



Singapore Healthcare Management 2024

Cut the tEDious consult wait time!

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Background

ED ambulatory patients being the lowest acuity patient have a very long wait time, approximately 2-4 hours. This wait time is exacerbated by a few factors, firstly having a common queue system which does not incentivise doctors to “clear” the queue and secondly junior doctors who have varying output. In Jan 2024, even though DEM was allocated more Medical Officer (MO) manpower there was no way to utilise the additional manpower as ED had no more existing consult rooms to see patients.

Aim

To optimise space and reduce wait time to consultation (WTC) from a median of 25 min to 20 min for ambulatory patients in Singapore General Hospital Department of Emergency Medicine (SGH DEM) in 6 months' time.

A prolonged period of waiting meant that less serious patients had a higher chance of deteriorating. This coupled with an increased in backlog of patients could also lead to staff feeling demoralised. Based on the above considerations, solutions to improve wait time for ambulatory patients were proposed.

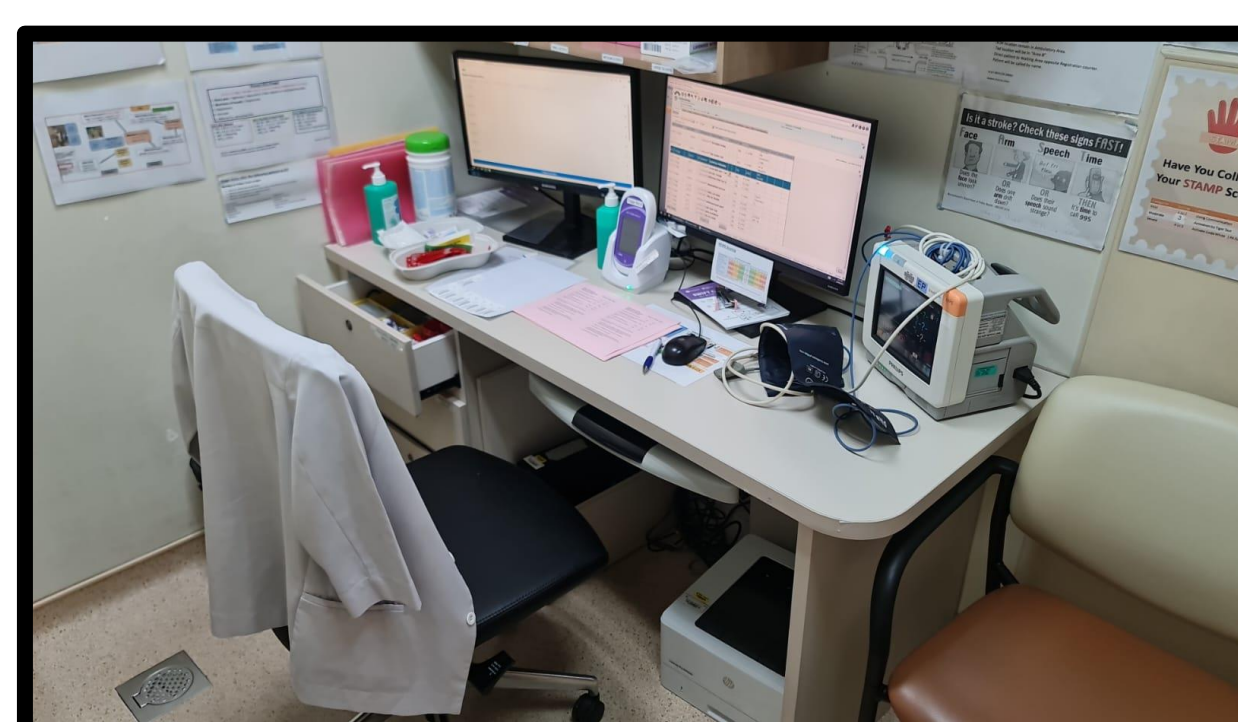
Firstly, an application token ED (tED) that automates queue management while ensuring a fair distribution of patients across clinicians was birthed when Dr Shen Yuzeng, a senior consultant at SGH DEM had his healthcare fellowship at Open Government Products (OGP).

The creation of tED, helped with fair distribution of patients to doctors on shift with a double layered priority-based algorithm based on patients' acuity level. The application also provides gamification with 'tokens' which enables doctors to work towards a reasonable target, automates queue management for senior doctors allowing them to focus on patients and junior doctors.

Secondly, to address the influx of MOs, the team quickly identified and created another 3 consultation rooms (Area B) by repurposing on existing spaces and working with various stakeholders to change workflows. The agile nature of the tED application allowed us to swiftly operationalise and allocate patients to that area once equipment was deployed.

Based on the promising pilot tests, tED was included from the start of our patient's journey; screening station staff would register patients on tED and nurses after triage would allocate patients to respective treatment areas. These areas included both main consult area as well as the newly created Area B.

From this respective pool of patients, tED would then auto allocate them to a staffed consult room. During our implementation phase we have enhanced staff workstations to allow them easy usage of tED through a second monitor screen. This allowed staff to utilise tED without having to toggle between different applications.



