

# National Quality Improvement Conference

## Optimisation of Outpatient Pharmacy Automation System BD Rowa™ Vmax in Ng Teng Fong General Hospital

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VALUE, COST  
& QUALITY

### Problem Statement

Between Jan and May 2022, prolonged task idle time and long task picking time with the BD ROWA™ Vmax within the Outpatient Pharmacy Automation System (OPAS) were observed.

The average ROWA™ idle time was 9.68 minutes per task, while the average ROWA™ picking time was 2.17 minutes per task for this period. This resulted in longer medication packing times, and also required an additional pharmacy manpower to manage the ROWA™ workload.

### Project Aim

To reduce the average ROWA™ task idle time per task by 50% to 4.84 minutes per task, and the average ROWA™ task picking time by 20% to 1.74 minutes per task. Ultimately, we hope to improve the efficiency of the Outpatient Pharmacy and reduce manpower reliance.

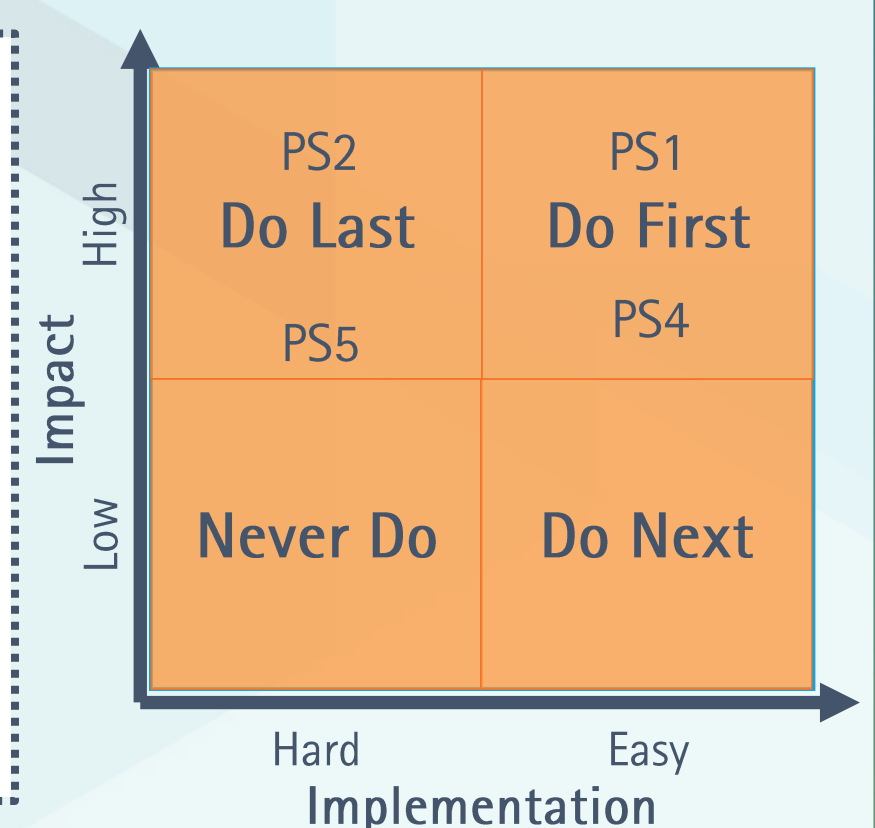
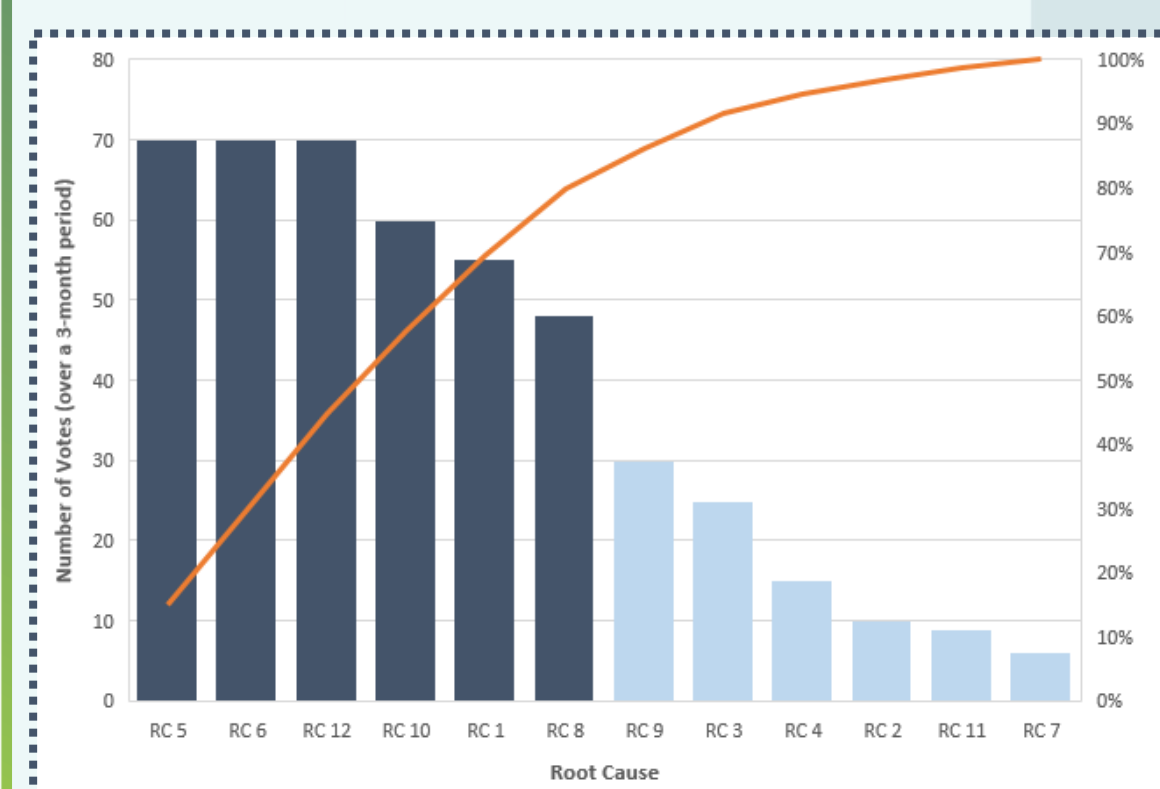
### Lessons Learnt

