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Applying quality improvement method to address the gap in delay of medicine from pharmacy to respective department in Sarvodaya hospital, Faridabad

OBJECTIVE

1. To identify the bottlenecks present in the process flow of indoor pharmacy.

Methodology

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1. **Research Design**: Cross-sectional-qualitative study.
2. **Duration of study:** 6th Feb to 6st May 2017
3. **Time period:-** The observational study was carried for over a 2 week period where patients and nursing staff were observed at random in ward.
4. **TOOL:-**

✓ **Six sigma approach** is used i.e**. DMAIC approach**.

✓Problem solving technique/ Root Cause analysis is used i.e. **Fish bone analysis, 5W&1H and 5 WHY** and to check the improvement of process analyse the average TAT of pharmacy department month wise data of normal, urgent, immediate and discharge medicine in Microsoft Excel.

5. **Sample Size**: Senior pharmacist, associate pharmacist, Quality manager
6. **Data collection procedure:** Issue stock report from the hospital information system, and invoice pharmacy receipt

Quality Improvement method

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- **<u>SIX-SIGMA DMAIC TOOL IS USED TO IDENTIFY THE PROBLEM.</u>**

Steps to Carry Out QIP

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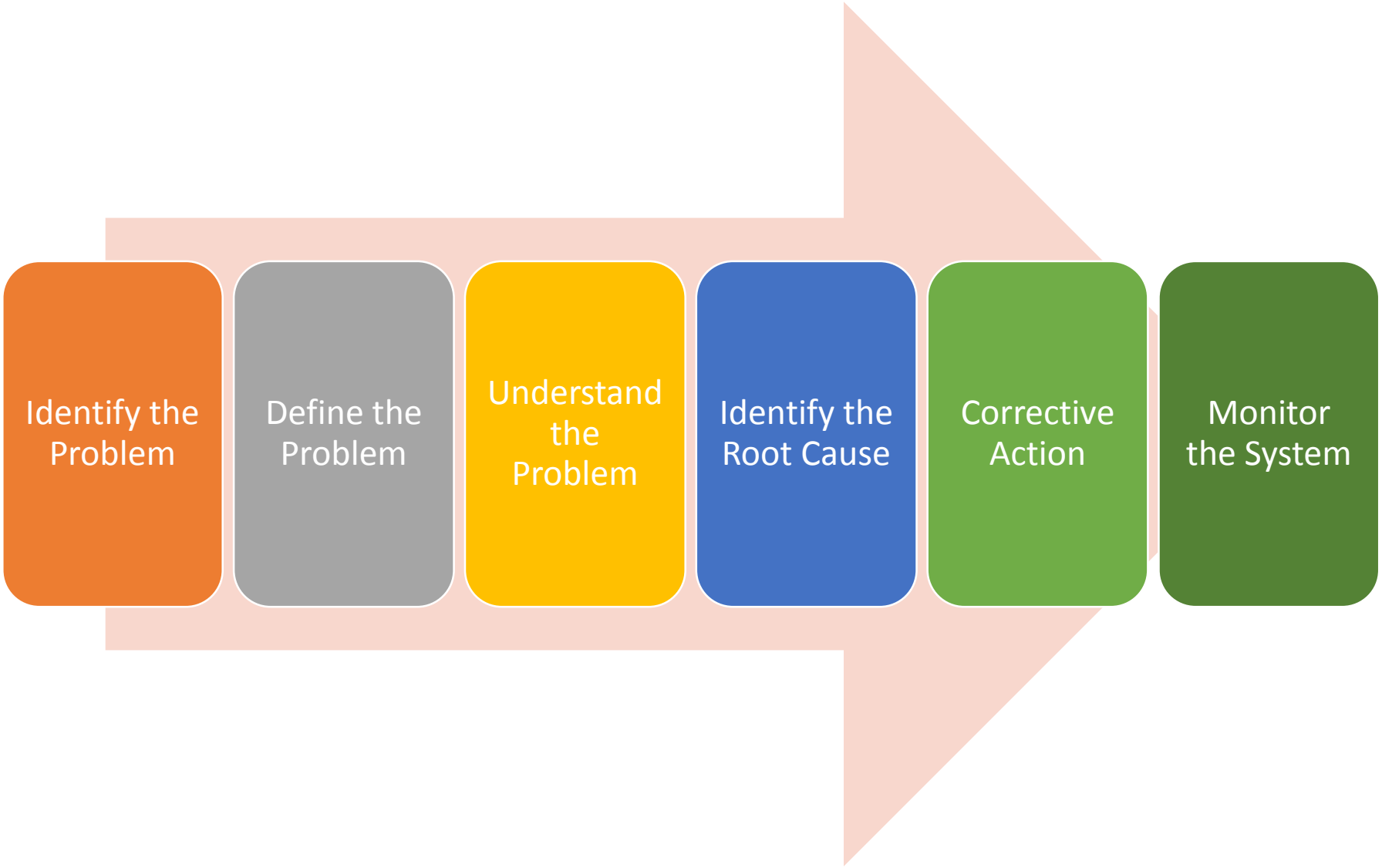

