



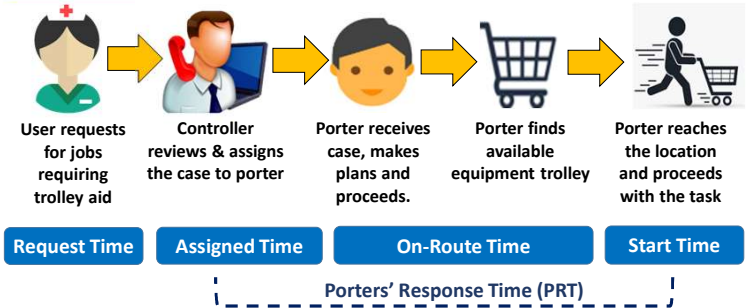
Implementation of Equipment Trolley Management System to Reduce Response Time and Increase Operational Efficiency

Introduction

Porters in SGH are tasked with the responsibility of transporting an average of 41,000 items per month requiring the aid of equipment trolley^[1]. Quick retrieval of trolley is crucial to ensure items are delivered timely to patients. Prior to the project, the average Porter's Response Time (PRT) for jobs requiring trolleys was 11.12 mins.

[1] Items requiring trolleys include blood, diet, specimens, medications, medical equipment and documents

Porters' Response Time (PRT) - measured
from the assignment time to the start time at the requesting wards



Challenges affecting the PRT :

- Unable to maintain sufficient number of trolleys in circulation
- Increase in searching time for available trolleys during peak periods, leading to prolonged response time

Aim

The project aims to identify the underlying reasons for difficulties in locating equipment trolleys and to introduce an Equipment Trolley Management System (ETMS) to reduce time wasted in searching for trolleys by 15%.



Aim 1: Reduce search time
To reduce average PRT by 15% within the next 6 months, ensuring faster response time.

Aim 2: Set up ETMS

To enable porters to easily locate equipment trolley when assigned a task requiring trolley aid.

Methodology & Intervention

The project team adopted a Root Cause Analysis (RCA) methodology to identify the underlying cause and introduce the ETMS intervention.

Table 1: Root Cause and Intervention (ETMS)

Root Cause	Interventions (ETMS)
Difficulty in locating trolleys Porters often search across the whole campus to find trolleys.	Set Up Trolley Collection/Return Station Two (2) collection/return stations were set up at SGH Block 5 Level 1 and Basement 1.
Lack of accountability in porters Porters would often park the trolleys anywhere around SGH Campus, making it difficult for the next users to locate	Log Book Sign-in/out A log book was used to maintain and update collection/returning time
Long PRT The long search time led to delays in completing jobs	Targeted Assignment of Cases Selected porters were assigned to do cases requiring trolleys. They would be assigned more of such jobs to reduce the frequency of collecting and returning trolleys.

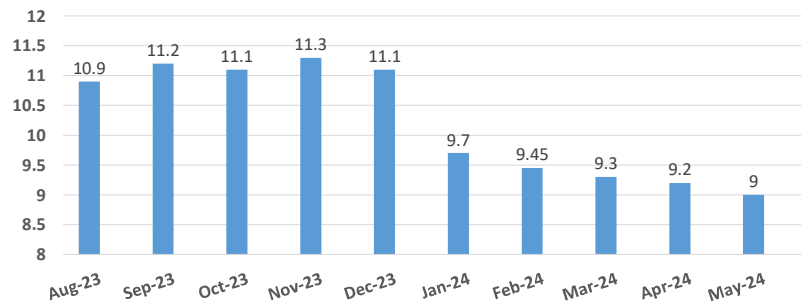
Results

ETMS was implemented in January 2024. The corresponding results shown improvement in PRT.

Table 2: Variance in Average PRT Pre- and Post- ETMS Implementation

Time period	Aug 2023 – Dec 2023 (Pre)	Jan 2024 – May 2024 (Post)	Improvement in Response
Ave PRT	11.12 min	9.33 min	1.79 min (16.07%)

Graph 1: Average PRT Pre- and Post ETMS Implementation (Month/Min)



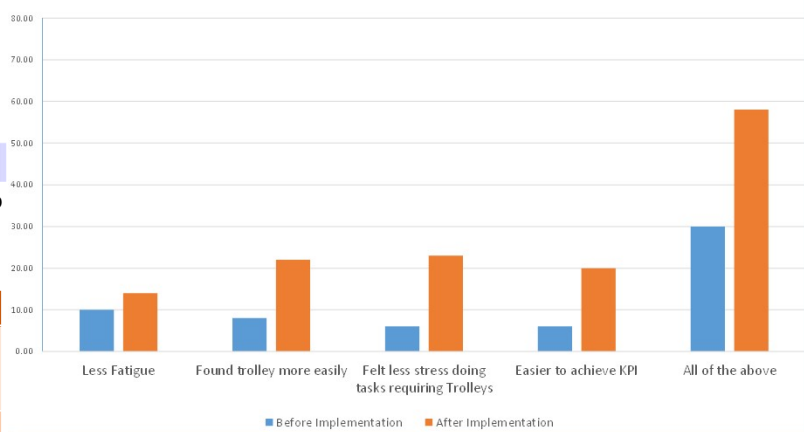
Given that trolleys are drawn on average of 70 times per day, this translates to a saving of approximately 4 Full-Time Equivalent (FTE) positions

Man-hours saved/year = 70 times/day x 1.79 mins saved / 60 mins x 365 days = 762/190.6
FTE savings = 4 /Month

Feedback

Porters' feedback indicated that the ETMS implemented improved their daily operations. They experienced less fatigue, found trolleys more easily, and were happier with sufficient time to meet KPIs.

Feed Back From 50 Porters



Conclusion

The implementation of an Equipment Trolley Management System (ETMS) at designated collection/return point and clear recording of trolley usage has helped reduce time wastage and other challenges faced by porters in retrieving trolleys. This has led to overall improved staff experience and operational efficiency. Further studies could be done to examine the effects on patient experience as porters are now able to deliver crucial items in a shorter time.