Improving On-Time Starts for Pediatric Cardiac MRI

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Disclosures

- None

Background and Aim

- Delays in starting MRI exams impacts scheduling completion of subsequent exams

- Delays result in extended fasting for children and poor synchronization of time-based care appointments

Aim: Improve the percentage of pediatric cardiac MRI starting on time* from 10% to 70% over a 6-month period

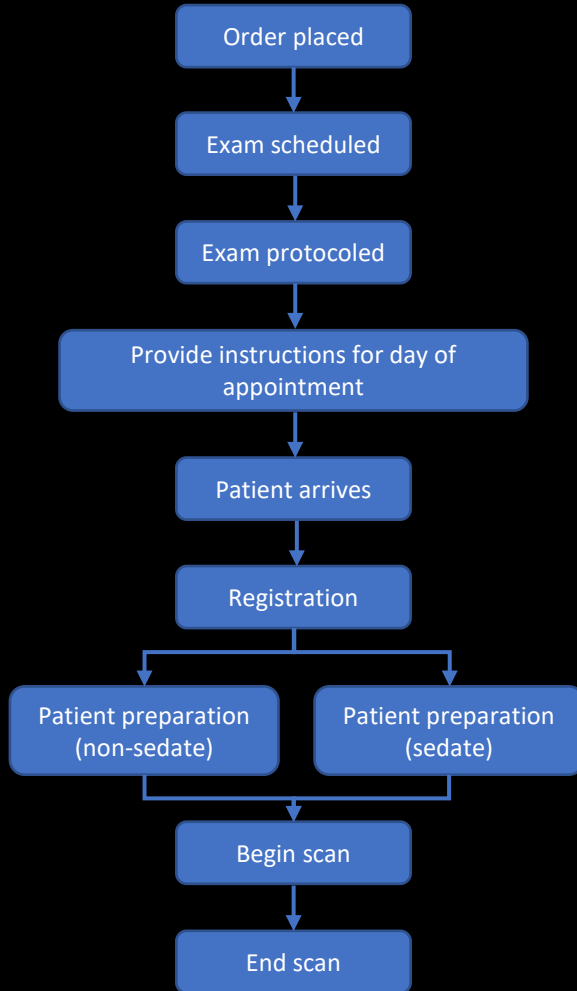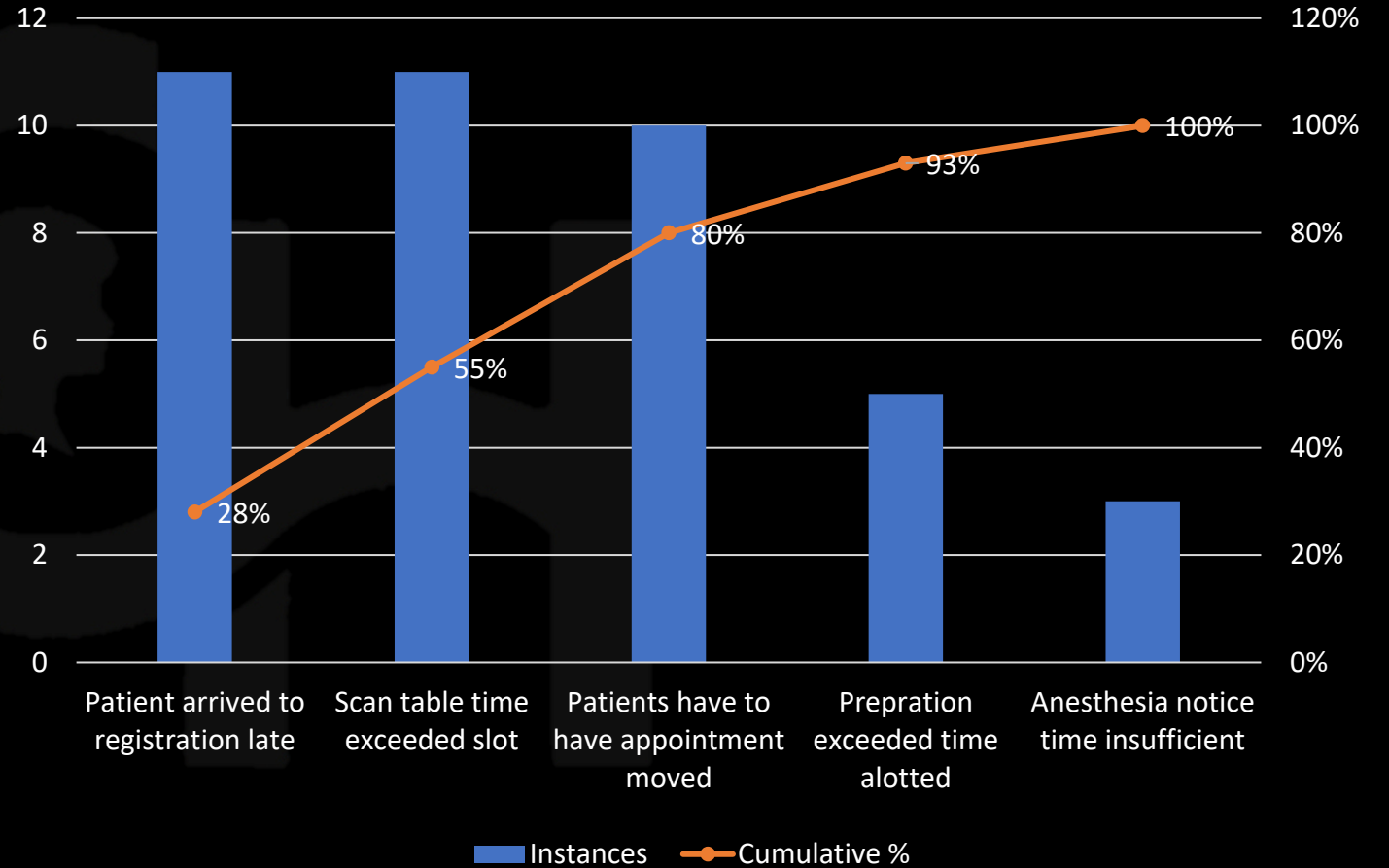On time*: Cardiac MRI exams starting within 5 minutes of scheduled time

