Starting on Time

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[2]Operating Theatre Services (OTS)

Mission Statement

To increase the percentage of all General Anaesthetic (GA) surgical cases* listed at 0830hrs reaching the induction room by 0815hrs, from 24% to 100% within 6 months.

*Surgical cases: All day surgery (DS), ambulatory (AS23/47), same day admission (SDA) patients admitted via TTSH Day Surgery Centre (DSC), with the exclusion of local anaesthetic (LA) cases, and cases that are not eventually performed in the Operating Theatre (OT).

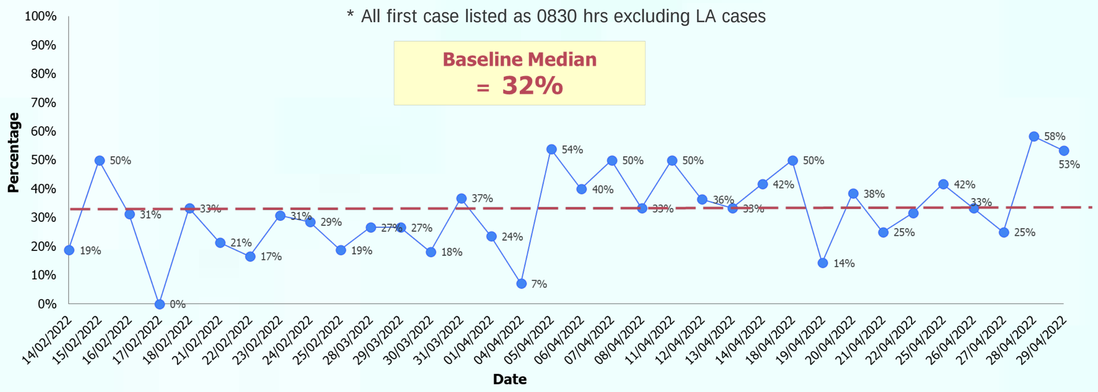
Team Members

	Name	Designation	Department
Team Leaders	Ms Phang Lai Yee	Assistant Director of Nursing (ADN)	OTS
	Dr Chong Shang Yee	Senior Consultant	AICPM
Team Members	Ms Florence Wong	Nurse Clinician	OTS
	Ms Sim Seow Wee	Nurse Clinician	
	Ms Grace Yee	Senior Staff Nurse	
	Ms Violet Lim	Senior Staff Nurse	
	Ms Adeline Tang	Nurse Manager	DSC, OTS
	Ms Sharon Cai	Enrolled Nurse	
	Ms Chua Lay Teng	Senior Patient Service Associate (PSA)	
Sponsors	Adj Asst Prof Mandy Lim (Executive Director of OTS) & Ms Goh Lee Lee (ADN of OTS)		
Mentor	Dr Chiu Li Qi		

