Improving Department of Emergency Medicine (DEM) P2 Waiting Time to Consultation (WTC)

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Introduction

SGH Department of Emergency Medicine (DEM) sees more than 135,000 patients yearly. Upon arriving at DEM, patients are screened, triaged and assigned to specific priority levels (P1 to P4), with P1 as the most critical. P2 patients are considered high risk, and they are treated in the Critical Care Area (CCA).

P2 Wait Time to Consultation (WTC) is defined as the time taken before a P2 patient is seen by a doctor after the screening process. SGH's key performance indicator (KPI) for median P2 WTC is 24 minutes with a threshold timing of 30 minutes. The KPI for the 95th percentile P2 WTC is 76 minutes, with a threshold timing of 122 minutes.

With greater complexity of medical conditions and frailty of patients, SGH P2 WTC in 2015 had worsened. It ranged from 28 to 31 minutes for median WTC; and 121 to 170 minutes for 95th percentile WTC. Long WTC is associated with poorer patient outcomes.

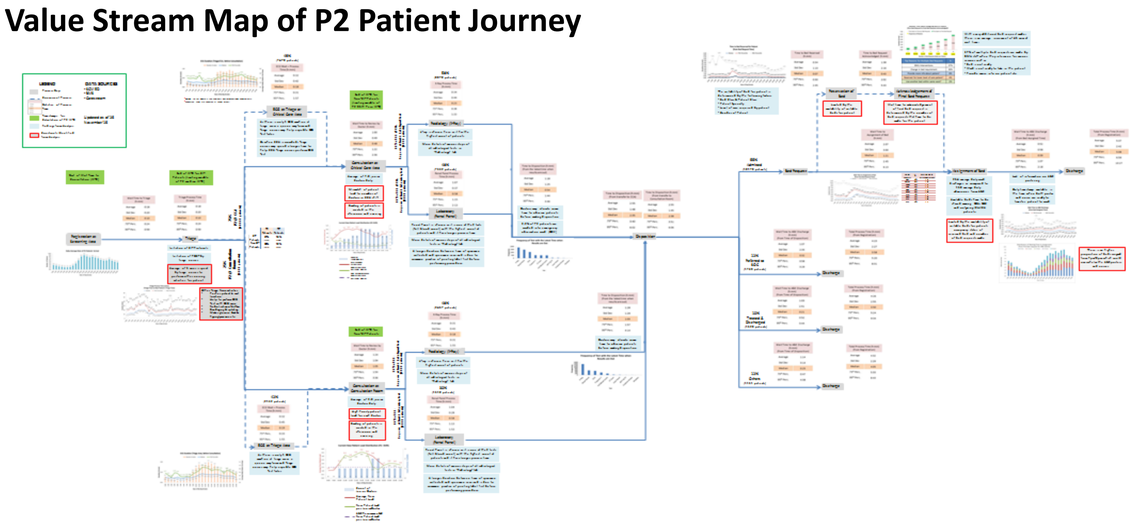
Mission Statement

To achieve SGH P2 WTC targets of 24 minutes (Median) & 76 minutes (95th Percentile) within 6 months

Analysis.

All work processes were mapped, and extensive data analysis of more than 40,000 A&E cases was done. These allowed the team to visualize the process into a value stream map and properly understand the constraints and challenges of DEM operations, as well as to identify areas to improve the P2 WTC.

Value Stream Map of P2 Patient Journey



Interventions / Initiatives

Prioritizing Care of P2 Patients

It was recognized that the manpower and physical resources within CCA was insufficient to meet the demand of all P2 patients.

The team decided to further segment P2 patients based on the severity and urgency of their medical conditions. Patients who require earlier care and intervention are prioritized as 'P2+' (73%) and will be managed at CCA. P2 (27%) patients are managed at a separate dedicated area within DEM.

Implementing this workflow allowed DEM to decant P2+ and P2 patients in a safe and targeted manner, and ease the congestion within the CCA. This then enabled the doctors to attend to all new P2+ and P2 patients more readily.

Change in Consultation Model

Previous Consultation Model

7 – 8 Junior Doctors + 2 Senior Doctors

1. A junior doctor picks up new case
2. Reviews patient and seeks senior doctor's approval for ordering of investigations
3. May seek additional advice from senior doctor on treatment plan

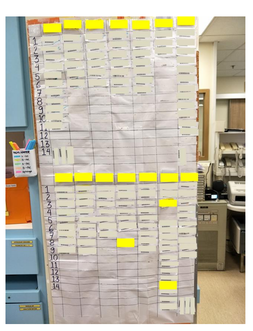
Team-based Consultation Model

2 Teams: 4–5 Junior Doctor + 1 Senior Doctor each

1. A nurse will allocate the patient to Team A or Team B alternately
2. Both junior and senior doctors picks up the case and discusses treatment plan upfront
3. Team senior doctor can initiate pertinent investigations early

There is little delay in obtaining senior doctors' approval to finalize patients' treatment plans and initiate investigations now. This allowed teams to clear patients quickly and attend to new patients earlier.

