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

*TAT: Total Turnaround Time from Registration to Discharge

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

RESULTS

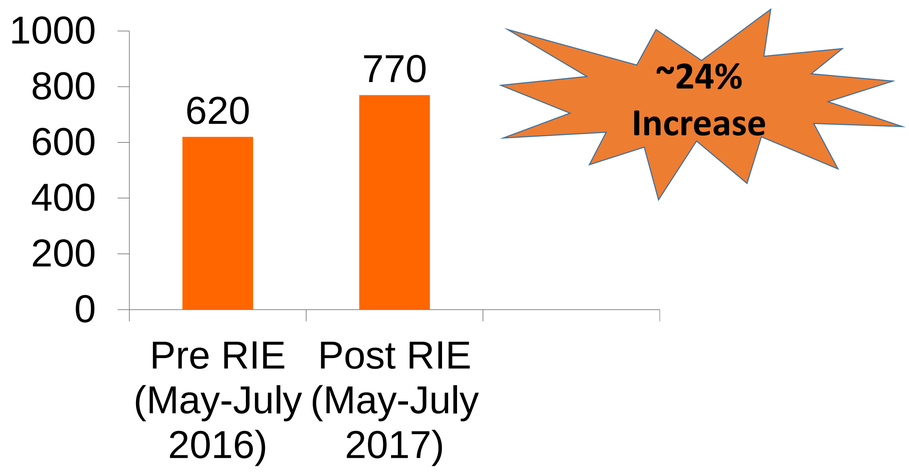
Reduction in Total Turnaround Time from registration to discharge

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

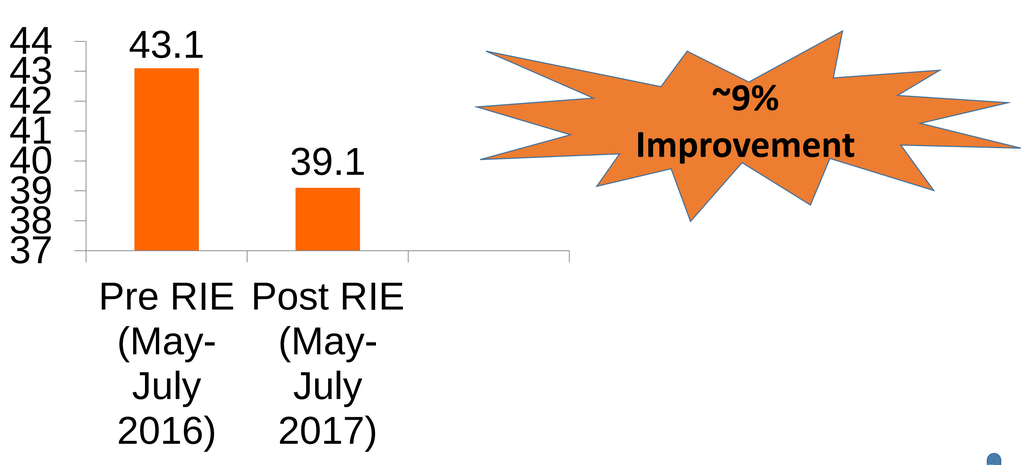
Overall, the reduction in TAT are contributed mainly by a reduction in surgical time and Post operation discharge time.

50th 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%
95th 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%

Graph A: Workload (elective LA Cataract cases)



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



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.

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.