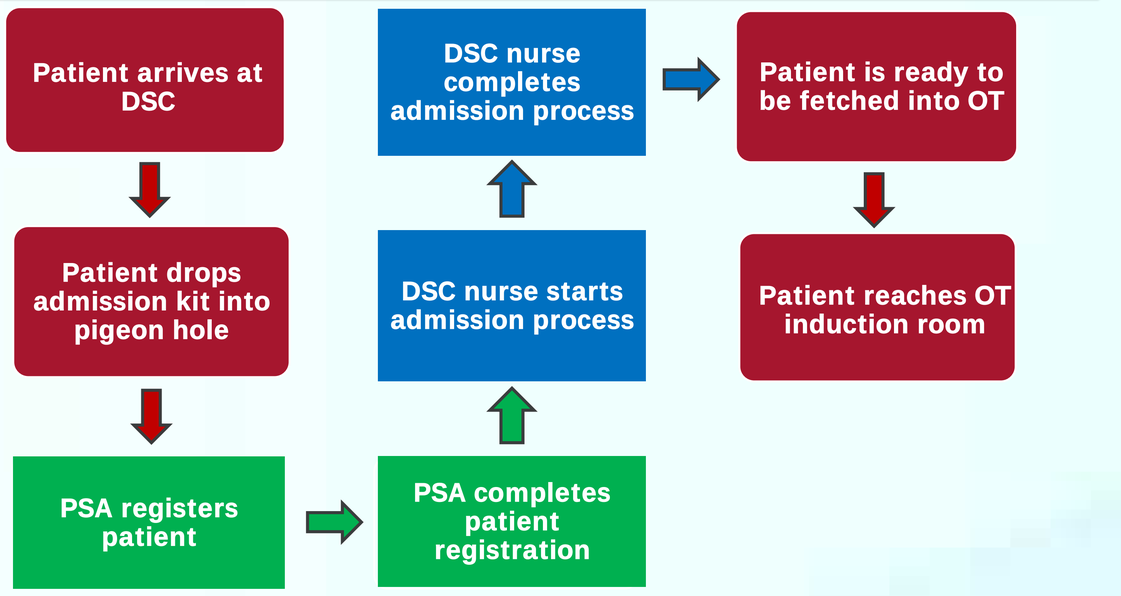
Evidence for a Problem Worth Solving

- Operating theatre delays decrease healthcare efficiency and increase costs.
- Efficiency within the operating room includes ensuring first case on-time starts to maximise utilisation, reduce subsequent delays and reduce adverse events.
- Low percentage of patients receiving General Anaesthesia reaching the induction room in a timely manner resulted in the inability to start the case on time.
- Baseline data of GA surgical cases in Operating Theatre induction room by 0815hrs between February and April 2022 shows a median percentage of 32%.

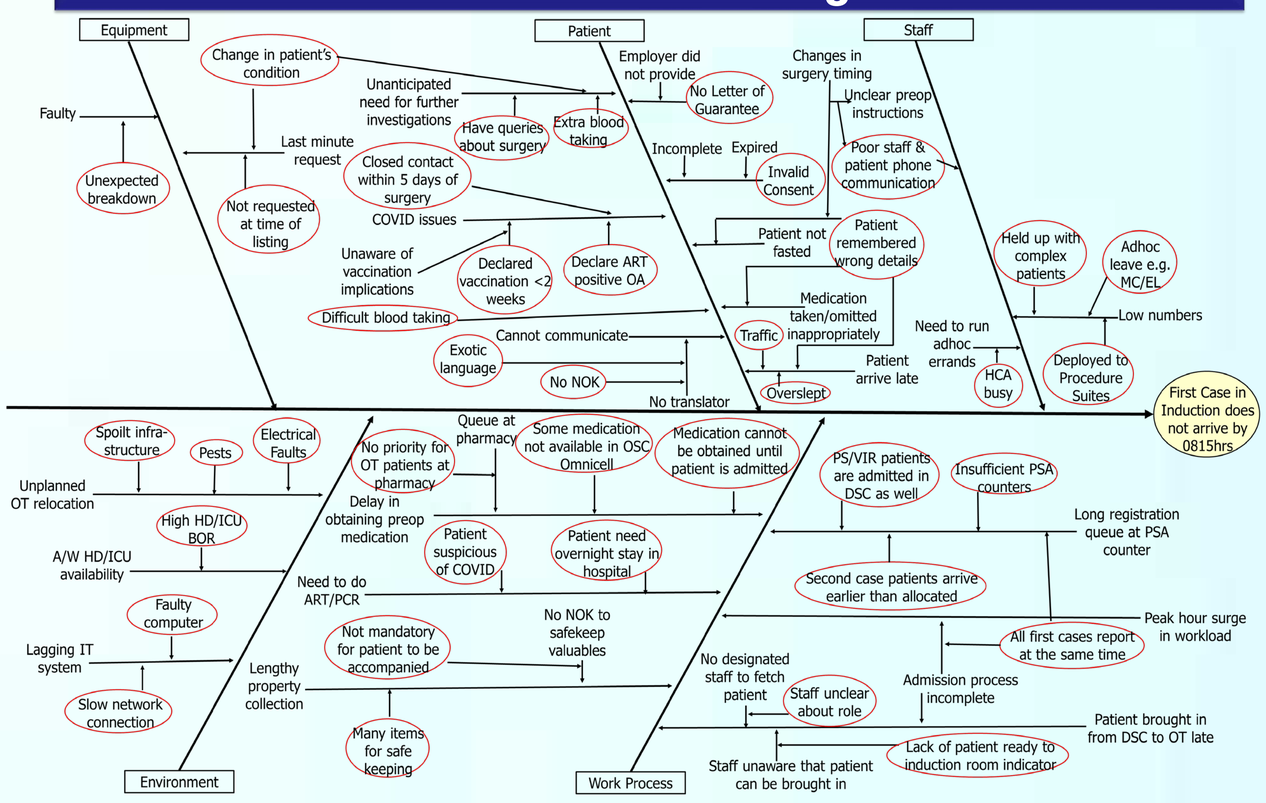
Percentage of GA surgical cases* in OT induction room by 0815hrs



