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Pharmacy Division, Tan Tock Seng Hospital

Mission Statement

Transform patient care to improve patients' accessibility to information on their medication by 50% via QR codes.

Team Members

	Name	Designation	Department
Team Leader	Lim Woan Chyi	Principal Pharmacist	Pharmacy
	Phang Yi Xuan Vanessa	Senior Pharmacist	Pharmacy
	Lin Jiawen Alicia	Senior Pharmacist	Pharmacy
Team Members	Joelance Ng	Senior Pharmacist	Pharmacy
	Alethea Ng Kai Ti	Senior Pharmacist	Pharmacy
	Yip Yin Ching Samantha	Pharmacist	Pharmacy
	Jabigo Mark Anthony Cadinong	Pharmacy Technician Executive	Pharmacy

Evidence for a Problem Worth Solving

Movement towards Beyond Hospital to Community and medication delivery increases the need for virtual counselling for medications and administration techniques. Also, most of the time, most patients are unable to retain and understand all the counselling information given by staff via phone.

Besides having access to reliable medication information via website and other digital channels, there is also a need for a consolidated medication list containing medication information that is patient specific. The Medication Dispensed List (MDL) was created to provide a consolidated list of patient's medications with QR codes linking to Medication Information Leaflets (MIL) and drug images. This allows patients to refer to the MDL as the source of truth to access reliable information specific to the medications they are on. It also reduces wastes in printing multiple hardcopy MIL.

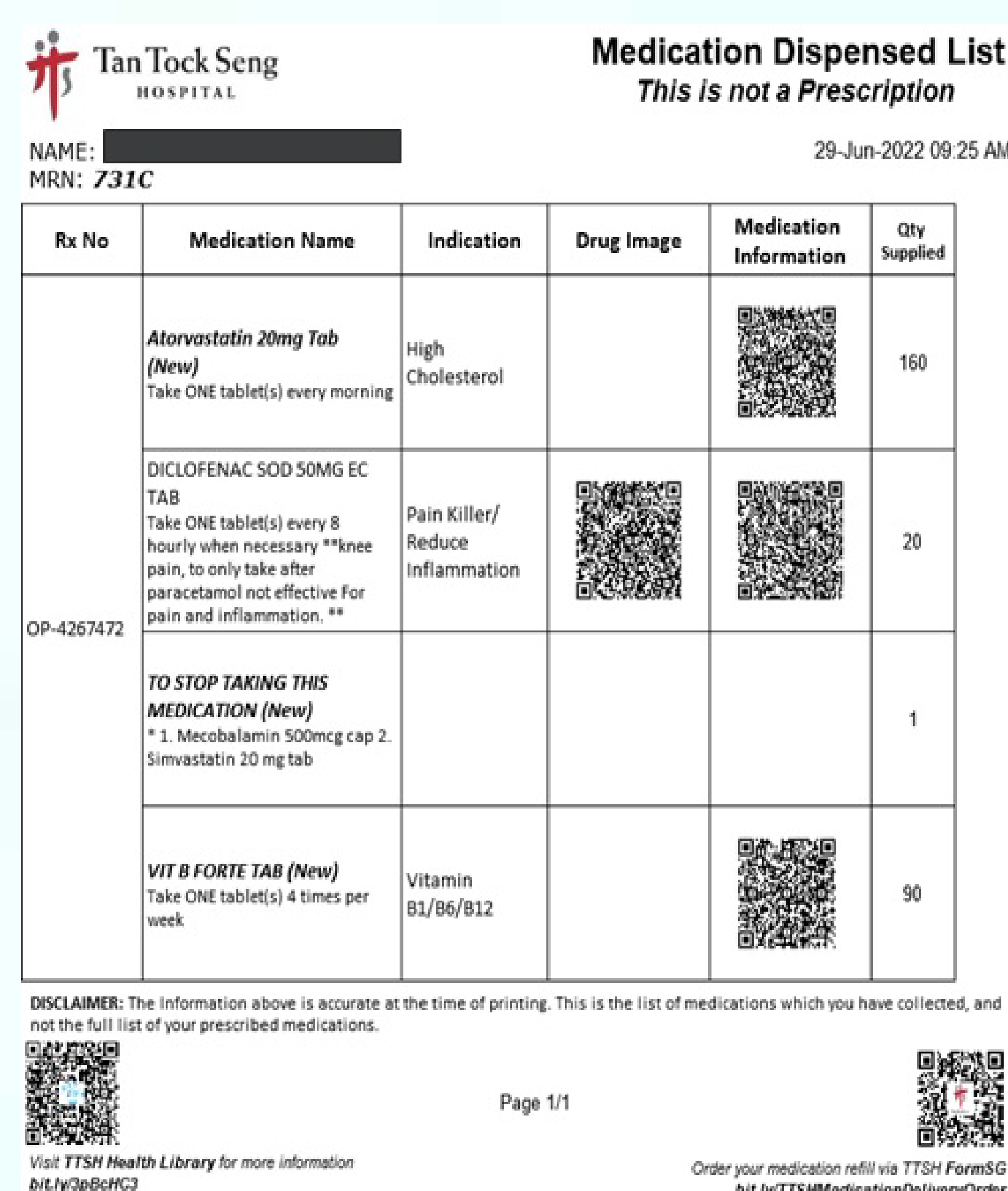
For drugs with administration techniques videos available (eg. eye drops), QR codes linking to the videos are pasted on the relevant medication packaging for patients to scan and view.

