

## **Project Title**

Improve Efficiency in Physical Checking of Medication Parcels

## **Project Lead and Members**

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## **Organisation(s) Involved**

Ng Teng Fong General Hospital

## **Healthcare Family Group Involved in this Project**

Pharmacy

## **Applicable Specialty or Discipline**

Pharmacology

## **Project Period**

Start date: Apr 2023

Completed date: Jul 2023

## **Aims**

By 31 Jul 2023, the team aims to reduce the average home delivery physical medications checking time by 20%, from an average of 7 minutes to 5.6 minutes.

## **Background**

See poster appended/ below

## **Methods**

See poster appended/ below

## **Results**

See poster appended/ below

## **Lessons Learnt**

Despite manpower constraints, it is still possible to implement small changes and gradual improvements to achieve better workflow efficiency.

## **Conclusion**

See poster appended/ below

## **Project Category**

Care & Process Redesign

Quality Improvement, Workflow Redesign

## **Keywords**

Pharmacy, Packing, Home Delivery, Medication, Dispensing, Prescription

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# IMPROVE EFFICIENCY IN PHYSICAL CHECKING OF MEDICATION PARCELS

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- SAFETY
- PRODUCTIVITY
- QUALITY
- COST
- PATIENT EXPERIENCE

## Define Problem, Set Aim

### Problem/Opportunity for Improvement

In end April 2023, the physical medication checking segment of outpatient pharmacy's home delivery process takes a significant amount of time to complete (average of 7 minutes per patient), resulting in a pile-up of totes and inadequate storage space. As home delivery (HD) totes are not checked quickly enough, outpatient pharmacy (OP) also has insufficient totes for daily operations resulting in delays to patients who are on-site. The average waiting time for outpatients at pharmacy is 62% within 30 minutes in Apr 2023, which is below the hospital target of 70 % within 30 minutes

### Aim

By 31 Jul 2023, the team aims to reduce the average home delivery physical medications checking time by 20%, from an average of 7 minutes to 5.6 minutes.

### Project Scope

This QI project covers the entire physical checking segment of the OP home delivery preparation process, which starts from retrieving totes to the time when a sealed medication parcel is placed into the HD box.

## Establish Measures

The outcome measure for this project is 'Time needed to perform physical check for HD prescriptions'.

### Operational definitions

Start time of physical check is defined as: Time to retrieve HD totes

End time of physical check is defined as: Time when sealed parcel with medications is placed into the HD box.

## Analyse Problem

The current processes for packing and checking HD medications are illustrated in Figures 1 and 2:

