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REORDER POINT INTERVENTION (ROP) FOR FAST MOVING DRUGS AT A LOCAL PHARMACY

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ABSTRACT

Pharmacy is the clinical health science that links medical science with chemistry and it is charged with the discovery, production, disposal, safe and effective use, and control of medications and drugs. Due to the ever increasing demand of drugs to meet the Patient needs it is very important to have a proper stock of drugs and a good inventory control in order to avoid stock-outs and thus be competitive with other Pharmacies in market. Efficient inventory control will reduce inventory investment and minimize handling cost without adversely impacting customer satisfaction levels. A study was undertaken to check the efficiency of Reorder Point (ROP) intervention at a Local Pharmacy. A pre-experimental Study was done by using Turnover Ratio (TOR) as a Parameter. Data of Stock of Multivitamins in Jan-Feb 2020 & Jan-Feb 2021 was taken. Cost components like the amount of Stock, cost of goods sold, and daily drug use was recorded. In order to check the efficiency of the intervention a pre & post-test was done. It was concluded that ROP intervention increased the efficiency of Fast-moving drug plan. The pre & post intervention results were compared & a lower inventory value and a greater TOR value were obtained. Thus, an increase in efficiency will eventually require a smaller budget of drug expenses.

INTRODUCTION

Pharmacy Services are an inseparable part of the Healthcare system. The procurement of drugs is an important step in the efficient drug management and supply. An effective procurement will ensure that the Right drug in the Right Quantity is available for the Right patient at the Right time at a Reasonable price and with a Recognizable Standards of Quality.[1][2]

Always it should be ensured that the cases of Over-Stocks and Shortage of Stocks should be avoided.[3]

The modern lifestyle has made humans not less than any machine. The increasing fast food chain, packaged food has deteriorated the quality of food and has lowered the nutritional value of food too. Thus, in order to meet the nutritional value needs Multivitamins are used to provide vitamins not taken through the diet.[4] Multivitamins are also used to treat vitamin deficiencies (lack of vitamins) caused by illness, pregnancy, poor nutrition, digestive disorders, and many other conditions.[5] The demand for Multivitamins as an OTC product has also increased. Thus, it is necessary to avoid conditions of shortage and over-stock in a Pharmacy.[6]

The efficiency in their procurement can be assessed by TOR calculation. TOR is a critical performance metric to assess the effectiveness of inventory management.[7]

This study aims to examine the efficiency of fast moving drug plan after ROP (reorder point) intervention at a Local Pharmacy. A reorder point is the unit quantity on hand that triggers the purchase of a predetermined amount of replenishment inventory.[8]

METHOD

A pre-experimental Study design by including two groups, pre-test with TOR (Jan-Feb 2020), ROP intervention (December 2020), post-test with TOR (Jan-Feb 2021). Data obtained was statistically analyzed.

Study Population

Includes all the drugs used at the Local Pharmacy. The Observation of the drug use and the financial data from Jan-Feb 2020-2021 was done.

Inclusion criteria was

1. Most frequently prescribed Multivitamins(fast-moving) at a Pharmacy
2. Its use was more than or equal to 200 pieces per month.

Research Procedures

1. Pre-Test

TOR value was calculated using following formula.

Inventory TOR= Cost of goods sold/inventory average.

2. ROP intervention.

ROP value was calculated using following formula:

ROP=daily drug needs*order waiting time (day)

3. Post test: TOR value was calculated.[9]

Results and Discussion- There were 10 Multivitamins with large average of use 200 per month, but we used only 3 Multivitamins that have been used more than 350 per month. The drug data is provided in Table -1.

Table 1: Fast Moving Multivitamins.

Multivitamin	Dosage Form	Average monthly use
Supradyn(Multivitamin Tablets with Minerals and Trace Elements)	Tablets	1500 Tablets
Zincovit(Multivitamin,Multimineral with Grape Seed extract)	Tablets	1200 Tablets
A-Z(Multivitamin,Multimineral & Lycopene tablets	Tablets	375 Tablets

Inventory Value and TOR Pre-intervention (Pre-Test).

TOR value was calculated and the result is provided in Table 2.

Table 2: TOR value of Fast-Moving Multivitamins before the Research, Feb 2020.

Fast-Moving Multivitamin	Week	Number of Use(1)	Average of Inventory(Rp)(2)	Cost of goods sold (Rp) (3)	TOR (4)=(1)*(3))/(2)
Supradyn(Multivitamin Tablets with Minerals and Trace Elements)	1	375	25447.5	33.93	0.50
	2	372	19085.6		0.66
	3	370	12774.6		0.98
	4	383	7769.9		1.67
Zincovit(Multivitamin,Multimineral with Grape Seed extract)	1	300	63000	105	0.50
	2	299	47250		0.66
	3	302	31552.5		1.0
	4	299	19635		1.59
A-Z(Multivitamin, Multimineral & Lycopene tablets	1	93	19687.5	105	0.40
	2	95	14805		0.67
	3	94	9817.5		1.0
	4	93	8820		1.10

The TOR value of all multivitamins is 0.4-1.6/Week, or approximately 19.2-76.8/year.

We compared our results with previous studies that showed TOR value ranges 20-75/year means there is no overstock of drugs.