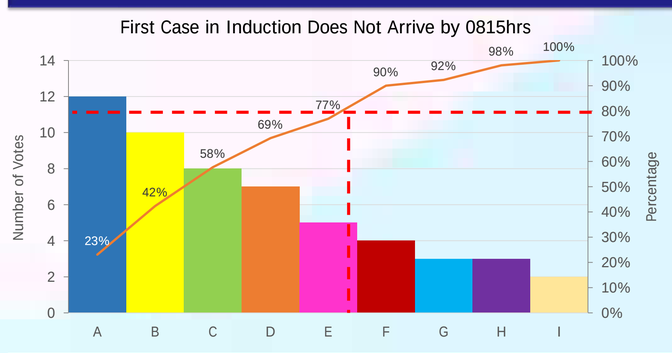
Flow Chart of Process



Cause and Effect Diagram



Pareto Chart



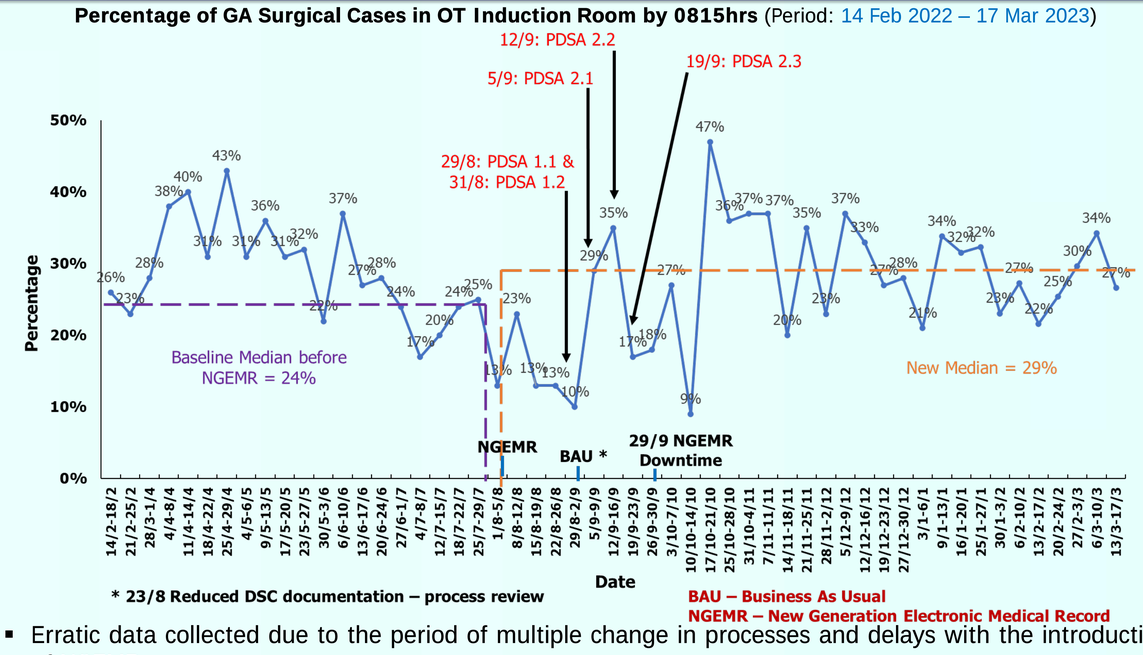
A	Staff Unclear About Role
B	Adhoc Leave e.g. MC/EL
C	Insufficient PSA Counters
D	Deployed to Procedure Suites
E	Lack of 'Patient Ready to Induction Room' Indicator
F	Pro Suite (PS) / VIR Patients are Admitted in DSC as well
G	No Priority for OT Patients at Pharmacy
H	All First Case Report at the Same Time
I	Second Case Patients Arrive Earlier than Allocated