Figure 1: Packing of HD medications

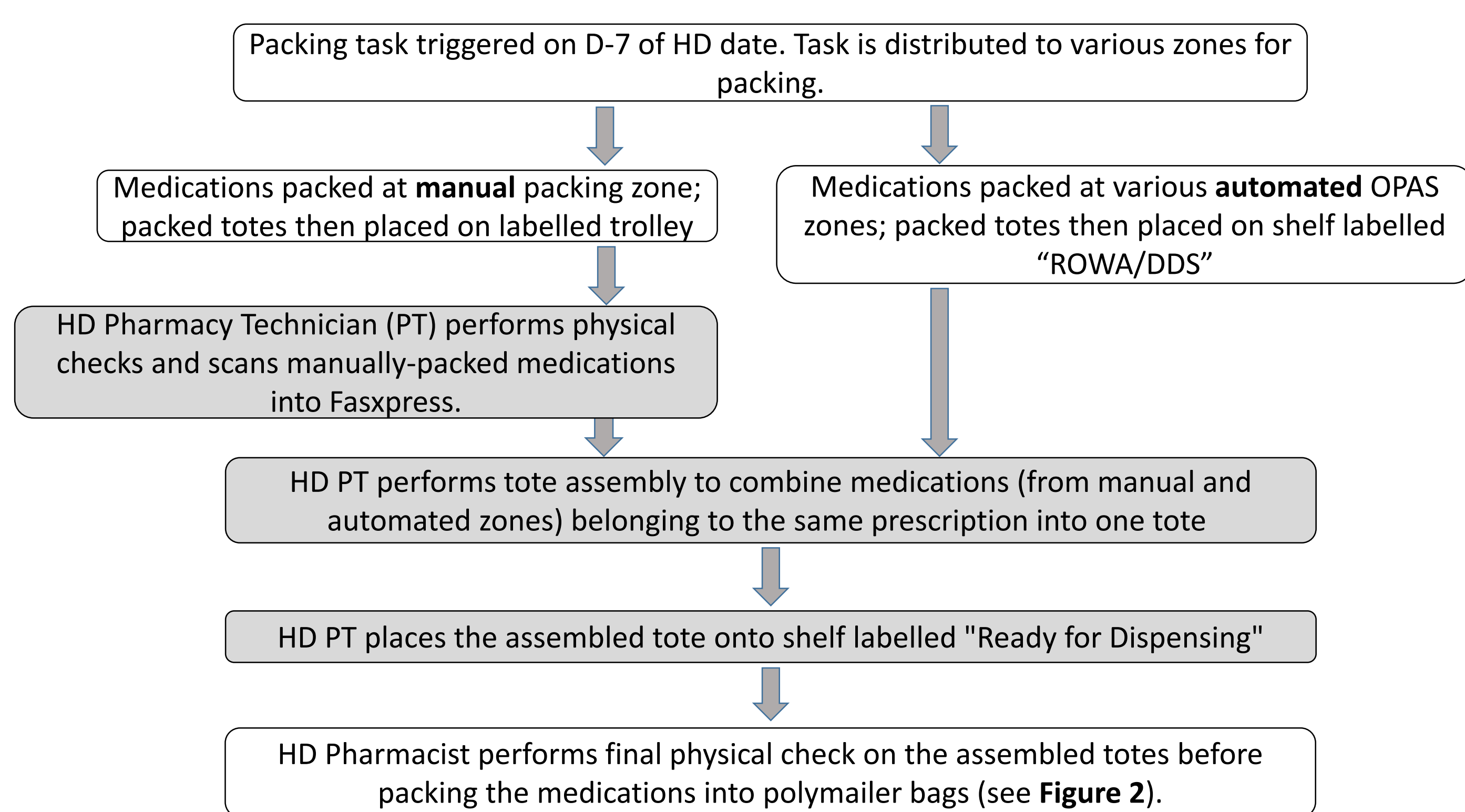
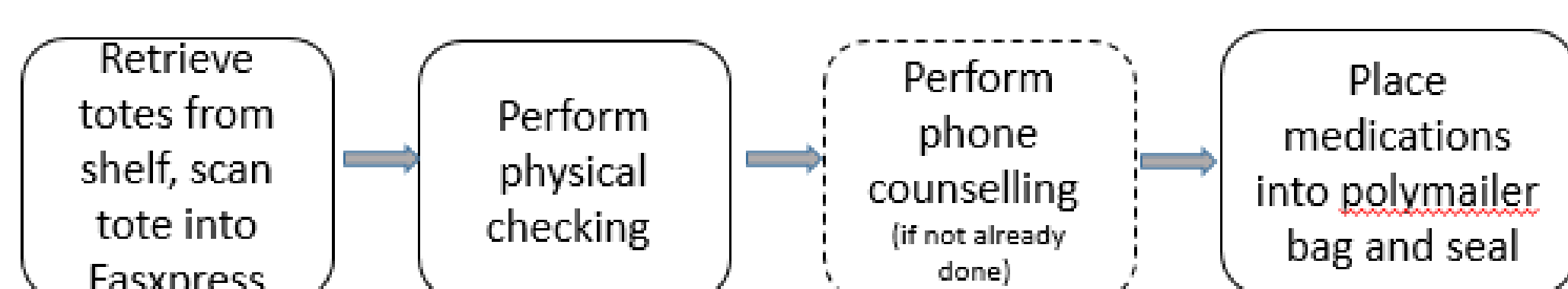


Figure 2: Physical checking steps by HD Pharmacist for medication parcels



Due to manpower constraints, there is currently no HD PT to assist in manual scan-in and tote assembly (greyed-out steps in Figure 1). As a result, there is a backlog of unassembled totes.