ROP Calculation

ROP value was calculated, and the result is provided in Table- 3.

When the inventory has reached the ROP point, procurement will be carried out for the drugs. E.g. When the Supradyn Tablets has reached 78 Tablets, it will be ordered. ROP intervention helps to avoid excess stock/gaps which can be detrimental to Pharmacy. This estimation will help in maintaining both the availability of Multivitamins despite an increase in usage and delay in delivery of Multivitamins.

Table 3: ROP Value of Multivitamins.

Fast Moving Multivitamins	Lead Time (Day) (1)	Daily Use (2)	Safety Stock (3)	ROP (1)*(2)+(3)
Supradyn (Multivitamin Tablets with Minerals and Trace Elements)	1	3	75	78
Zincovit (Multivitamin, Multimineral with Grape Seed extract)	1	2	75	77
A-Z (Multivitamin, Multimineral & Lycopene tablets)	1	1	75	76

Inventory Value and TOR Post-Intervention (Post Test).

TOR value was calculated and the Result is provided in Table 4.

The TOR value ranged 0.43-2.12/week and 25.8-101.76/year, which means inventory, was efficient. Moreover, TOR value of Pre & Post Intervention data was calculated.

Table-4: TOR Value of Multivitamins

Fast Moving Multivitamins	Week	Number of Use(1)	Average of Inventory (2)	Cost of Goods Sold (3)	TOR (4)=(1)*(3)/(2)
Supradyn(Multivitamin Tablets with Minerals and Trace Elements)	1.	325	22054.5	33.93	0.5
	2.	350	16540.8		0.71
	3.	326	10603.1		1.04
	4.	299	6344.9		1.59
Zincovit(Multivitamin, Multimineral with Grape Seed extract)	1.	280	58012	105	0.52
	2.	328	48772.5		0.70
	3.	292	28875		1.06
	4.	300	19687.5		1.60
A-Z(Multivitamin, Multimineral & Lycopene tablets)	1.	94	22575	105	0.43
	2.	135	17640		0.57
	3.	125	6162.5		2.12
	4.	115	9975		1.21

Comparison of Inventory Value and TOR Pre- and Post- Intervention.

The TOR value was calculated and the result is provided in Table 5.

Table 5: TOR value comparison of Fast Moving Multivitamins, Pre & Post Intervention.

Fast-Moving Multivitamins	Week	TOR, Pre-	TOR, Post-
Supradyn (Multivitamin Tablets with Minerals and Trace Elements)	1	0.50	0.50
	2	0.66	0.71
	3	0.98	1.04
	4	1.67	1.59
Zincovit (Multivitamin, Multimineral with Grape Seed extract)	1	0.50	0.52
	2	0.66	0.70
	3	1.0	1.06
	4	1.59	1.60
A-Z(Multivitamin, Multimineral & Lycopene tablets)	1	0.40	0.43
	2	0.67	0.57
	3	1.0	2.12
	4	1.10	1.21

From the above Data it can be seen that TOR value increases in all Multivitamins, except in Supradyn at Week 4 & in A-Z Tablets at Week 2. In Feb 2021, TOR value was significantly increased thus indicating a better efficiency of procurement. A lower inventory value and greater TOR value was obtained after the intervention. Increase in TOR value was obtained because the average value of supply of each drug becomes smaller than the average inventory before the intervention. This increase in efficiency is due to a low inventory value which will require a smaller budget as well. Thus, it can be concluded that the ROP intervention is effective in improving the efficiency of managing Fast-Moving Multivitamins at a Local Pharmacy Store.

Conclusion- Based on the results of the research intervention, it can be concluded that.

1. Drug plan with ROP intervention improved the efficiency of drug management.
2. The efficiency of the fast-moving Multivitamins increased by decreasing the inventory value and increasing TOR.

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Conflict of Interest – None.

REFERENCES

1. World Health Organization. Management Sciences for Health. Managing procurement. MDS-3. Managing Access to Medicines and Health Technologies.
2. Eman Abouzeid (2019) The Five Rights of Procurement, Available at: https://www.linkedin.com/pulse/five-rights-procurement-eman-abouzeid-cscp-cips-/
3. Mercado, EC. Hands-on Inventory Management. Florida: Auerbach Publications, Taylor & Francis Group, 2008; 64.
4. Beard-Knowland, T. The Impact of Covid-19 on How We Eat. 2020. Available online: https://www.ipsos.com/sites/ default/files/ct/publication/documents/2020-05/.
5. Michigan Medicine (2019) multivitamins and minerals.
6. Aisha K. Nur et al (2019) 'Efficiency Fast-Moving Drug Plan with Reorder Point Intervention at a Private Hospital in Bandung', *Pharmacology and Clinical Pharmacy Research*, 4. [Online].
7. Steven Bragg (2020) Reorder point definition, Available at: https://www.accountingtools.com/articles/what-is-a-reorder-point.html (Accessed:).
8. Thomas (2020) Reorder Point Formula and Safety Stock, Available at: https://www.inflowinventory.com/blog/reorder-point-formula-safety-stock
9. Andriyani Rahmah Fahriati (2021) Efficiency Fast-Moving Drug Plan with Reorder Point Intervention at a Private Hospital in Bandung.