Project Title

Ophthalmi Calculator: Maximizing Surgical Throughput

Project Lead and Members

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Organisation(s) Involved

Singapore National Eye Centre

Healthcare Family Group Involved in this Project

Medical

Applicable Specialty or Discipline

Surgery, Ophthalmology

Project Period

Start date: 2020

Completed date: 2022

Aims

- To improve work flow and productivity between Listing and Operating Theatre Department.
- Improve OT utilization

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Additional Information

Singapore Healthcare Management (SHM) Congress 2023 – Merit Prize (Operations category)

Project Category

Care & Process Redesign

Operation Management, Resource Allocation, Productivity, Time Saving, Quality Improvement, Job Effectiveness

Keywords

Operating Theatre, Surgeries, Resource Planning , Resource Utilization

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OphthalmiCalculator: Maximizing Surgical Throughput

Singapore Healthcare Management 2023

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BACKGROUND

Singapore National Eye Centre (SNEC) Operating Theatre (OT) performs 18,000 surgeries annually in a ambulatory setting. With the increasing ageing population, the numbers are set to rise. In 2020, during the Covid-19 pandemic, MOH deferred non-essential services, which includes many non sight-threatening eye conditions. Therefore, there was a significant backlog of surgeries to be completed. This also led to poor staff experience from onerous process of seeking approval before listing specifically if the four- hour OT session block is nearly or fully maximized in order to clear the backlog of cases. Hence, productivity of the OT managers were affected from handling such calls.

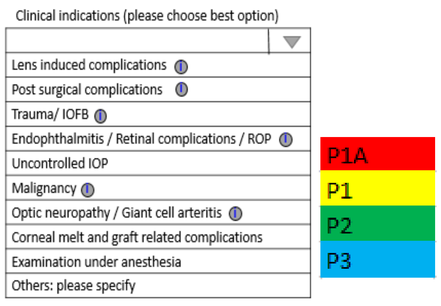
This surgical calculator was established to further enhance the success, optimisation and management of OT Utilisation.

AIM

- ❑ To improve work flow and productivity between Listing and Operating Theatre Department.
- ❑ Improve OT utilization

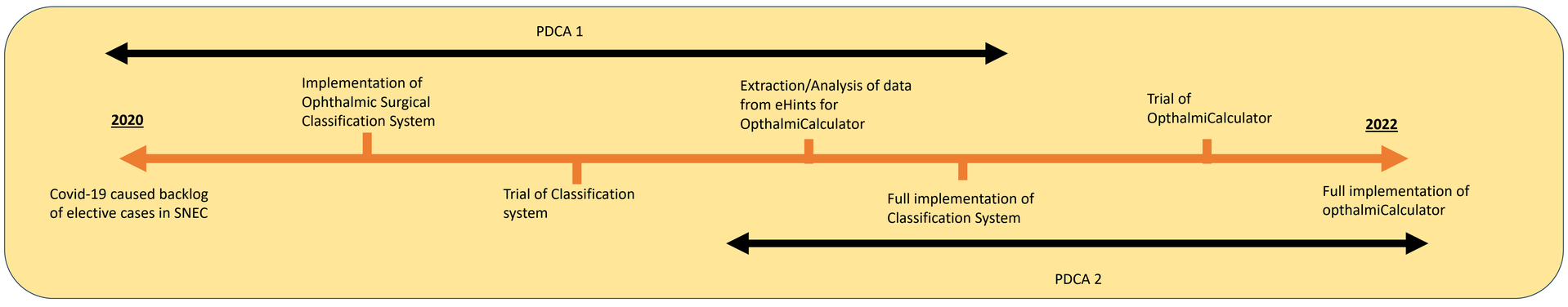
METHODOLOGY

A quality improvement methodology using PDCA was adopted to analyze the problems; poor staff experience & productivity of OT managers.
Average time for each type surgery were obtained and calculated across all surgeons over a period of 15 Months. Outliers were managed separately. A total of 48 types of surgical procedures & timings was extracted from eHints. The customization for each surgeon took into account their average time for surgery as well as turn around time. The threshold calculator was tested and refined before full roll out.