IDENTIFY PROBLEM

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DELAY IN DELIVERY OF MEDICINES

Define the problem

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In order to better define the problem –started collecting the data.

- Data was collected from January 2017 To APRIL 2017

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ANALYSIS

Understand the root cause

- **5 Ws**

1. What- Delay in delivery of medicines
2. Why- Partial Implementation of HIS
3. When- It was a running problem
4. Where- Pharmacy Department
5. Who- Pharmacy staff, Nursing staff

- **1 H**

1. How-Effective use of HIS

Brain-Storming

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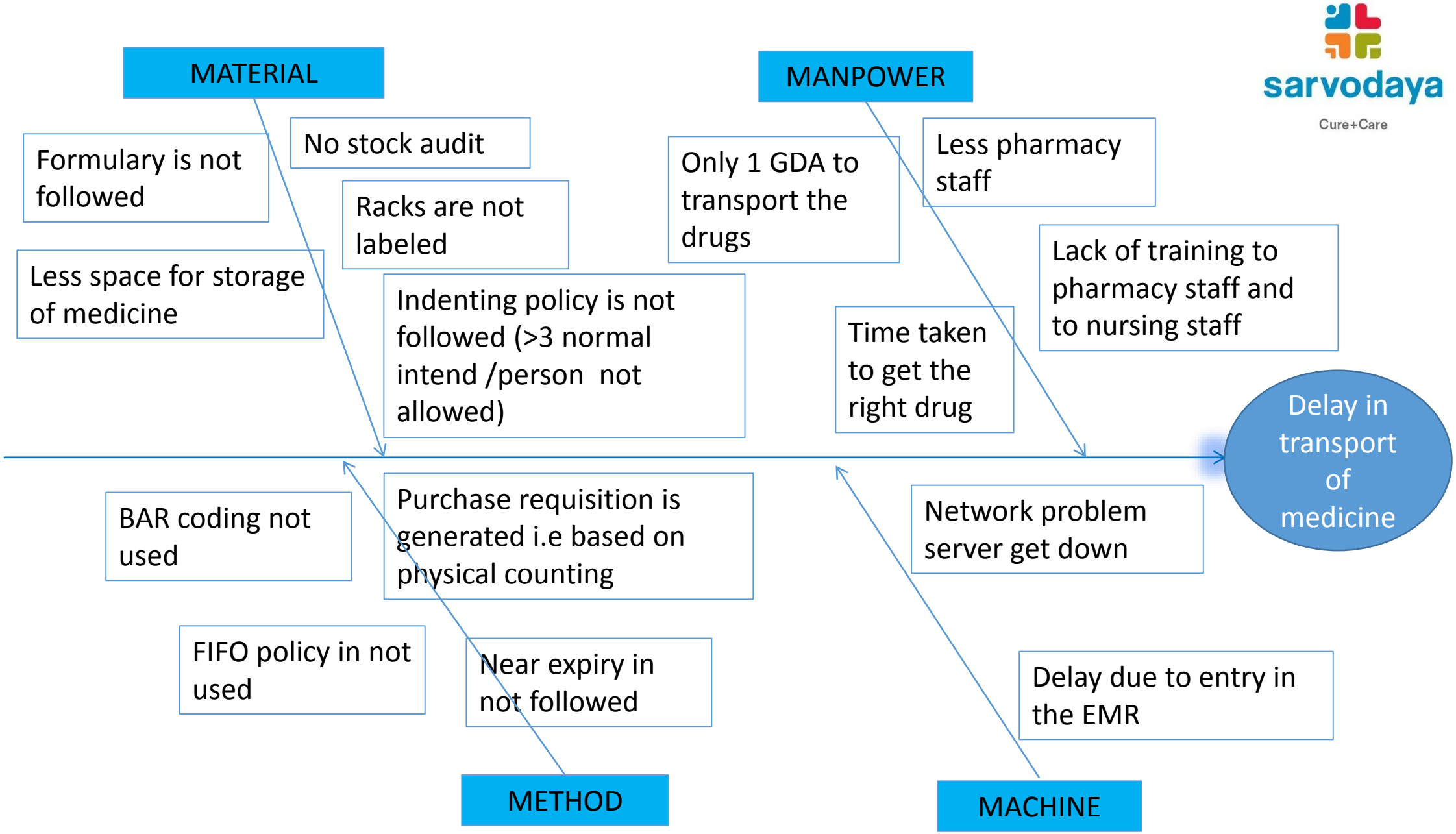
HIS	MANPOWER	STORE KEEPING
1. Doesn't show reliable data	1. No supply chain manager	1. Stock available in HIS varies with the current present stock in department
2. ROL was not defined	2. Frequency of indenting is high	2. Formulary is not followed
3. Purchase requisition is generated based on physical counting	3. Poor communication between purchase department and pharmacy	3. FIFO policy is not being followed
4. Stock available in HIS varies with the current present stock in department	4. Lack of training(pharmacy & nursing)	
5. Bar coding is not used		
6. Shelves were not linked with HIS		
7. Near expiry is not followed		