Before tED went live, 2 pilot tests were conducted over the course of 7 days. The pilots demonstrated that the auto allocation algorithm had enabled junior doctors to see more patients during shift. Based on DEM ambulatory patient's wait time to consult data, there was a proof of concept that tED enabled a reduction in ambulatory patients wait time.

During the first day of Area B operations, it had seen close to 40 ambulatory patients. A review of type of patients to be sent there was also continuously conducted to ensure only specific types of cases were funnelled to Area B.

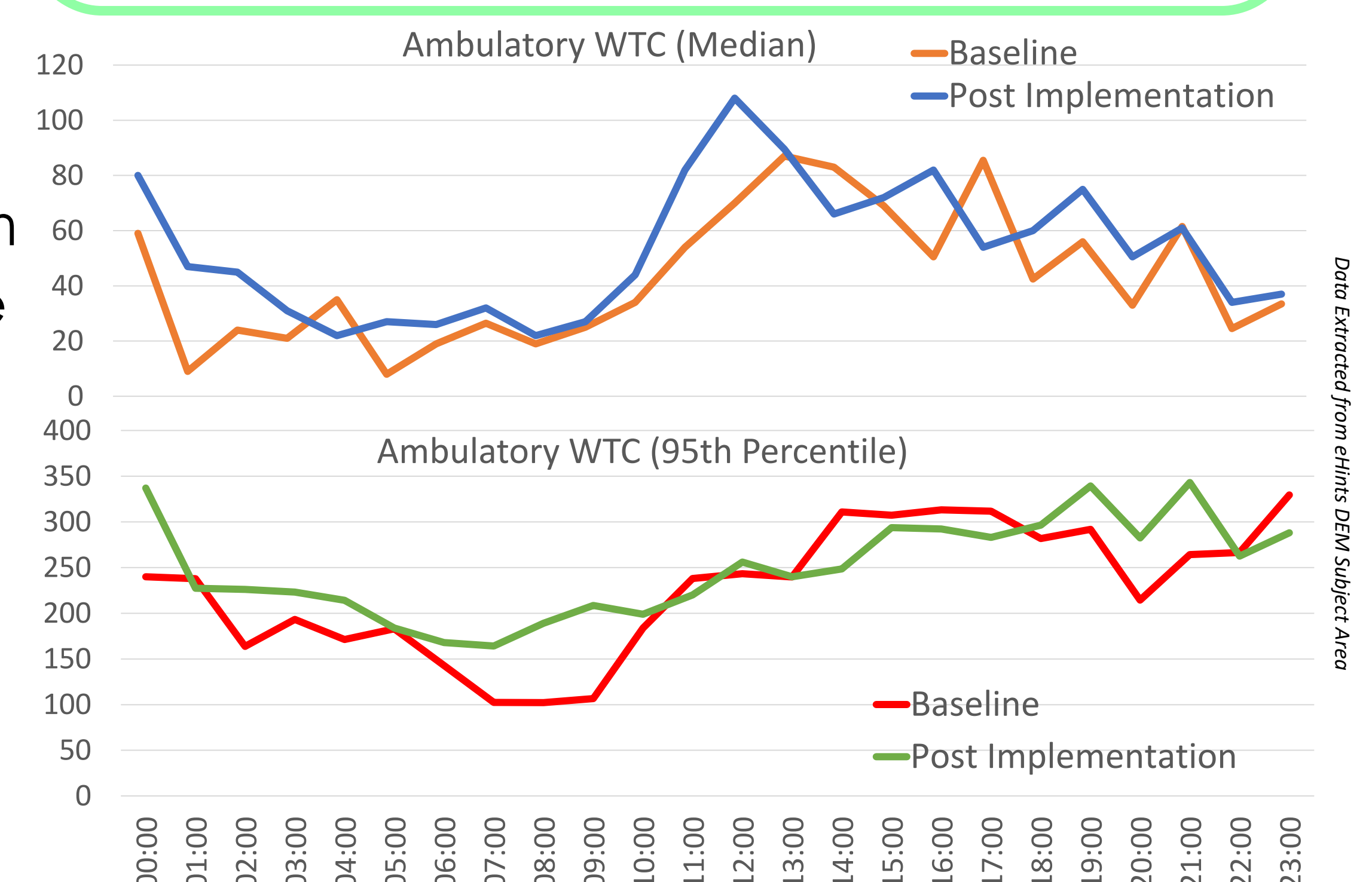
Results After Implementation

tED system was implemented in SGH DEM and the application allows for patient wait time information to be reviewed in real time and prevents random selection of case mix, which essentially saved time scrolling through the Sunrise Clinical Manager list.

tED also acts as a consistent yardstick to measure patient workload between consult rooms to ensure fair distribution of patients. Lastly the agility of tED facilitates rapid deployment of new workflows and areas.

Conclusion

tED has been fully rolled out in SGH DEM since September 2023 and its system flexibility has also allowed us to create locations on the fly. With the deployment of tED in our daily operations our median, 95th percentile and standard deviation for wait time to consult for ambulatory patients has improved with better patient and staff satisfaction.



Baseline Consult Wait time	
Mean	76
SD	108
Median	25
95th percentile	294

Consult Wait time Post tED	
Mean	65
SD	86
Median	21
95th percentile	238