Methods

- This project was a quality improvement initiative conducted following the *Realizing Improvement Through Team Empowerment* (*RITE*) *methodology*

- A multidisciplinary team including cardiovascular imagers, cardiologists, radiology technologists, an anesthesiologist, a radiology nurse, a cardiac preparation and recovery unit nurse, a scheduling manager, a human factors engineer, a data analyst, a patient safety specialist, and a radiology manager was assembled

- The team performed Gemba walks and applied PDSA cycles to improve each step of the followed process
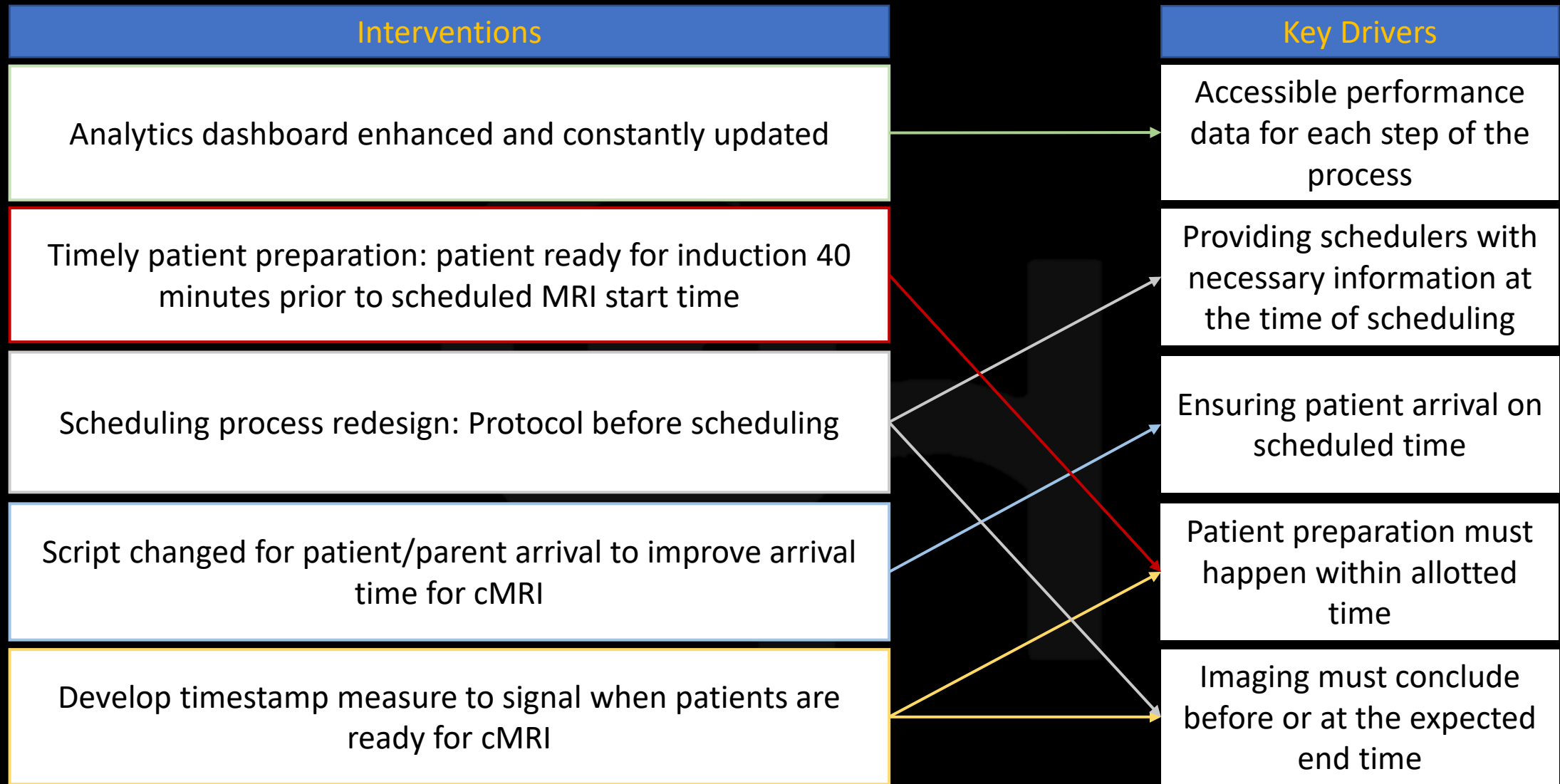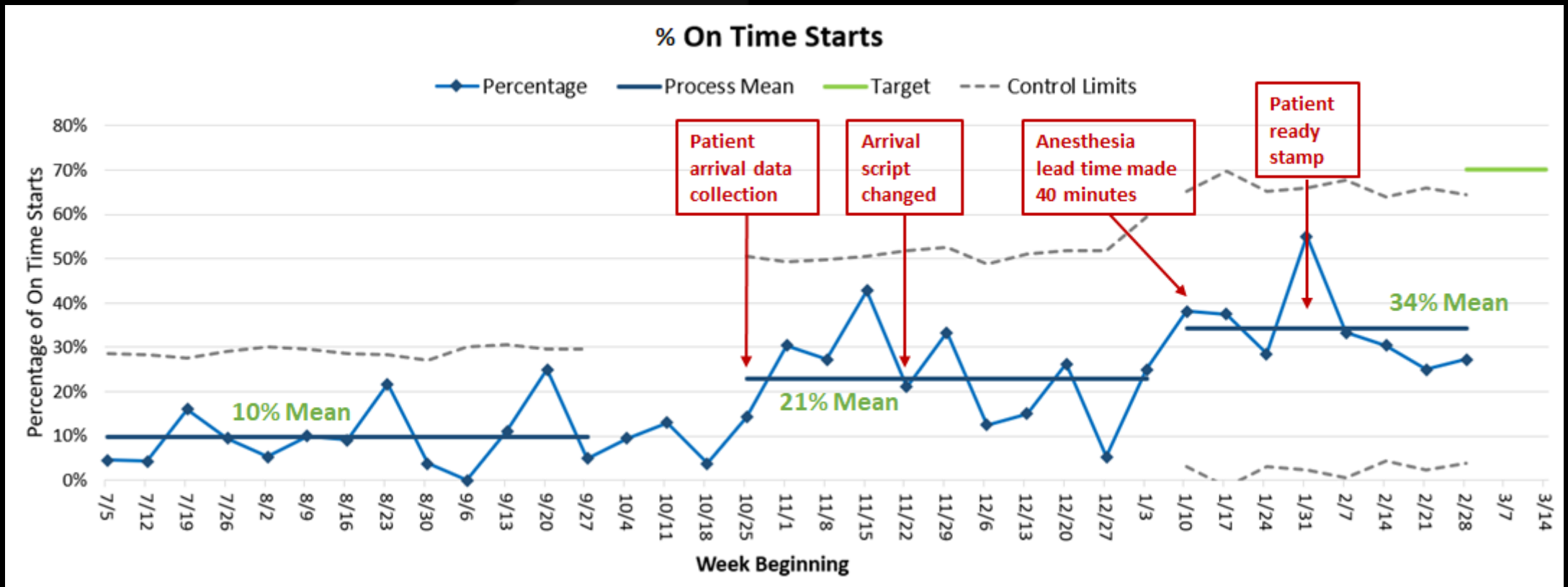
Problem Analysis