Objectives

To improve patients' access to medication information via QR codes on digital platforms - TTSH Health Library and YouTube by 50% in 12 months.

Implementations

- MIL PDFs are uploaded to Sharepoint platform on Health Library website. Videos are uploaded to TTSH YouTube Channel.
- The hyperlinks for MIL (from Health Library)/ videos (from YouTube) are then uploaded to Pharmacy system Rpress, which generates a drug-specific QR code.
- A in-house SSRS (SQL Server Reporting Services) report is developed.
- Using patient's NRIC, MDL containing QR codes to patient's list of medications is generated, via SSRS
- The MDL is printed and placed in patients' medication delivery bags to reinforce virtual counselling and improve patient's education as patients can scan the QR codes to read up about their medications.



Medication Dispensed List
This is not a Prescription
NAME: [REDACTED] 29-Jun-2022 09:25 AM
MRN: 731C

Rx No	Medication Name	Indication	Drug Image	Medication Information	Qty Supplied
	Atorvastatin 20mg Tab (New) Take ONE tablet(s) every morning	High Cholesterol			160
	DICLOFENAC SOD 50MG EC TAB Take ONE tablet(s) every 8 hourly when necessary **knee pain, to only take after paracetamol not effective for pain and inflammation. **	Pain Killer/ Reduce Inflammation			20
	TO STOP TAKING THIS MEDICATION (New) * 1. Mecobalamin 500mcg cap 2. Simvastatin 20 mg tab				1
	VIT B FORTE TAB (New) Take ONE tablet(s) 4 times per week	Vitamin B1/B6/B12			90

DISCLAIMER: The information above is accurate at the time of printing. This is the list of medications which you have collected, and not the full list of your prescribed medications.
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Visit TTSH Health Library for more information: bit.ly/TTSHHealthLibrary
Order your medication refill via TTSH FormSG: bit.ly/TTSHMedicationDeliveryOrder

