

### **Project Title**

Reduction of Length of Stay (LOS) from Registration to Discharge for Cataract Operation

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### **Organisation(s) Involved**

National University Hospital

### **Project Category**

Process Improvement

### **Keywords**

Process Improvement, Quality Improvement, Cataract Operation, Turnaround Time, Waiting Time, Registration, Discharge, Length of Stay, Surgical Time, Operating Theatre Efficiency, Pre-operation Preparation, Discharge Process, Clinical Practice Variation, Quality Improvement Tools, Lean Management Methodology, 'Go & See', Standard Work Application, Visual Management, Error Proofing, One-piece Flow, Measurable Outcome, Standardize Practice, National University Hospital, Rapid Improvement Event, Value Stream Mapping, Root Cause Analysis, Plan-Do-Check-Act, Waste Elimination, Streamline Workflow.

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Singapore Healthcare Management 2018

# Reduction of Length of Stay from Registration to Discharge for Cataract Operation

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## INTRODUCTION

### Background

The average Total turnaround time (TAT) for cataract operation under Local Anaesthesia from registration to discharge was about 6 hrs. Long processing time of about 2 hrs and 3 hrs were observed for pre-operation preparation and discharge processes respectively.

- Value Stream Map (VSM) and Root Cause Analysis (RCA) showed multiple areas of long process time which led to reworks, redundancy and long wait. Key issues included: -
  - Long pre-op wait times and variations in pre-op eye-drop regimes
  - Variations in sedation practices of anaesthetists and use of longer acting sedation drugs
  - Patients spent another 3 to 6 hrs in Ambulatory Surgical Ward post surgery prior to discharge home

### Objectives

To shorten the TAT for patients coming in for cataract operations by August 2017.

- At 50<sup>th</sup> percentile : to reduce from 6 hrs 16 mins to 3 hrs 15 mins.
- At 95<sup>th</sup> percentile: to reduce from 8 hrs 57 mins to 4 hrs 30 mins.

\*TAT: Total Turnaround Time from Registration to Discharge

## RESULTS

### Reduction in Total Turnaround Time from registration to discharge

Registration to Discharge	Pre-RIE	Post-RIE	Improvement / Reduction
50 <sup>th</sup> percentile	6 hrs	4.5 hrs	▼ 25%
95 <sup>th</sup> percentile	9 hrs	7.5 hrs	▼ 17%

Overall, the reduction in TAT are contributed mainly by a reduction in surgical time and Post operation discharge time.

50 <sup>th</sup> Percentile	Pre RIE	Post RIE	Improvement / Reduction
Operation duration	41 mins	35 mins	▼ 15%
Post Op to Discharge Duration	3 hrs	1 hr 40 mins	▼ 44%
95 <sup>th</sup> Percentile	Pre RIE	Post RIE	Improvement / Reduction
Operation duration	1 hr 30 mins	1 hr 5 mins	▼ 28%
Post Op to Discharge Duration	5 hrs	3 hrs 30 mins	▼ 30%

1) The graphs (A & B) show that post RIE, the team achieved an increase in overall workload for LA Cataract cases by 24% and an improvement of 9% in average surgical time (surgical minutes per case).

2) This has also translated to an increase in OT efficiency as more cases are being done within the same OT operating hours.

## METHODOLOGY

### Pre Rapid Improvement Event (RIE)

- Gathered baseline data to understand the issues
- A "Go & See" visit to KTPH, SNEC and TTSH was organized to learn and adopt good practices
- Research for best practices/ literature review

### Day 1 RIE

- Using lean management methodologies, the team understood the end-to-end processes, identified wastes and root causes
- Lean tools such as application of standard work, visual management, error proofing, one-piece flow were introduced to facilitate brainstorming of solutions

