scan durations • Align amount of time in schedule according to case mix • Ensure allocation of time in schedule promotes efficiency on day of exam | <ul style="list-style-type: none"> • Ensure MRI area, staffing levels promote efficient workflow • Ensure referring depts. informed of MRI requirements • Ensure transparency within processes • Standardize workflow |

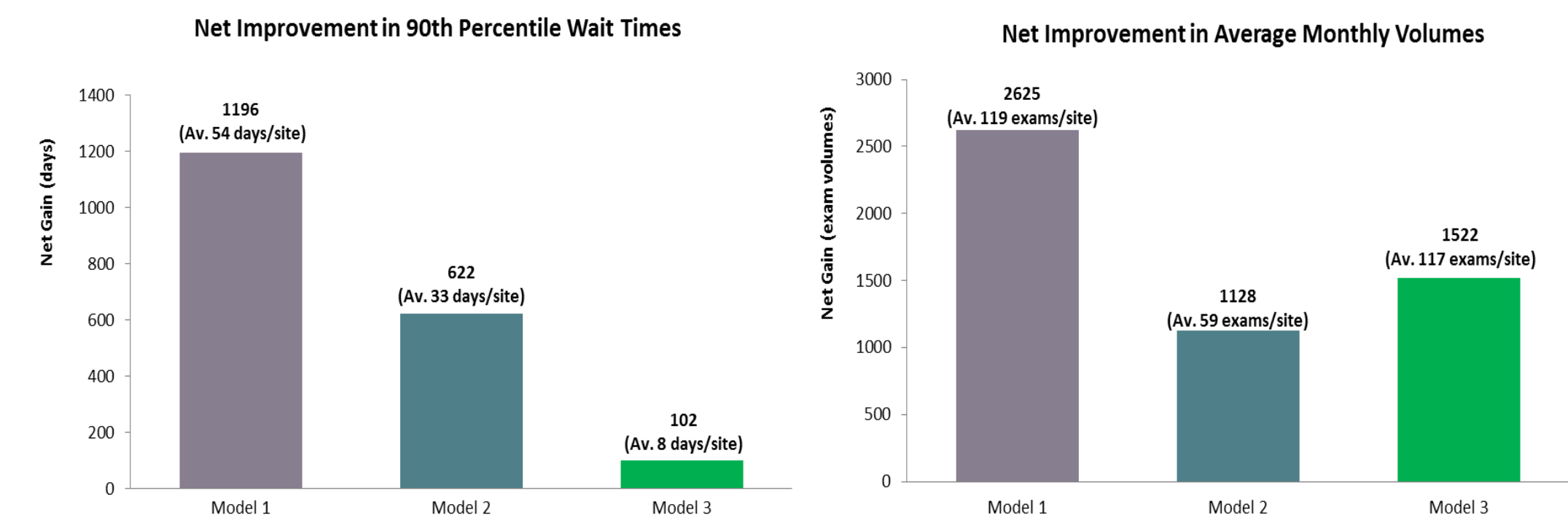
Lessons Learned

- Leadership Involvement:** Executive sponsors were essential for support and direction.
- Staff Driven:** Issues and solutions developed were identified by hospital staff.

- Staffing Availability:** It was a challenge freeing up time for staff to attend events.
- Sustainability Challenges:** Sustainability was difficult for some sites after the active engagement phase ended.

MRI PIP Results

- 80% of sites decreased their MRI wait times
- 78% of sites increased their average monthly volumes
- 80% of sites increased their patients scanned per operating hour (*tracked by Models 1 and 2 sites only*)



All sites were measured at the fiscal quarter before the start of the MRI PIP engagement, and the fiscal quarter after the end of their MRI PIP engagement. Model 1 sites: 12 months after the end of MRI PIP active engagement; Model 2 and 3 sites: 6 months after the end of MRI PIP active engagement.

Provincial Impacts

Training

- 477 health care professionals and hospital leaders were trained in quality improvement methodologies and tools.

Sustainability

- 93% of sites continued to track performance measures, while 75% of sites continued to meet to discuss these measures. (*tracked by Models 1 and 2 sites only*)

| Total Additional Patients per Day | Total Additional Patients per Year | Equivalent Additional Scanning Hours Required* | Estimated Total Cost Avoidance/Year** |
|-----------------------------------|------------------------------------|--|---------------------------------------|
| 54.73 | 19,977 | 9,988.5 | \$2,597,000 |

* Based on average scan time of 30 minutes ** Based on average Ministry cost of \$260 per hour for operating an MRI scanner

Conclusions and Recommendations

MRI PIP made a positive impact to the landscape of MRI in Ontario through the introduction of Lean Six Sigma methodologies, MRI best practices, and the concept of continuous improvement.

Recommendations from MRI PIP that will allow hospital staff to continue to work towards the most efficient and effective way of delivering high quality services include:

- Continue process improvement education and support for hospital staff.
- Expand PIP to other hospital areas to improve efficiency and patient care.
- Standardize and expand data collection so sites can benchmark themselves and work towards targets.

Want more information? Contact us at mri.pip@uhn.ca