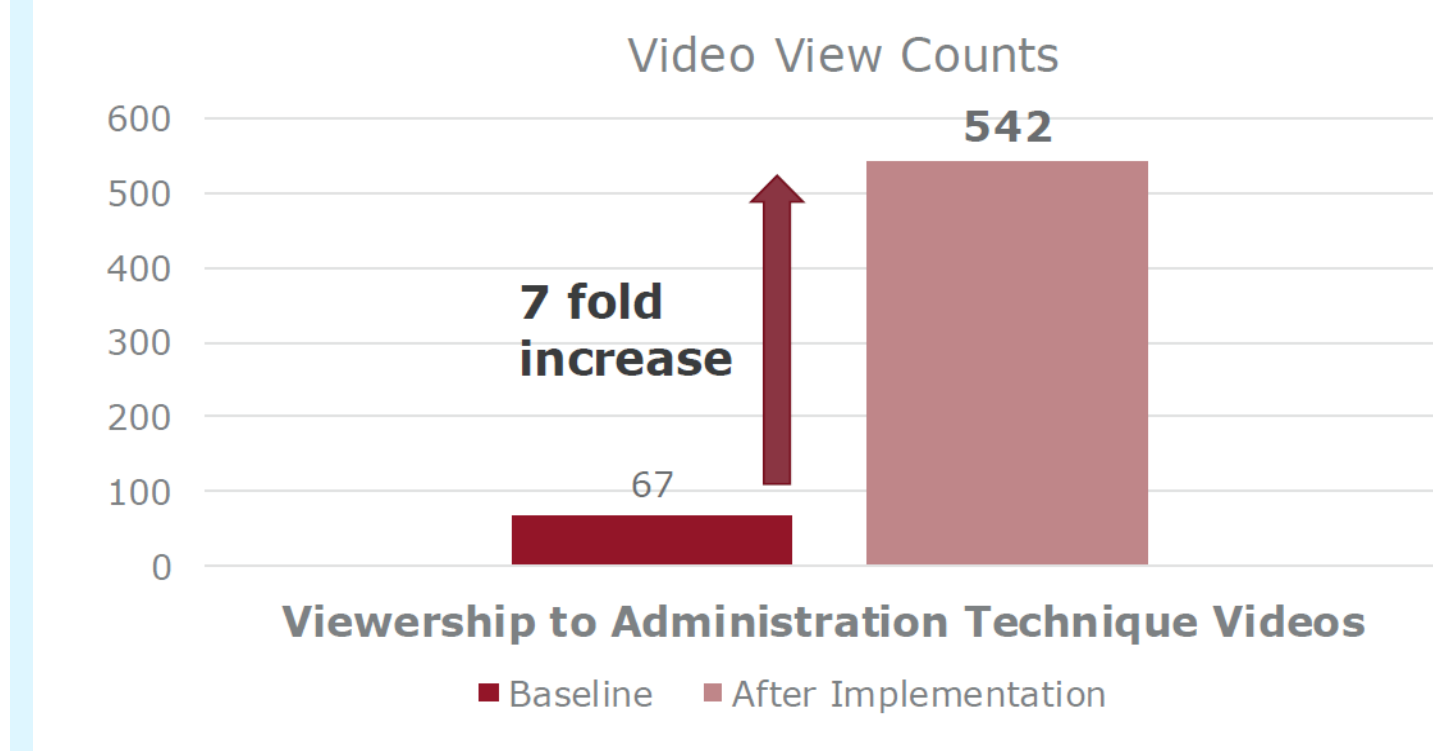
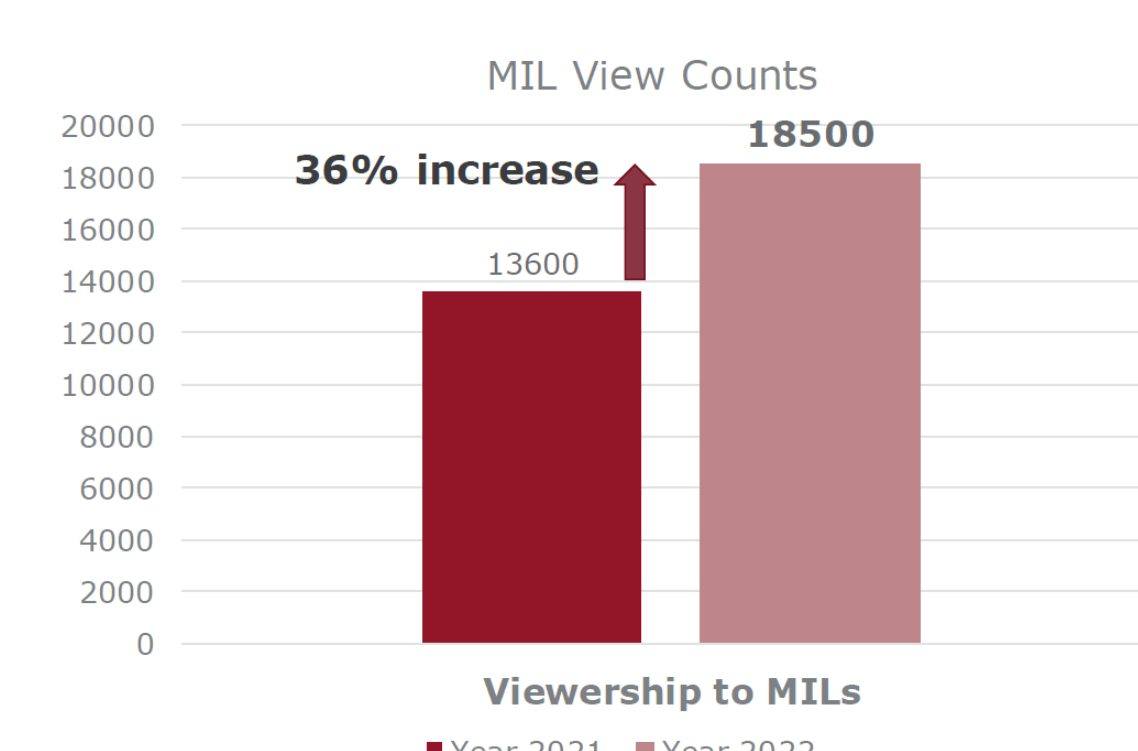