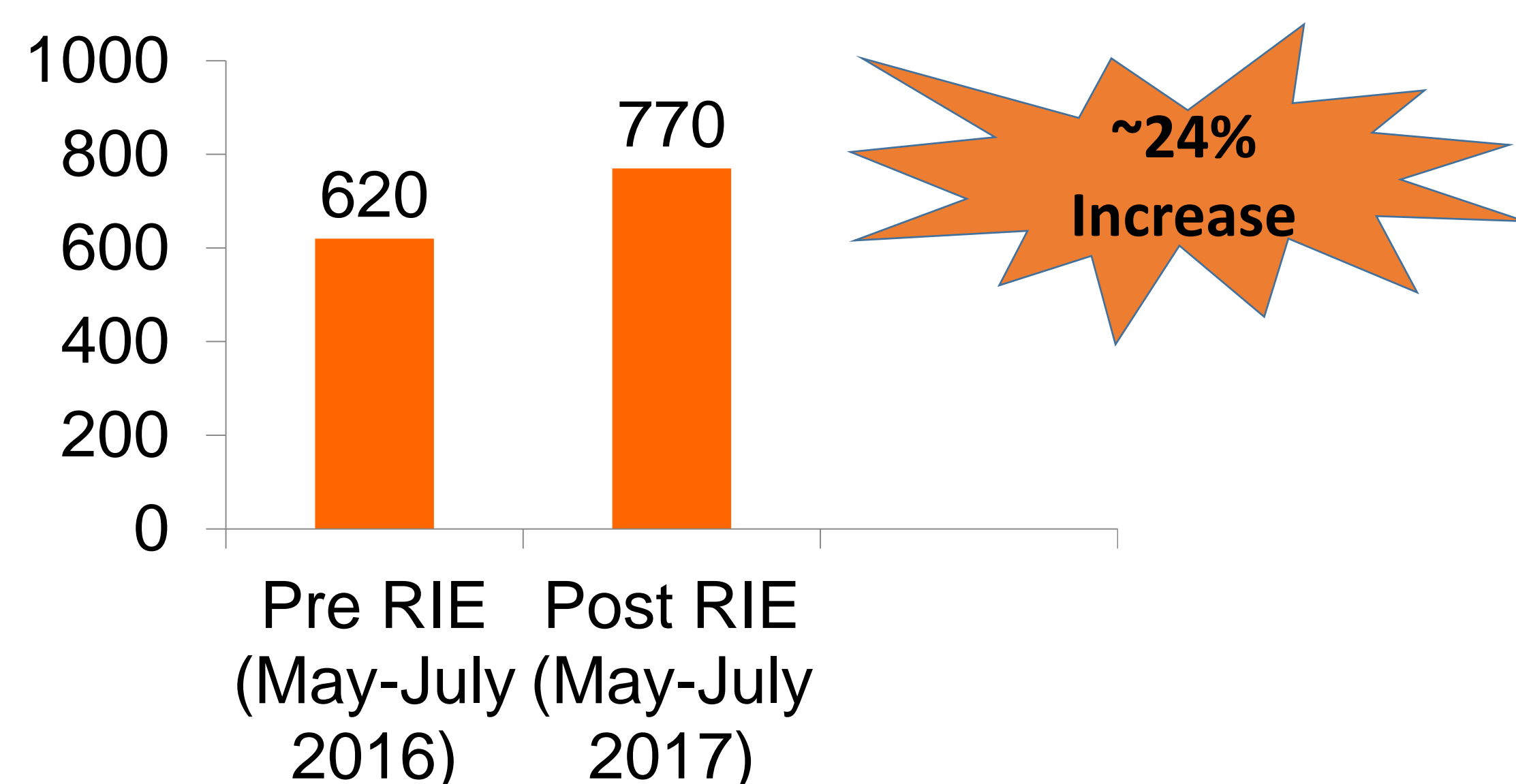
### Day 2 RIE

- Team came up with action items and designated roles to orchestrate and implement the changes
- Team adopted the Plan-Do-Check-Act (PDCA) cycle to implement, assess and act on the action plans to ensure that the best resolution was formulated