Workflow Processes

Order placed → Exam scheduled → Exam protocoled → Provide instructions for day of appointment → Patient arrives → Registration → Patient preparation (non-sedate) / Patient preparation (sedate) → Begin scan → End scan

Causes of cardiac MRI delays

Categories: Patient arrived to registration late (28%); Scan table time exceeded slot (55%); Patients have to have appointment moved (80%); Prepration exceeded time alotted (93%); Anesthesia notice time insufficient (100%)

Legend: Instances, Cumulative %

Key Drivers and Interventions

Interventions
Analytics dashboard enhanced and constantly updated
Timely patient preparation: patient ready for induction 40 minutes prior to scheduled MRI start time
Scheduling process redesign: Protocol before scheduling
Script changed for patient/parent arrival to improve arrival time for cMRI
Develop timestamp measure to signal when patients are ready for cMRI

Key Drivers
Accessible performance data for each step of the process
Providing schedulers with necessary information at the time of scheduling
Ensuring patient arrival on scheduled time
Patient preparation must happen within allotted time
Imaging must conclude before or at the expected end time

Results
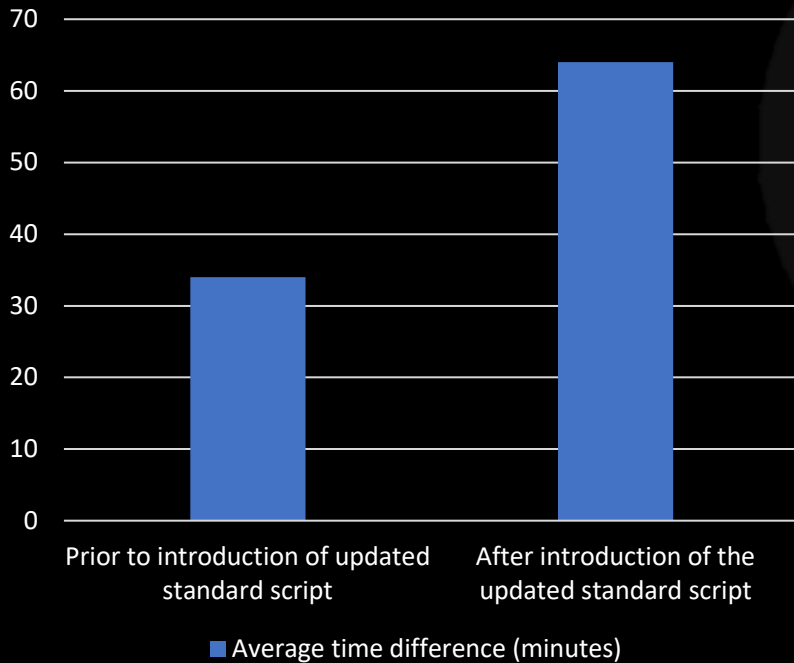
Cardiac MRI exams starting on time improved from 10% to 34% over a 6-month period