Visualization of CCA Patient Flow and Output



CCA Patient Flow Board

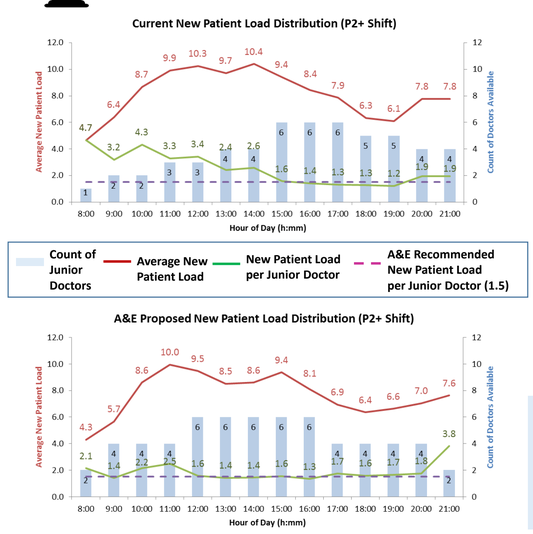
Doctors and nurses were unable to visualize the department workload, and how each area was coping with their queue.

A board was constructed within the CCA:

- Upon initiating consultation with a patient, doctors would place their patients' sticker within their own column.
- Progress of each patient's consultation process will be indicated on the board

With this board, CCA workload and patient flow are both reflected and better managed in real time; allowing teams to clear patients quickly and attend to new patients earlier.

Optimizing Roster of Doctors

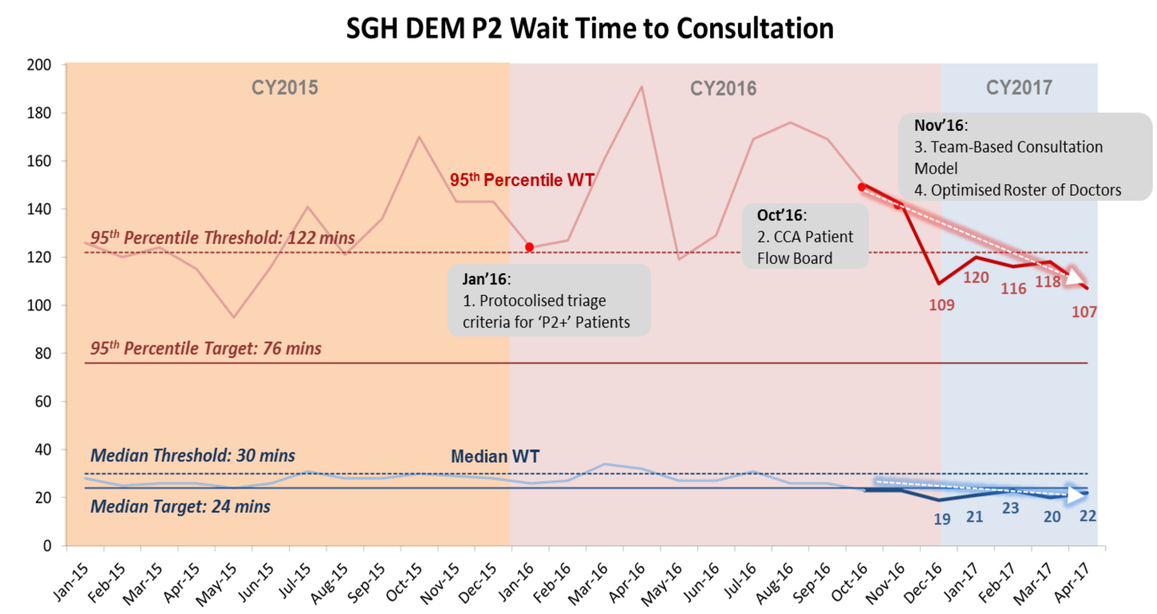


A review of the manpower and throughput showed a mismatch between patients' arrival and doctors on duty.

The roster was optimized to match patients' arrival.

This reduced the backlog of patients in the afternoon and evening and allowed the doctors to see patients at a manageable rate

Results



- Significant improvement in the 95th percentile WTC observed for all days of the week.
- Monthly 95th percentile WTC has improved below the threshold timing of 122 minutes (red line)
- Monthly median WTC has achieved the target timing of 24 minutes (blue line).
- Time taken to patients' final disposition decreased from an average of 173 minutes to 132 minutes.

<u>Sustainability</u>

The team actively tracks patient load, wait times and doctor output to ensure the sustainability of the initiatives.

Other process areas such as triage and ward admission of DEM patients are currently looked into as well to improve the patient flow in DEM further.