Fish bone or 4M Chart

- Once a list of possible causes has been produced, it is necessary to cluster them into one of four main categories as described under the “Fishbone Diagram or 4M Chart” as shown, where the major cause can be Manpower, Machines, Methods, Material.


MATERIAL
Formulary is not followed
No stock audit
Racks are not labeled
Less space for storage of medicine
Indenting policy is not followed (>3 normal intend /person not allowed)
MANPOWER
Only 1 GDA to transport the drugs
Less pharmacy staff
Lack of training to pharmacy staff and to nursing staff
Time taken to get the right drug
Delay in transport of medicine
BAR coding not used
Purchase requisition is generated i.e based on physical counting
FIFO policy in not used
Near expiry in not followed
METHOD
Network problem server get down
Delay due to entry in the EMR
MACHINE

5 WHY?

1. WHY? :- No stock audit is performed
2. Why? :- Delay in finding the right drug
3. Why? :- Process is user dependent
4. Why? :- Formulary is not being followed
5. Why? :- Re- order level is not defined

5 Why? Analysis

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Identify cause of problem:-

PARTIAL OR NO IMPLEMENTAION OF HIS OF ROL MODULE

CAPA

Sr. no	Corrective action	Corrected by
1.	ROL is fixed item wise	Sr. pharmacist, Purchase dept. IT dept.
2.	Daily basis stock audit is performed	Assistant pharmacist, pharmacist
3.	HIS is updated with the layout of complete store	Sr. pharmacist, IT department
4.	All the racks were labeled	Pharmacist
5.	Only 3 indents are allowed per patient in a day excluding urgent, Immediate medicines	Nursing supervisor, team leader of nursing staff
6.	FIFO has being followed in the department	Pharmacist, k dispensing desk pharmacist
7.	Communication has been improved between pharmacy and purchase department, monthly inventory report is send to the finance department	Sr. pharmacist, purchase head