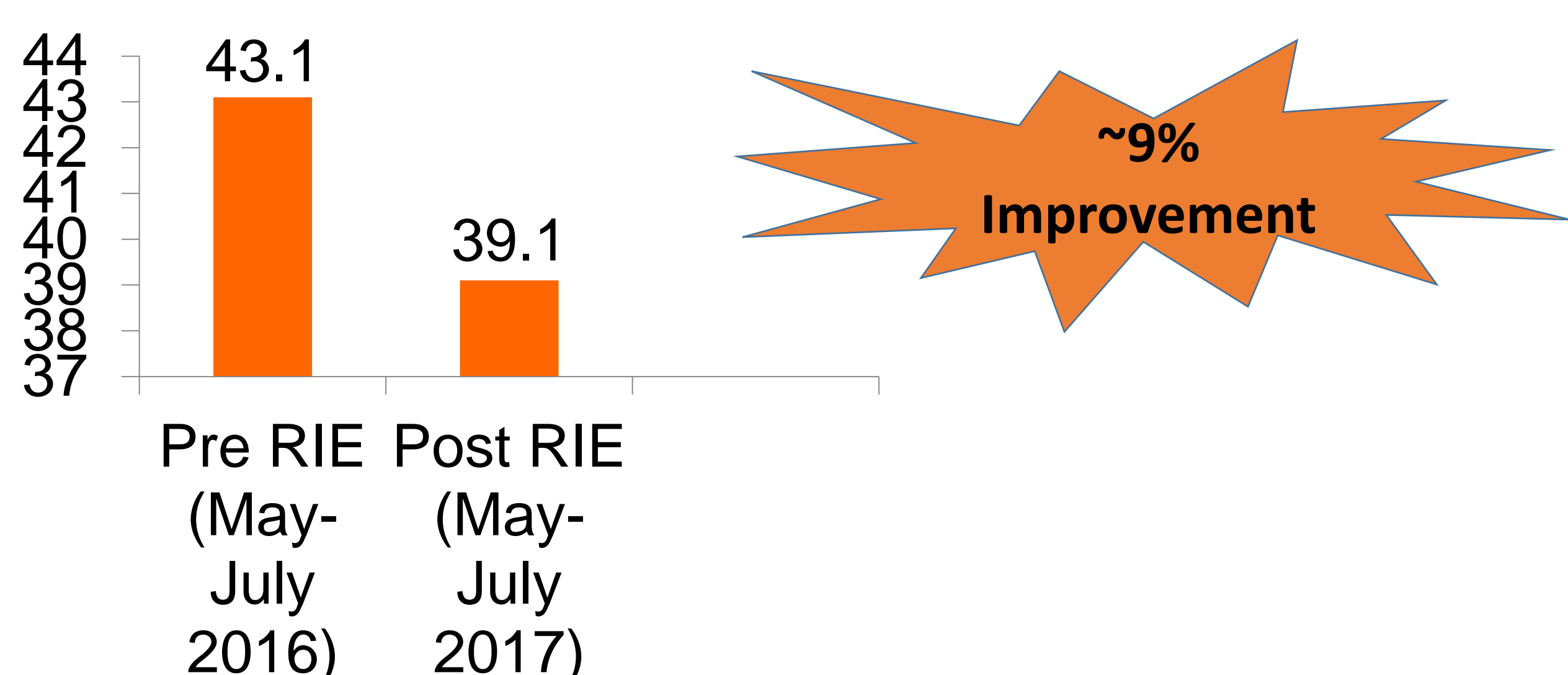
### Post RIE

- Regular review meetings with the project team were conducted to keep track of status and to discuss further road blocks and resolutions
- Measurable outcomes were monitored closely to ensure targets were being met, and the new workflows were being adhered to

Graph A: Workload (elective LA Cataract cases)



Graph B: Surgical Minutes per case (LA cataract cases)



## CONCLUSION

- By eliminating wastes, standardising practices and closing gaps in the processes, TAT was reduced by 25% and overall TAT was reduced by > 20%.
- Overall OT efficiency was improved and workflow streamlined such that project team achieved a 24% increase in caseload without using more OT resources
- For sustenance, it is crucial that the different stakeholders periodically come together to align their work processes and adhere to the new workflows.