Implementation

Root Cause	Intervention	Implementation Date
Cause A: Staff unclear about role **Cause E:** Lack of 'Patient Ready to Induction Room' Indicator	PDSA 1.1: Have dedicated staff to fetch patient when patient has completed Day Surgery (DS) admission process	29 to 30 Aug 2022
	PDSA 1.2: Have dedicated staff to fetch patient from DS by 0810hrs	31 Aug 2022 to 2 Sep 2022
Cause B: Adhoc Leave e.g. MC/EL	PDSA 2.1: ▪ OT staff to assist with DSC admission process prior to fetching patient. ▪ Increase Computer on Wheels (COWs)	5 to 9 Sep 2022
	PDSA 2.2: Prompt bed assignment / Start of admission process	12 to 23 Sep 2022
	PDSA 2.3: Dedicated augmented help at DSC	26 Sep 2022

Results

Percentage of GA Surgical Cases in OT Induction Room by 0815hrs (Period: 14 Feb 2022 – 17 Mar 2023)



- Erratic data collected due to the period of multiple change in processes and delays with the introduction of NGEMR.
- Outlying data points changes percentages, thus affecting median.
- Unable to completely eliminate outliers due to patient variability and different patient needs
- Manpower numbers greatly affect timings and data.
- DSC admits patients whom procedures are not done in OTS resulting in longer admitting times.
- Anonymized feedback from DSC staff revealed that sending OT nurse out to DSC helps cut down excessive communication and help cut down patient admission times.
- Anonymized feedback from OT staff revealed that staff are not familiar with DSC procedures and helping DSC will increase their workload.

Cost Savings

Average Staffing for OT requiring General Anaesthesia: Surgical team (one attending and one assistant), Anaesthetic team (one attending and one assistant), Scrub nurse, Circulating nurse, Anaesthetic nurse, OT attendant.

Cost for Average Staffing per OT	$15.51 per minute
Cost for Average Staffing per OT (15 minutes)	$15.51 X 15 = $232.65
Cost for Average Staffing for 24 OTs	$232.65 X 24 = $5,583.60
Cost for Average Staffing for 20 days	$5583.60 X 20 = **$111,672**

This is not inclusive of other savings e.g. energy savings and the ability to increase OT utilization from saved time.

Problems Encountered

1) Drilling down the root causes for delays in first case in OT
   - Team members spent multiple voting rounds to determine main root causes.
2) Obtaining accurate data to determine patient reporting times and actual time stamps in the admission process
   - Team designed a data collection form and designate staff to document patient reporting time to DSC. High absenteeism affects availability of this staff.
3) Changing mindset of OT nurses who are resistant of the idea of extending their role in patient admissions.
   - Designate staff to learn admission process and within work hours.
   - Inculcate job enlargement and upgrading of skills.
4) Resistant to change
   - DSC staff prefers to complete the process to having partial help from OT staff which may lead to incomplete preoperative checks.
5) System access
   - OT staff do not have access to smart text access like DSC staff and need DSC staff to assist complete documentation. Access were given to identified OT nurses assigned to DSC.

Strategies to Sustain

- Continue work on training OT staff to embrace first case admissions and encourage staff with positive mindset
- Positive data downstream – finishing lists on time, less busy afternoon shifts.
- Timely feedback to check on sentiment and welfare on both DSC and OT staff
- Roster protection – no increase in working hours, delayed or shortened break times.
- Value stream mapping of work roles of staff in DSC and OT.
- Leverage on EPIC system for accurate data report.