Results

Average minute difference between patient arrival time and scheduled appointment time
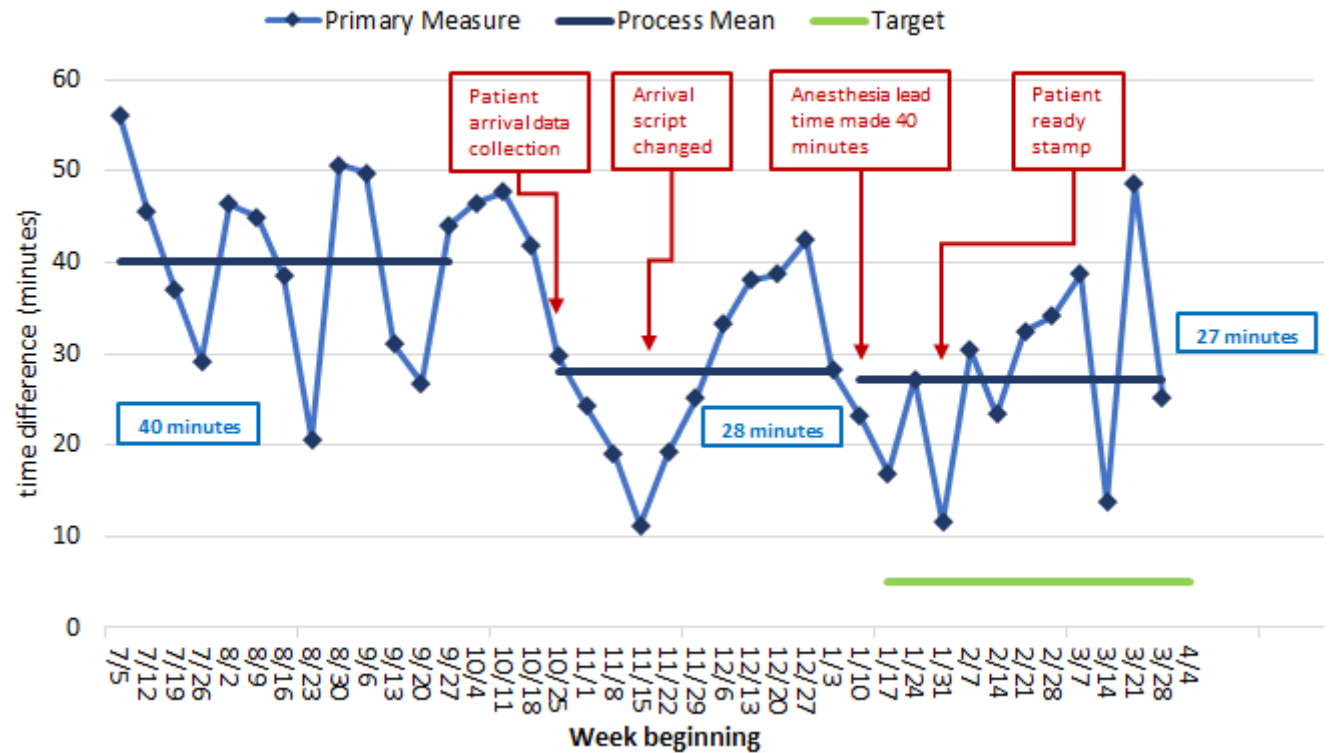