1. It was extremely challenging to achieve the target for the ROWA™ task average idle time, as the entire Outpatient Pharmacy inventory (> 900 medications) had to be re-examined. Proper planning of pharmacy inventory prior to implementation of the Outpatient Pharmacy Automation System is preferable.

2. While increasing manpower might seem like an obvious solution to most problems, we actually manage to reduce manpower requirements by 1 pharmacy staff at the ROWA station through our optimisation efforts.

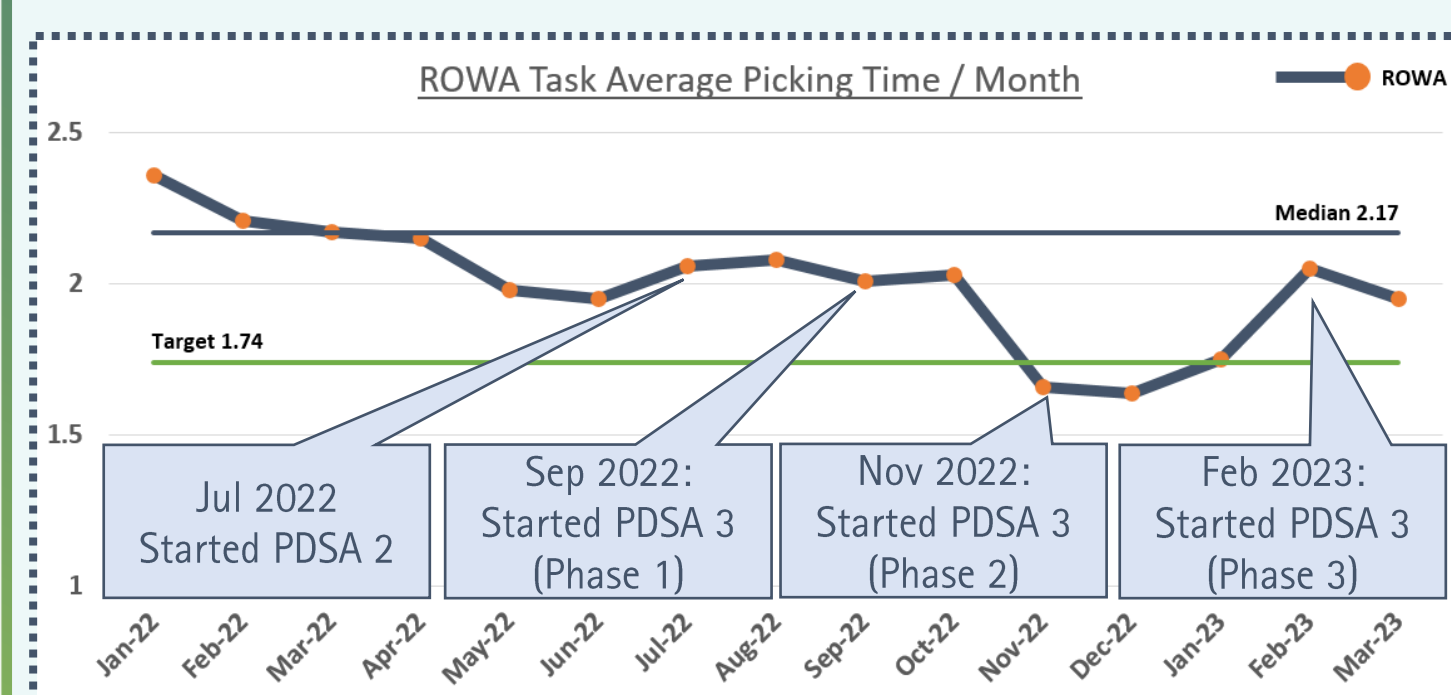
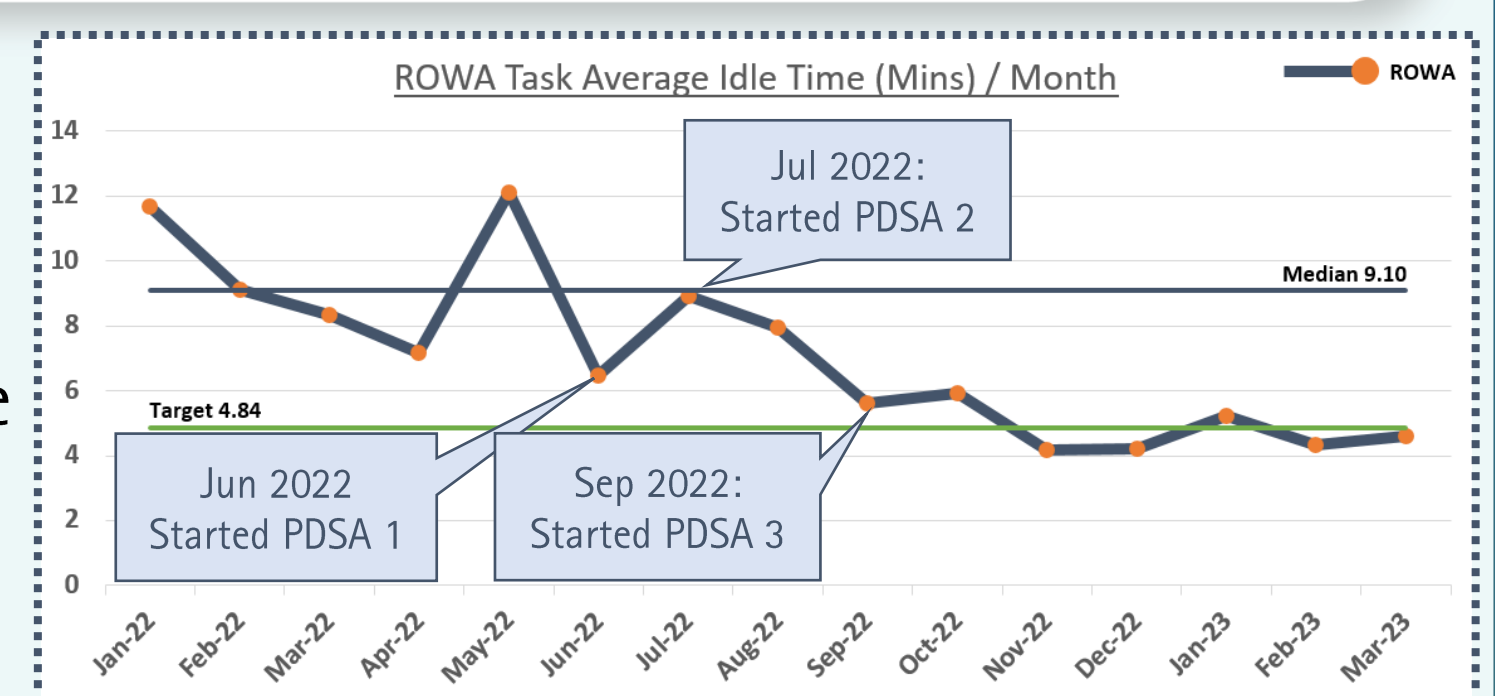
### Potential Solutions

Root Cause		Potential Solutions
Limited ROWA™ Picking and Labelling Capacity (2 Picking Arms and 2 Auto-Labelers) (RC5 & RC6)	1	Remove Mediations from ROWA™
	2	Redesign Entire OPAS Pack Sizes
Insufficient Pharmacy Staff at ROWA™ Stations (RC1)	3	Increase Pharmacy Manpower
Frequent Issues with ROWA™ Auto-Labelers (RC8)	4	Work Closely with Vendor to Resolve Issues
Time Consuming to Scan in Multiple ROWA™ Boxes per Prescription (RC12)	5	Optimise ROWA™ Pack Sizes to Reduce Number of Boxes per Prescription



### Outcomes & Impacts

Sustained reduction in average machine task idle time.



Intentional increase in average ROWA™ picking time after achieving target to re-maximise ROWA™ usage.

The optimisation efforts at ROWA™ drastically improved the pharmacy backroom processes and paved the way to enable the reduction in patient waiting time in the pharmacy. Additionally, the optimised state of ROWA™ allowed re-deployment of manpower to other areas of the pharmacy