Results

Patients' Acceptance:

- MIL on TTSH Health Library: 36% increase
Baseline views: 13,600 (2021) increased to 18,500 (2022)
- Videos on YouTube: 709% increase
Baseline views: 67 (2021) increased to 542 (2022)

Viewership to MIL on TTSH Health Library Viewership to Administration Technique Videos



Patient satisfaction:

- 87% scanned QR codes to access medication information
- 80% agree that they understand more about their medications
- 80% used MDL to check the quantity of medications received
- 73% find the MDL useful
- 100% wants this initiative to continue

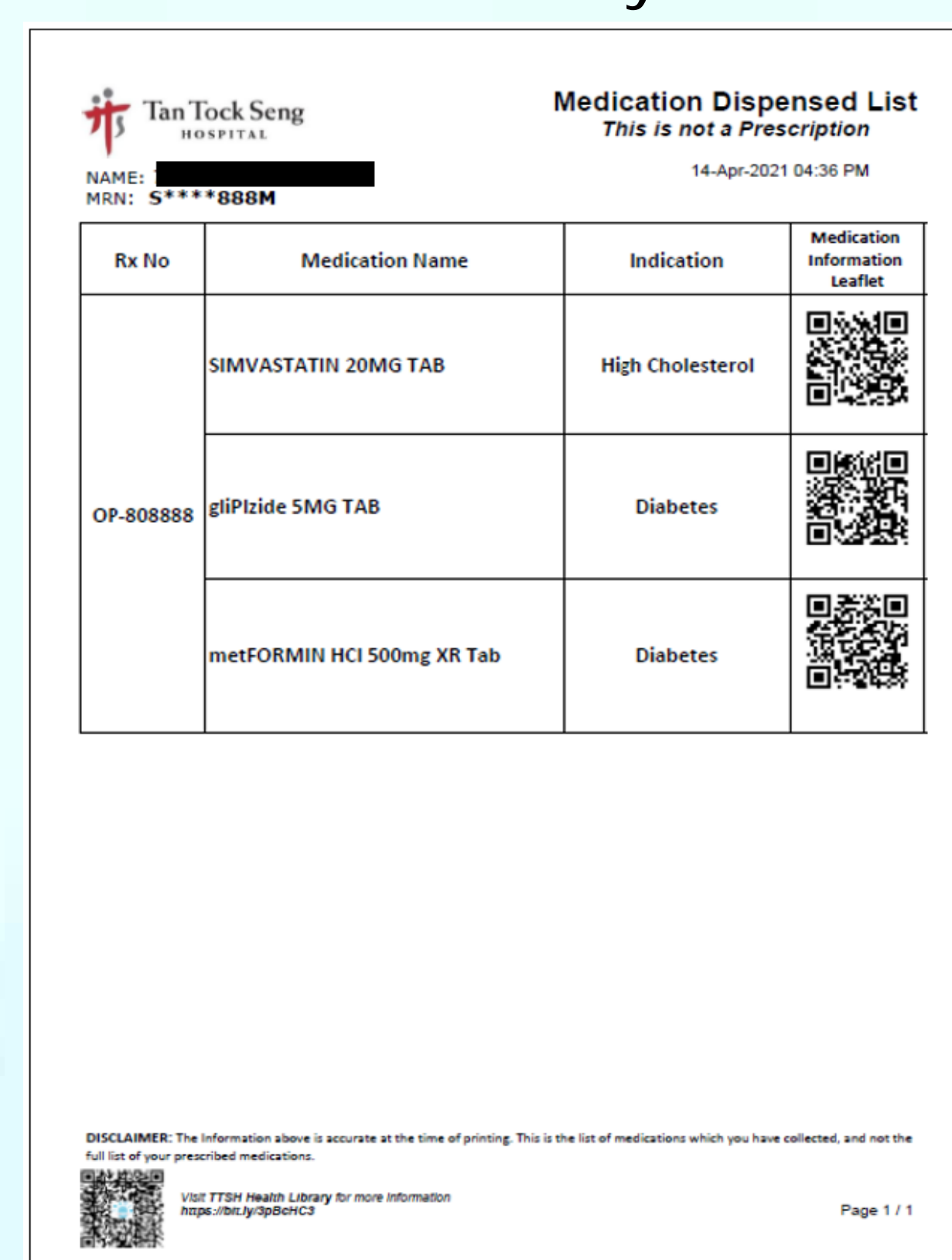
Cost Savings

As MDL is a consolidated patients' medication list with QR codes for patient to access MIL, drug images, quantity supplied, medication changes etc, this initiative of creating QR codes reduces the number of leaflets printed out. Number of leaflets received per patient after roll out reduced from average of 3 to 1 leaflet per patient/delivery.

