



# Streamlining the workflow processes for a high-volume MRI department

Philips Healthcare Transformation Services enabling performance improvement at large academic children's hospital

## Who/where

A premiere pediatric teaching hospital which provides care to over 100,000 children annually, USA

## Challenge

Increase system utilization and patient throughput in their MRI department by streamlining the processes from scheduling through to examination.

## Solution

The Philips Healthcare Transformation Services team led a two-month consulting engagement which included in-depth data collection and analysis, onsite observations, and staff interviews, followed by root cause analysis and prioritized change recommendations.

## Results

The consulting team identified several performance improvement opportunities which should result in increased MRI room capacity, patient throughput, and improved staff and patient satisfaction without requiring additional operational cost.

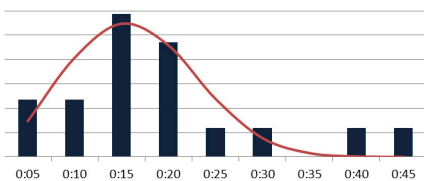
A large, nonprofit teaching pediatric hospital which has been named among the top in the US for clinical excellence wanted to enhance their MRI processes. They were caring for pediatric patients efficiently and effectively in a competitive market. Patient volume had been rising steadily and was expected to continue to rise in the future. They had room to support this growth, but were looking to further improve workflow, system utilization, and patient throughput. They turned to the Philips Healthcare Transformation Services team to help them leverage process improvement methods to streamline their workflow processes and reduce examination delays and operational inefficiencies.

The goal of the consulting engagement was to increase patient throughput and meet the needs of the rising patient volume, while continuing to deliver exceptional pediatric patient care. Our consulting team recommended a 6-week project to include 2 weeks of data collection and analysis,

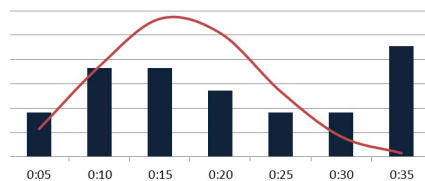
2 weeks of onsite collaboration, observations, interviews, and further data collection, and 2 weeks to develop root causes and prioritize recommendations. The client team agreed with our approach and appreciated the holistic and collaborative nature of our project recommendation.

## Sub-process time distributions (including normal distribution) with a focus on reducing the spread to increase efficiency and reduce delays

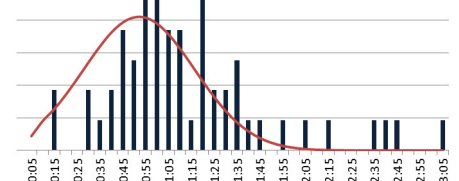
**anesthesia eval./prep time**  
(N 17 - avg 0:17 - std 0:10)



**RN Prep**  
(N 22 - avg 0:18 - std 0:10)



**Patient in MR Room**  
(N 54 - avg 1:12 - std 0:36)



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## Project deliverables

We met with the clinical and management staff to agree to key project goals which included:

- Determine gaps between current-state performance and future state goals.
- Develop a detailed analysis and identifying root causes of efficiency gaps.
- Identify potential solutions then evaluate and prioritize with the clients input.
- Develop a roadmap for change programs implementation.

## Data collection and analysis

As with many of our consulting engagements, we began with collection and detailed analysis of the available data. This included department floor plans, utilization data for 3 MRI units, scheduling protocols and appointment details, process delay information, as well as patient type, volume, and sources. We also gathered benchmark data related to pediatric MRI exams and protocols and reviewed proposed initiatives which would impact the clinical staff, processes, and the MRI department layout.

## Interviews and observations

Next, we interviewed 20+ key stakeholders such as radiologists, anesthesiologists, nurses, technologist's, schedulers, finance, management staff, and others. These observational interviews were conducted onsite with a focus on observing live operations and relevant processes to fully understand the current state and identify root causes for inefficiencies. The client's staff was open with feedback and eager to work with our consulting team to find ways to work more effectively and improve the patient experience.

## Improvement recommendations

Our team identified several improvement opportunities, tested our hypothesis, and revised the recommendations based on this testing. We then prioritized the change recommendations to address the project goals and reviewed them the client project team leads to obtain their feedback and any concerns.

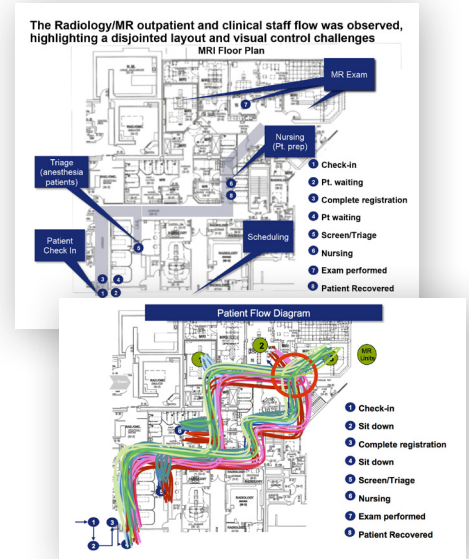
Project recommendations focused on mitigating delays while improving patient throughput and the overall patient experience. Change initiatives will improve the efficiency of the MRI patient flow and lessen the exam times with streamlined processes and elimination of wasted effort in terms of scheduling, protocol reviews, fee authorization, transportation, check-in, triage/prep, and the exam itself.

New more systematic processes were recommended with slight variations for in-patient and out-patient processes. Other change considerations included patient environment alterations, new team communication tools and procedures, and other change management programs to further reduce associated staff burden.

- Reduce patient non-compliance
- Reduce lengthy financial authorization
- Assess constraint / rule based scheduling tools
- Streamline patient transport process
- Implement pull and patient tracking system
- Physical redesign enhancements
- Develop Radiology information system enhancements and training

## Results

The client has implemented many of the performance improvement recommendations and has achieved progress on their process enhancement results. They have streamlined their MRI patient flow and improved system utilization with additional plans to implement several additional recommendations related to enabling technology and continue to expand their MRI services. The client was pleased with the Philips process and these project results.



## Learn more

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[www.philips.com/healthcare](http://www.philips.com/healthcare)  
[healthcare@philips.com](mailto:healthcare@philips.com)

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