Project Title

Optimising Order Quantity of instrument orders for Ambulatory Surgery Centre (ASC)

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Organisation(s) Involved

Singapore General Hospital

Project Period

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Project Category

Process Improvement

Keywords

Singapore General Hospital, Process Improvement, Process Improvement Methodology, Productivity, Inventory Management, Surgical Instrument, Unused Surgical Instruments, Process Streamlining, Operational Efficiency, Ambulatory Surgery Centre, Theatre Sterile Supply Unit, Root Cause Analysis, Ishikawa Diagram, Pareto Chart, Centralized Storage, New Instrument Order Template, Improve Instrument Visibility, Eliminate Waste, Cost Saving, Staff Satisfaction

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Optimizing Order Quantity of instrument orders for Ambulatory Surgery Centre(ASC)

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Project Background

Ambulatory Surgery Centre (ASC) is a standalone, multi-disciplinary day surgery center. It provides the state-of-art care and multi-disciplinary operation facilities and services.

Theatre Sterile Supply Unit (TSSU) owns and is responsible for the procurement and maintenance of surgical instrument inventory. TSSU ensures sterility and quality of these instruments for safe patient care.

ASC orders instruments from TSSU to fulfill daily OR surgical instruments requirements. However, it was noted that a large proportion of the instruments ordered were returned unused to TSSU (Figure 1). This task requires approximately 693 man-hours per year as these surgical instruments are checked for integrity, sorted and transferred back to stock. Excessive handling of these instruments compromise integrity of the sterile packages.

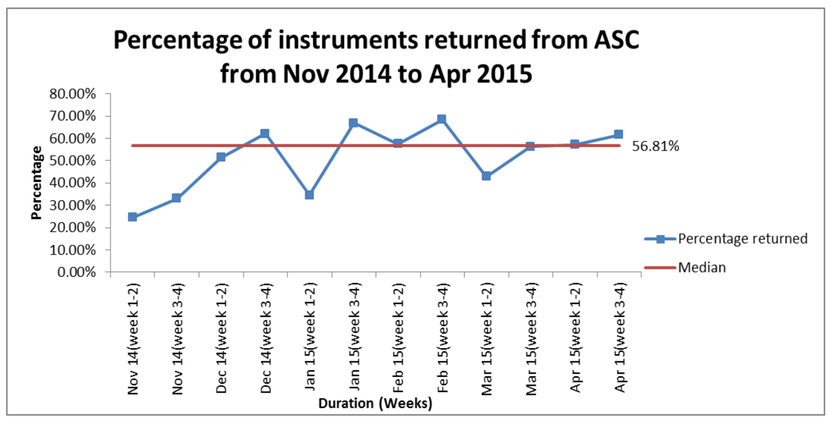

Figure 1: Retrospective data of percentage of instruments returned from ASC to TSSU

Mission Statement/ Aim

To reduce the number of unused surgical instrument ordered daily from Theatre Sterile Supplies Unit (TSSU) by Ambulatory Surgery Centre (ASC) by 50% in one year.

Solutioning

Selected Solution	Evaluation	Before Implementation	After Implementation
PDSA Cycle 1 **•Streamline withdrawal process and centralize OR store items.** **•OR store items are buffer stock that minimizes ad- hoc orders to TSSU.**	•Improves accessibility of core instruments to all ORs. •Knowledge of having easily accessible core tray has resulted in less ad-hoc ordering.	•Instruments were placed in 5 different OR according to each discipline. 	•Centralized location for core tray items. 
PDSA Cycle 2 **•Improve operational efficiency by reviewing T-Doc instrument ordering template**	•Number of instrument ordered was reduced as staff leveraged on the new ordering template.	•Templates created according to surgeons' preferences. •Unnecessary instrument ordered when there is surgeon movement and template not updated.	•New templates created specific to procedure type instead of surgeons' preferences.
PDSA Cycle 3 **•Review type of instruments available in core tray.**	•Excess instruments held in ASC core trays were returned to optimize TSSU inventory • Optimizing the utilization of these instruments by supplying to other OR in SGH Campus.	Similar instruments were found in the different OR core trays. •There was repetition of instruments placed in different OR core trays.	Review done and new list of core tray instruments and its par level was determined.
PDSA Cycle 4 **•Identified a systematic method to classify and categorize OR instruments** **•Provide visuals to enable easier retrieval of instruments.**	• Efficient inventory management • Visual enablers and assist staff to effective retrieve of instrument during times of emergency. • Further resulting in eliminating unnecessary prolonged surgery time.	•Instruments in core trays were arranged according to different disciplines.	• Instruments were identified & grouped by functions. • Store in clear transparent boxes for visibility (refer Figure 4) and located at centralized location.

Methodology

The following tools were used to determine the final root causes for the project.

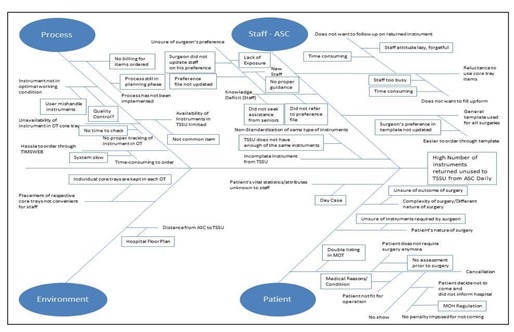

Figure 2: Ishikawa Diagram

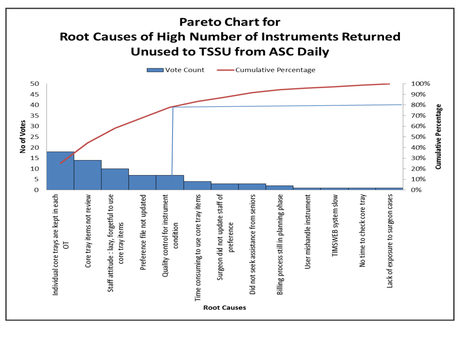

Figure 3: Pareto Chart

Results

Percentage of unused instruments returned to TSSU had reduced to 25% (approximately 500 instruments/month), an improvement from the 56% percent before project inception. Through this initiative, efficiency has improved by eliminating redundant tasks and procedures. Importantly financial sustainability was achieved by delivering appropriate and affordable care through prudent use of resources (savings of S$9700 and 693 man-hours saved/year). This project further boost staff morale in both ASC and TSSU.

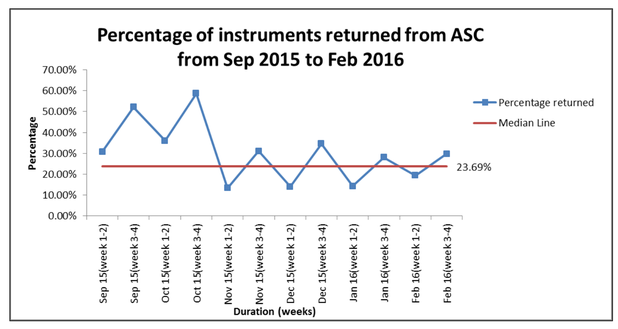

Figure 5: Post-implementation data

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