Improvements

There has been continuous improvements to enhance MDL based on staff and patient feedback.

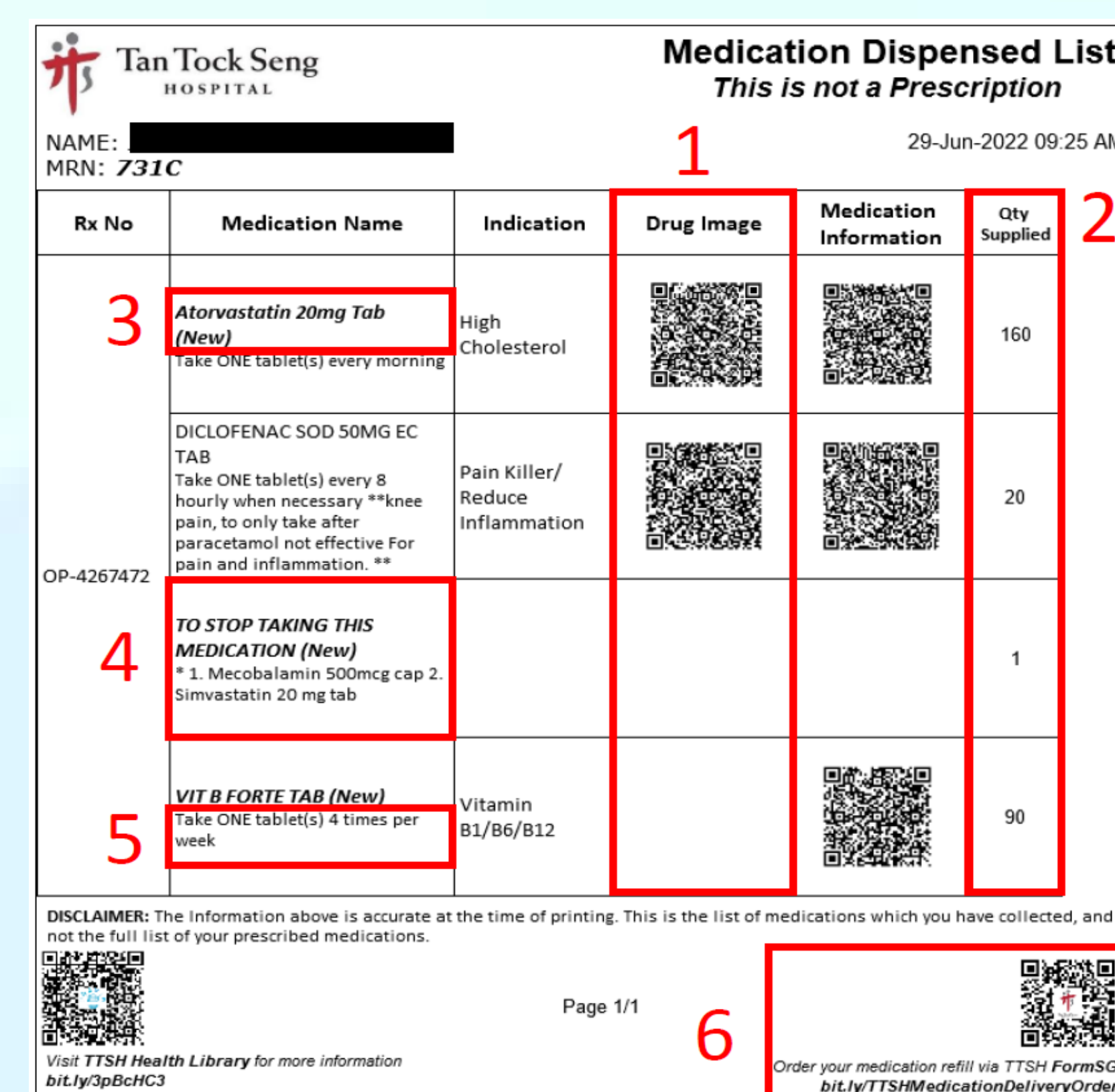
- Drug image QR codes included, to allow patients to check their medication packaging (eg. change in brand/ packaging)
- Information on quantity supplied, to allow patients to counter check the quantity of medications receive
- Inclusion of "New" indicator, to alert patients of newly started medication
- "To stop taking this medication" indicator, to alert patients of what medication(s) to stop taking
- Dosing instructions, to allow patients to use the MDL as a consolidated medication list for ease of reference
- QR code for Medication Delivery, to enable easy access to the online medication delivery order form for medication refills



