

Project Title

Digital Transformation of Outpatient Prescriptions in SGH

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Organisation(s) Involved

Singapore General Hospital

Aims

The team aims to implement digital Rx across all outpatient clinics and centres in SGH to improve patient medication safety and process efficiency.

Background

See poster appended / below

Methods

See poster appended / below

Results

See poster appended / below

Conclusion

See poster appended / below

Additional Information

Singapore Healthcare Management (SHM) Conference 2021 – Merit Award
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Project Category

Automation, IT & Robotics

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Background

Paper prescriptions (Rx) issued by doctors at SGH Specialist Outpatient Clinics (SOC) for patients to collect medication has the following limitations:

1. Clinical review can only start when Rx reaches outpatient pharmacy, which limits process efficiency;
2. Manual tracking and recording of partial supply may cause potential patient safety issues;
3. Additional prescribing and liaising if patient lost paper Rx.

Digital transformation of outpatient Rx was initiated to improve the process and patient experience in SGH.

Project Aim and Strategy

The team aims to implement digital Rx across all outpatient clinics and centres in SGH to improve patient medication safety and process efficiency. To ensure a seamless transition, the team devised the following approach to achieve this aim:



Analysis

➤ Study Current Workflow

There were established workflows involving printed Rx. Some stakeholders also used printed Rx to facilitate other functions. To minimize disruptions to clinic operations when digitalizing Rx, the project team conducted Gemba Walks to 31 outpatient centres and clinics, and mapped out the current workflows involving Rx.

➤ Identify Gaps & Develop Solutions

Gaps were identified from current workflow study. The project team reached out to key stakeholders and discussed solutions.

Implication of Digital Rx	Solution
Patient may forget to collect medicine	<ul style="list-style-type: none"> • A medication list is printed automatically during the transition period, to remind all parties on medicine collection; • Ongoing staff and patient education to ensure patients are reminded to manage their medicine.
Patients may want to know medication balance with digital Rx	<ul style="list-style-type: none"> • A medicine balance list is printed out at pharmacy during transition period (i.e. 3 months) if there is balance amount; • After transition period, patient can call pharmacy to enquire the medication balance, or check in Health Hub or HealthBuddy app (in progress).
Paper Rx is used for communication (e.g. reminder on account for charging) between DEM pharmacy and Blk 3 pharmacy	DEM pharmacy staff will use "reception remarks" field in MaxCare pharmacy system instead.
Paper Rx is used for charging & documentation purpose in one of the outpatient centres	Team investigated and concluded that digital Rx would not affect this centre due to the account setting of the centre. However, the centre is reminded of potential workflow gap in future digitalization efforts.
Paper Rx is kept in the clinic for IVF patients on multiple treatments	The centre decided not to digitalize their Rx as there is currently no system enhancement to replace tracking of treatment cycle on printed documents.

Furthermore, project team collaborated with SOC and Medication Delivery Services (MDS) team to design a workflow that allows patients to sign up for MDS right after consultation, before leaving the hospital directly. Medication would then be delivered to their addresses or selected community pharmacy.

Implementation

➤ Mass Communication and Roadshow

• Internal Mass Communication approach

The team adopted a **role-based** approach on internal communication, with focus on **patient safety**. Roadshow was conducted to reach out to all SGH doctors at their clinical department meetings. Dedicated roadshow sessions were carried out for SOC nurses and clinic assistants, Call Centre staff, and Office of Patient Experience (OPE) staff. Roadshow materials, 1-page doctor's guide and prescribers' FAQs were circulated to doctors. Scenario based educational materials and patients' FAQs were shared among nurses, clinic assistants and Call Centre staff.

• External (Patient) Mass Communication approach

In addition to informing patients of the upcoming changes, the team **empowered patients** to manage their own medications via mass communication. Communication channels include posters, standees and pamphlets on site, as well as virtual outreach over Health Buddy app banner and websites.

➤ Pilot in selected clinics and Implementation across SGH

Digital Rx was piloted at Staff Clinic since 2nd Nov 2020, at Urology Centre and Diabetes & Metabolism Centre Level 3 since 10th Nov 2020. The team monitored the pilot by observing frequently at the clinics, working closely with clinic ops-in-charge for feedback, and monitoring of data and feedback at the pharmacy.

Results

➤ Consolidating learnings from the pilot, digital Rx was then launched hospital-wide on 8th Jan 2021.

➤ Daily median and average of key indicators from 8th Jan to 27th Feb 2021

Outcome Indicators	Median		Average	
	Daily No.	Daily %	Daily No.	Daily %
Total no. of Rx	2413	100%	2380	100%
Digital Rx	2242	93.9%	2233	93.8%
Rx printed	149	6.1%	147	6.2%
Rx reviewed in 7 days	1935	80.2%	1903	80%

Percentage of printed Rx for SGH formulary items (out of all hardcopy Rx printed) was reduced from 9.3% (pilot phase, 10th Nov 2021 to 7th Jan 2021) to 5.3% (hospital-wide implementation, 22nd Feb to 25th Feb 2021), showing that staff were increasingly adapted to the digital prescription system.

➤ Savings

Estimated net savings by digitalization of Rx is 26,860 man-hours or \$1,483,285, mainly from the reduction in administrative duties for prescribers, nurses and pharmacists.

➤ Process efficiency, patient safety and experience

Digital Rx has improved process efficiency as pharmacists can start clinical review immediately after doctor prescribes medicine in system. Patient safety is more assured as intervention could be carried out earlier than before, medication balance is tracked in system, and manual typing is not required for refills or different day collections. Patient experience has improved, as patients now no longer have the issue of "losing" their Rx.