Average time difference between scan time and scheduled appointment time decreased from 40 minutes to 27 minutes over the 6-month period
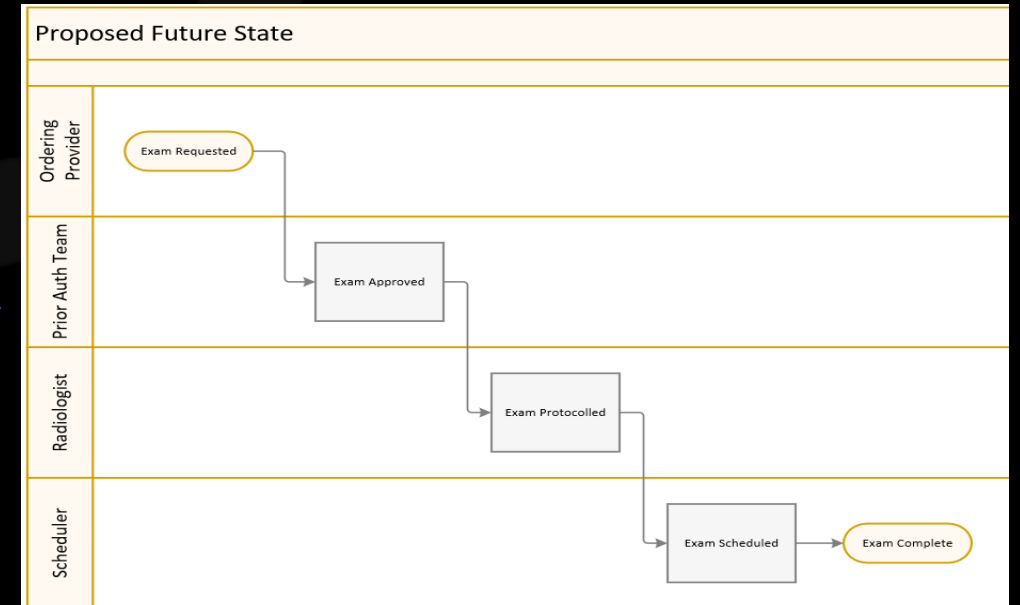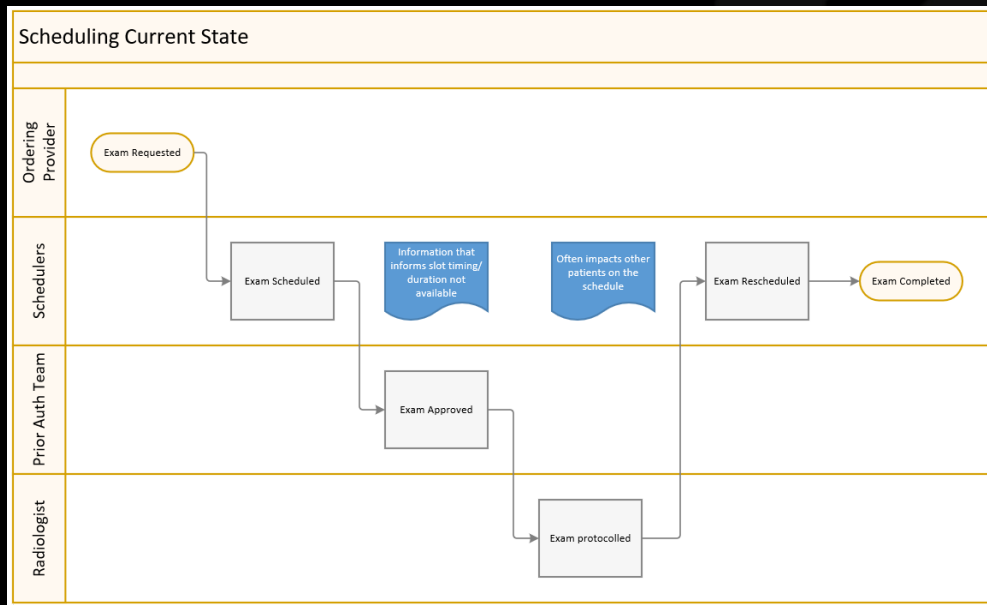
Weekly average minute difference between MRI start time and scheduled appointment time

Limitations

- Schedulers still lack necessary information for optimally scheduling patients into time slots, as redesigning the scheduling process was not applied

Conclusion

- Providing parents/patients with navigational instructions on the day of their scheduled exam can significantly reduce arrival delays

- Increasing anesthesia lead time helped improve on-time starts even though it was assessed as a less common issue during problem analysis

- Inter- and intra-departmental communication is vital for ensuring timely preparation of patients requiring anesthesia before a cardiac MRI examination