Medication Dispensed List
This is not a Prescription
NAME: [REDACTED] 14-Apr-2021 04:38 PM
MRN: 5***8888

Rx No	Medication Name	Indication	Medication Information Leaflet
	SIMVASTATIN 20MG TAB	High Cholesterol	
	glibPizide 5MG TAB	Diabetes	
	metFORMIN HCl 500mg XR Tab	Diabetes	

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Visit TTSH Health Library for more information: bit.ly/TTSHHealthLibrary



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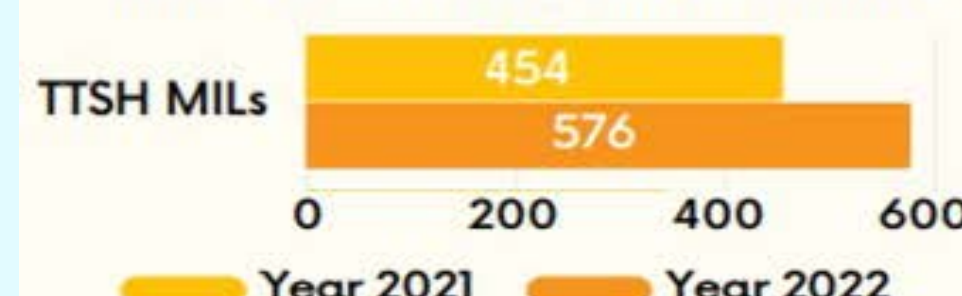
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Before PDSA

After PDSA

Expansion of the MIL repository on TTSH Health Library increases the number of drugs with QR codes from 454 in 2021 to 576 in 2022 (26.9% increase), increasing the number of drug QR codes available on MDL.

Increase in Total Number of MILs



Increase in Viewership on TTSH Health Library



Conclusion

This project demonstrated that patients are open to using digital solution, in particular QR codes, to access medication information and learning about administration techniques. The MDL reflects patients' desire to know more about their medications and the need for easily accessible referral points. The team will continue to explore ways to improve patients' accessibility and look into barriers deterring patients from using QR codes. In the future, with the readiness of various systems, the MDL can be presented in a fully digitalized format.