P1A: Potentially sight blinding condition that requires intervention within 24 hours
P1: Urgent eye condition that requires intervention within 1 week
P2: Elective surgeries that can be done within the month

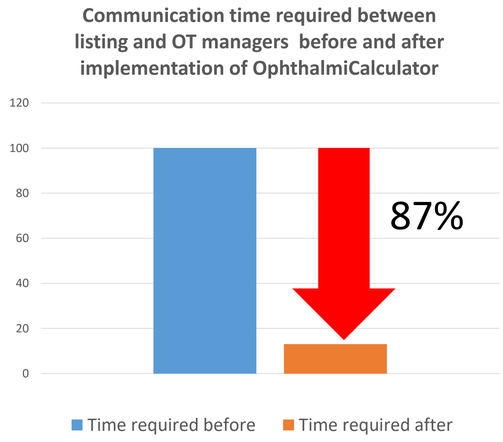
PDCA 1 is to implementation of Ophthalmic Surgical Classification system which allows rapid management of elective ophthalmic surgeries during Covid-19. Surgeries were classified and defined into categories based on its urgency. The above categorization was implemented into the SCM to allow rapid management of elective ophthalmic surgeries for optimal operating functions



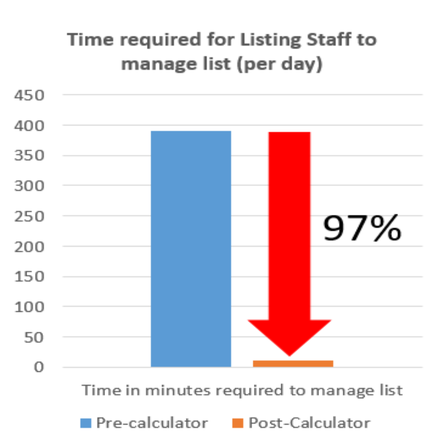
PDCA 2 is to implementation of OpthalmiCalculator using Excel spreadsheet to further enhance and calculate OT utilization threshold. Surgery timings were extracted from eHints. The data was customized according to individual Surgeons. Their surgical data, and turnover time were averaged out over a fixed period. The threshold was put on a 1 month trial period for testing before full roll out.

Case	Avg turnover time	Avg Time per case	Suggested no of case	Projected OT Utilisation	Total Time (4-4.5hrs)
cat	0:10	0:18	6.00	2:48	
cat teaching	0:14	0:24		0:00	
ROSO	0:10	0:10	1.00	0:20	
TPPV	0:10	0:59	1.00	1:09	
Phaco TPPV	0:10	1:02		0:00	4:17
SB	0:10	1:04		0:00	
SB TPPV	0:10	1:07		0:00	
TPPV IOL FIX	0:10	1:08		0:00	
				0:00	

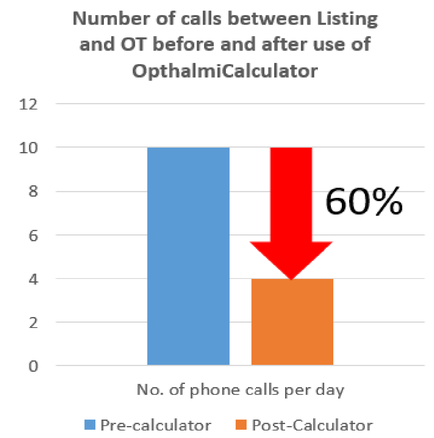
RESULTS



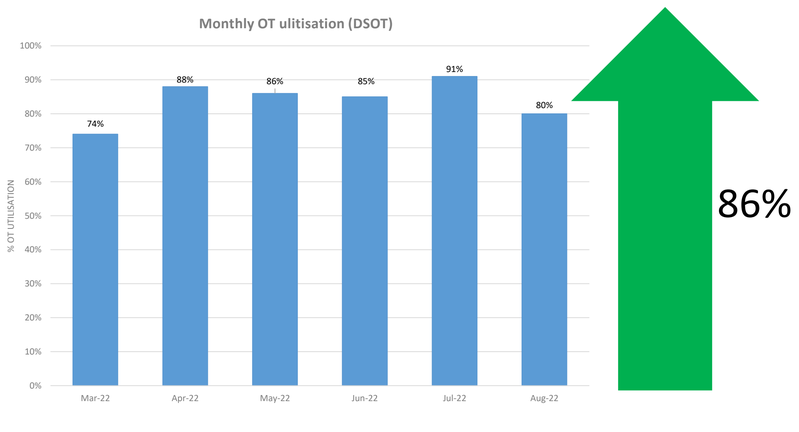
87% reduction in time required to manage utilization calculation



97% reduction in time required to manage list per day



60% reduction in time required to manage utilization calculation



OT Utilization improved from **74 %** to **86%** after implementation of the threshold calculator

CONCLUSION

The threshold calculator provided an inexpensive yet effective method to empower listing staff to manage the OT list with ease and confidence. Time saved from both listing and OT Nurse Managers allowed them to be productive and satisfied in their role. OT utilization has shown improvement after the implementation of threshold calculator.