



## Service Priorities and Programmes

### Electronic Presentations

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#### **Re-design the Drug Distribution Workflow: Integration of Automatic Tablet Dispensing and Packaging System (ATDPS) with Inpatient Medication Order Entry (IPMOE)**

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#### **Introduction**

Despite the successful launch of IPMOE in TKOH in 2014 with electronic prescribing and administration functions, drug distribution with hybrid drug supply via ward stock and individual patient dispensing, and the sorting and selection of right drugs for administration by nurses are all manual processes and prone to errors. Hence a gap for re-designing the drug distribution workflow was identified.

#### **Objectives**

(1) Modernize the inpatient drug distribution process with ATDPS (2) Re-design the inpatient drug distribution (3) Facilitate medication sorting and selection by nurses at drug administration.

#### **Methodology**

ATDPS was integrated with IPMOE to dispense unit pack of oral solid medications automatically. The drug is dispensed in a small pouch with patient and drug information printed on the pouch. Each pouch is dispensed according to sequence of patients' bed number and time of drug administration. Different drugs with same administration time are arranged in sequence for each patient. The dispensed unit packs are final checked by the Medication Detection Machine (MDM) for dispensing accuracy. Refill oral solid medications were sorted by pharmacy staff according to patients' bed number in order to facilitate the transfer of drugs to the medication carts by nurses. For administration, e.g. when 0800 dose is due for administration, nurses can retrieve the strip of pouches with that specific time and scan the 2D barcode to check if it is the right drug to administer. Some oral ward stock medications were deleted. Duration of medication supply was shortened from 3 days to 1 day.

#### **Result**

Automatic Unit Pack Dispensing System was implemented in medical ward 5A in June

2015 and successfully rolled out to 6 other medical wards by Sep 2015 in phases. The impact of the new system on oral solid medication dispensing is listed as below:

1. % of ward stock medication orders was dropped by 55% (42% vs 19%).
2. Number of medication dispensed by Pharmacy increased by 115% (428 vs 922 per day).
3. Time spent on sorting medication at cart filling was increased by 70% (2min15sec vs 3min50sec per refill batch) with significant rise in number of medications dispensed by Pharmacy (30 vs 85 items per batch).
4. Time spent on medication administration round was slightly dropped by 9% (32min4sec vs 29min7sec).

The shifting of drug supply from ward stock to individual patient dispensing increases the workload in Pharmacy. Therefore, ATDPS and MDM are essential for such re-designed workflow. However, sorting refill medications in Pharmacy requires more time and manpower than before but definitely facilitates the transfer of drugs to the medication cart. The administration time by nurses is only slightly improved and further study can be done after nurses adapted to the new system.