Optimising Drug Inventory Level Using Excel VBA on Daily and Weekly Stock Ordering to Reduce the Number of Ad hoc Stock Transfer (SIVs) and Lines Items ordered in Tan Tock Seng B2 and **Singapore Healthcare Satellites Pharmacies.** Management 2018 Tan Tock Seng HOSPITAL Macar Balomaga, Teo Yao Zong, Freddy Tang Hung Mook, Faridah Bte Abdul Samad, Steven Lai Kim Cheong, Tan Wee Sheng National Healthcare Group

INTRODUCTION:

TTSH Outpatient Pharmacy is located at various areas in the hospital that serves patients from the outpatient specialist clinics. Due to high patient load and demand, pharmacy sections are unable to cope with the supply and sometimes face the difficulties of stock shortage.

2) Stock Overview Dashboard



These shortages are attributed mainly to the following reasons: insufficient par level, patient requiring large quantity, sudden surge in usage. The task of determining the amount of inventory to keep is relatively challenging. Par level determination is done and computed manually and is based on average consumption and varies from each section needs.

When pharmacy sections have insufficient quantity of a drug to supply to patients, inventory personnel have to do stock transfer from store. To be able to fulfil the required quantity, stock transfer is done through the *Store Issue Voucher (SIV)*.

AIM:



Reduce the number of SIVs (orders) sent and the number of lines items ordered from Store by 50% for at least 4 to 6 months or longer post-



RESULTS:

FTE saved per Pharmacy Section

PHARMACY SECTION	Before	After	Total Number of Reduction	% Improvemen t	Period (in Months)	Est. time to complete SIV process	Time Saved per Week (hrs/week)	Time Saved per Week (FTE/week)
B2P, B2 Pharmacy	4797	3058	1739	36.25%	24 months	10 mins	5.57	0.1328
L4P, Level 4 Pharmacy	1456	726	730	50.14%	24 months	16 mins	3.75	0.0892
C4BP, Clinic 4B Pharmacy	210	167	43	20.48%	7 months	16 mins	0.38	0.0090
L2P, Level 2 Pharmacy	389	335	54	13.88%	4 months	16 mins	0.83	0.0197
C2BP, Clinic 2B Pharmacy	353	297	56	15.86%	7 months	16 mins	0.49	0.0117
CB1B, Clinic B1B Pharmacy	68	40	28	41.18%	5 months	10 mins	0.22	0.0051





METHODOLOGY:

1) Excel Daily/Weekly Order Template

Sequence of events:

OP

C4BP

CB1B

L2P

- Outpatient Pharmacy, Basement 2 Daily Order Template
- Implementation Date: August 2015 (Aug 2014 July 2015 VS Aug 2015 July 2016)
 - Level 4 Pharmacy Weekly Order Template
- Implementation Date: August 2015 (Aug 2014 July 2015 VS Aug 2015 July 2016) L4P
- Clinic 2B Pearl Pharmacy, Level 2 Weekly Order Template • Implementation Date: June 2017 (June -Dec 2016 VS June -Dec 2017) C2BP
 - Clinic 4B Pearl Pharmacy, Level 4 Weekly Order Template Implementation Date: June 2017 (June -Dec 2016 VS June -Dec 2017)
 - Clinic B1B Pearl Pharmacy, Basement 1 Weekly Order Template Implementation Date: August 2017 (Aug-Dec 2016 VS Aug-Dec 2017)









• Level 2 Pharmacy – Weekly Order Template

• Implementation Date: Sept -2017 (Sept-Dec 2016 VS Sept-Dec 2017)

✤ With built in formula to auto-compute for the par level dynamically based from average 2 weeks usage of the 6 months running usage or pre-set par level. By clicking command buttons users can generate the order list and automatically attach and submit it yo Pharmacy Store

via email.

	⊖ No ⊛ 1.	Please Select: ormal Order 5x Order	Outpatient Pharmacy, Basement 2) ⁶⁷	67				C	
		Order Options Items To			o. of Items	Generate Order	Generate Files	Submit Order	Stock D	etails
	ITEM #	ITEM CODE	ITEM NAME	COMMERCIAL PACK SIZE	BIN CODE	BUFFER Location (ifapolicable)	ESTIMATED MANUAL SHELF QTY	STORE QTY	ORDER QTY	Is there enough supply in Store? 💌
	1	0005-84-117-J	Acyclovir 5% Cr 10g	1	MA253	Bin	4	1	8	No
ב	2	0004-08-185-F	ADEFOVIR 10MG TAB (HEPSERA)	30	MA324P	IA-PB-03/PARAT	762	3,060	600	Yes
	3	0010-12-048-E	ADRENaline(Epinephrine) 0.3mg/0.3mL Autoinj(EPIPEN)	2	MA157	Bin	4	0	16	No
	4	0004-24-006-G	Amiodarone HCl 200mg Tab (CORDARONE)	30	MC115	MC-PB-01	323	2,490	270	Yes
	5	0004-08-063-1	AMOXICILLIN 250MG CAP	100	MB444	MB-PB-04	1,108	4,080	900	Yes
	6	0005-84-135-H	AQUEOUS CR 30G	1	MC265\$	LF-R/Retail (Out:	105	1	245	No
	7	0052-02-234-R	BLACKMORES FISH OIL 1000MG 120S	1	MC410\$	etail (Behind RC	39	5	36	No
	8	0004-28-084-K	CHLORDIAZEPOXIDE 5MG, CLIDINIUM 2.5MG TAB	1000	PAR005	Bin	211	2,000	1,000	Yes
	9	0013-84-105-L	Chlorhexidine 4% Ext Soln (Microshield) 500mL	1	MC166\$	LF-R/Retail (Out	60	1,879	5	Yes
	10	0015-04-021-H	Chlorphenamine Maleate 4mg/5mL Syr 100mL/120mL	1	MA460U	Bin	6	45	4	Yes
	11	0008-52-153-W	cicloSPORIN 0.05% Eye/D 0.4mL(E)	30	MA416	MA-3E-R	0	0	600	No
	12	0004-92-031-1	cicloSPORIN 100mg Cap (NEORAL)	50	MA340	MA-3C-R	1,003	3,200	1,200	Yes
Р	13	0004-92-030-K	cicloSPORIN 25mg Cap (NEORAL)	50	MC244	MC-2C-R	2,459	6 <mark>,</mark> 800	500	Yes
C	14	0004-92-159-E	Cinacalcet 25mg Tab (REGPARA)	100	MS141	Bin	1,497	2,100	1,700	Yes
	15	0005-84-041-F	Clobetasol Proprionate 0.05% Cr 15g	1	ME467	Bin	8	52	6	Yes
	E E	INSTRUCTIONS	TTEMS TO ORDER STOCK DETAILS CHECK STOCKS		nck Size / Me	a Template 🦯 🕅	/		14	

B2P	L4P	C4BP	L2P	C2BP	CB1B

The VBA integrated ordering template is rolled to 6 out of 9 sections. Total of FTE savings across 6/9 sections = 0.268 FTE/week. Across all section there is a reduction on both No of line items ordered and number of SIVs sent. The potential FTE saving is projected to exceed 0.4/week once all sections is using.

CONCLUSIONS:

inventory section in charges has reported significant Ihe improvement in fewer patients waiting for stocks. This is on top of better utilization of ground staff helping in the pharmacy instead of walking over to Store to collect stocks.