- The backlog of unassembled totes pile up in a disorganized manner on the shelves, making it difficult for the HD Pharmacist to locate relevant totes in a timely manner. This leads to more time needed for physical checks and eventually a backlog of items to be checked.

## Select Changes

While insufficient manpower is the root cause, it is not a problem with an immediate solution given the shortage of healthcare staff nationwide. Hence, we have identified problem areas that we can work on in the meantime:

Root Cause	Potential Solutions (PS)
Pile up of unassembled and disorganized totes, more time spent locating totes	1 Arrange totes on shelf in numerical order of tote numbers
	2 Assign existing packers to assemble totes while packing medications
	3 Reduce need for phone counselling
	4 Automate tote retrieval process for dispensing HD prescriptions
	5 Hire more staff with justification

## Test & Implement Changes

CYCLE	PLAN	DO	STUDY	ACT
1	To improve ease of locating totes on HD shelf.	Each row of the shelf is labelled with range of tote numbers. Packers are to place completed totes on the shelf according to the tote numbers. → Addresses PS1	The proposed change is effective, and shorter time taken to locate totes.  However, the proposed change was unfamiliar to packers initially, leading to instances of non-compliance.	To reinforce the new workflow to packers. Time savings can be further improved, as time is still spent locating multiple totes for patient with >1 tote assigned.
2.1	To ensure tote assembly is performed for prescriptions with more than 1 tote assigned.	Assigned packers at manual packing zone to pack medication into existing totes generated from OPAS (if any) instead of assigning an additional tote from manual zone.  Packers at OPAS zones to perform tote assembly with existing totes whenever possible (i.e., when space in totes allows). → Addresses PS2	The proposed change is effective in reducing the number of totes per prescription.  As a result, it was faster to locate totes as the pile of totes became smaller compared to previous.  However, as HD shares the same packers with frontline, this method may disrupt the usual flow of packing during peak hours, leading to low compliance rate. Packing of HD totes generally takes up a longer time vs live totes as packers now need to locate and retrieve totes from HD shelf before packing.	To create a filter in Fasxpress that allows packers to select HD manual packing tasks during off-peak hours, allowing them to focus on packing for on-site patients during peak hours.
2.2	To utilize Fasxpress filters that allow packers to focus on on-site patients during peak hours, and to pack HD totes during off-peak time.	Created 'Non home delivery' filter on Fasxpress for terminals at manual zones to subscribe to during peak hours.  Terminals to switch to existing 'Home delivery' filter during off-peak hours to request HD tasks. → Enhances PS2	Unable to set to default 'Non home delivery' filter, hence, staff needs to manually subscribe to the filter, making this less intuitive.  Nonetheless, the proposed change has improved the compliance rate of cycle 2, with significant time savings observed.	To reinforce the use of Fasxpress filters to packers using visual reminders pasted on terminals – with regular use, staff will be more familiar with switching the filters.

### Results:

	Baseline	PDSA 1	PDSA 2.1	PDSA 2.2
Average time taken to check and pack per prescription (% time savings in brackets)				
Ave. time/patient (pt)	7 min	4.8 min	3.6 min	3.8 min
% change in ave. time/pt		-31.43%	-48.57%	-45.71%

With the implementation of PS1 and PS2, the team managed to achieve the target to reduce physical checking time by more than 45%. Significant time savings were seen from early June 2023. In conclusion, this project exceeded target and was completed ahead of schedule.

## Spread Changes, Learning Points

### What are/were the strategies to spread change after implementation?

- Coaching session for outpatient pharmacy staffs (packers) on the new workflow.
- Changes in workflow were also communicated via Tiger-text.
- Constant observations on the ground and necessary reminders were made to adhere to our interventions in order to achieve effective solutions.

### What are the key learnings from this project?

- Despite manpower constraints, it is still possible to implement small changes and gradual improvements to achieve better workflow efficiency.