ROL is defined

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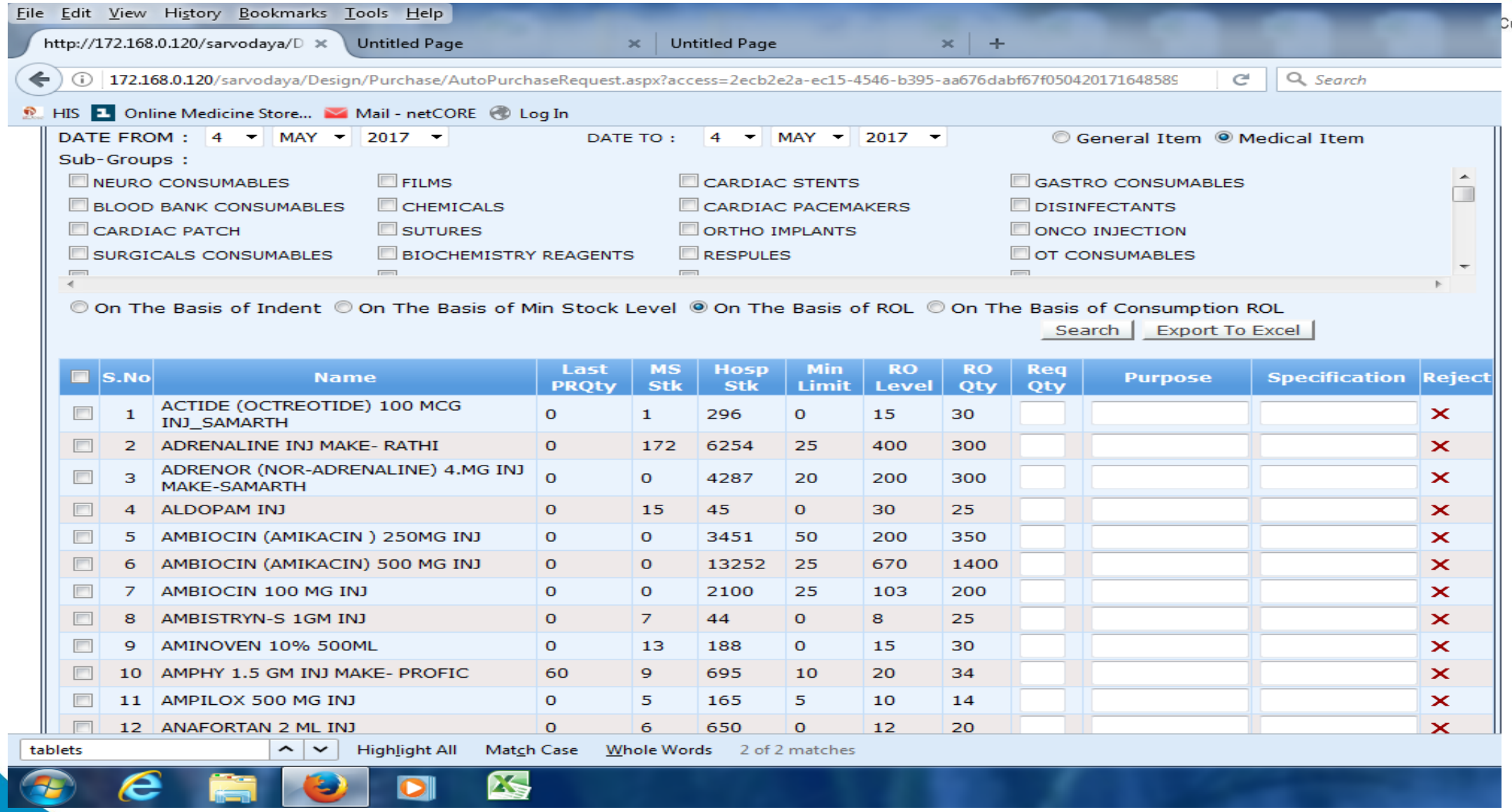

S.No	Name	Last PRQty	MS Stk	Hosp Stk	Min Limit	RO Level	RO Qty	Req Qty	Purpose	Specification	Reject
1	ACTIDE (OCTREOTIDE) 100 MCG INJ_SAMARTH	0	1	296	0	15	30				✕
2	ADRENALINE INJ MAKE- RATHI	0	172	6254	25	400	300				✕
3	ADRENOR (NOR-ADRENALINE) 4.MG INJ MAKE-SAMARTH	0	0	4287	20	200	300				✕
4	ALDOPAM INJ	0	15	45	0	30	25				✕
5	AMBIOCIN (AMIKACIN) 250MG INJ	0	0	3451	50	200	350				✕
6	AMBIOCIN (AMIKACIN) 500 MG INJ	0	0	13252	25	670	1400				✕
7	AMBIOCIN 100 MG INJ	0	0	2100	25	103	200				✕
8	AMBISTRYN-S 1GM INJ	0	7	44	0	8	25				✕
9	AMINOVEN 10% 500ML	0	13	188	0	15	30				✕
10	AMPHY 1.5 GM INJ MAKE- PROFIC	60	9	695	10	20	34				✕
11	AMPILOX 500 MG INJ	0	5	165	5	10	14				✕
12	ANAFORTAN 2 ML INJ	0	6	650	0	12	20				✕

Layout is defined item wise

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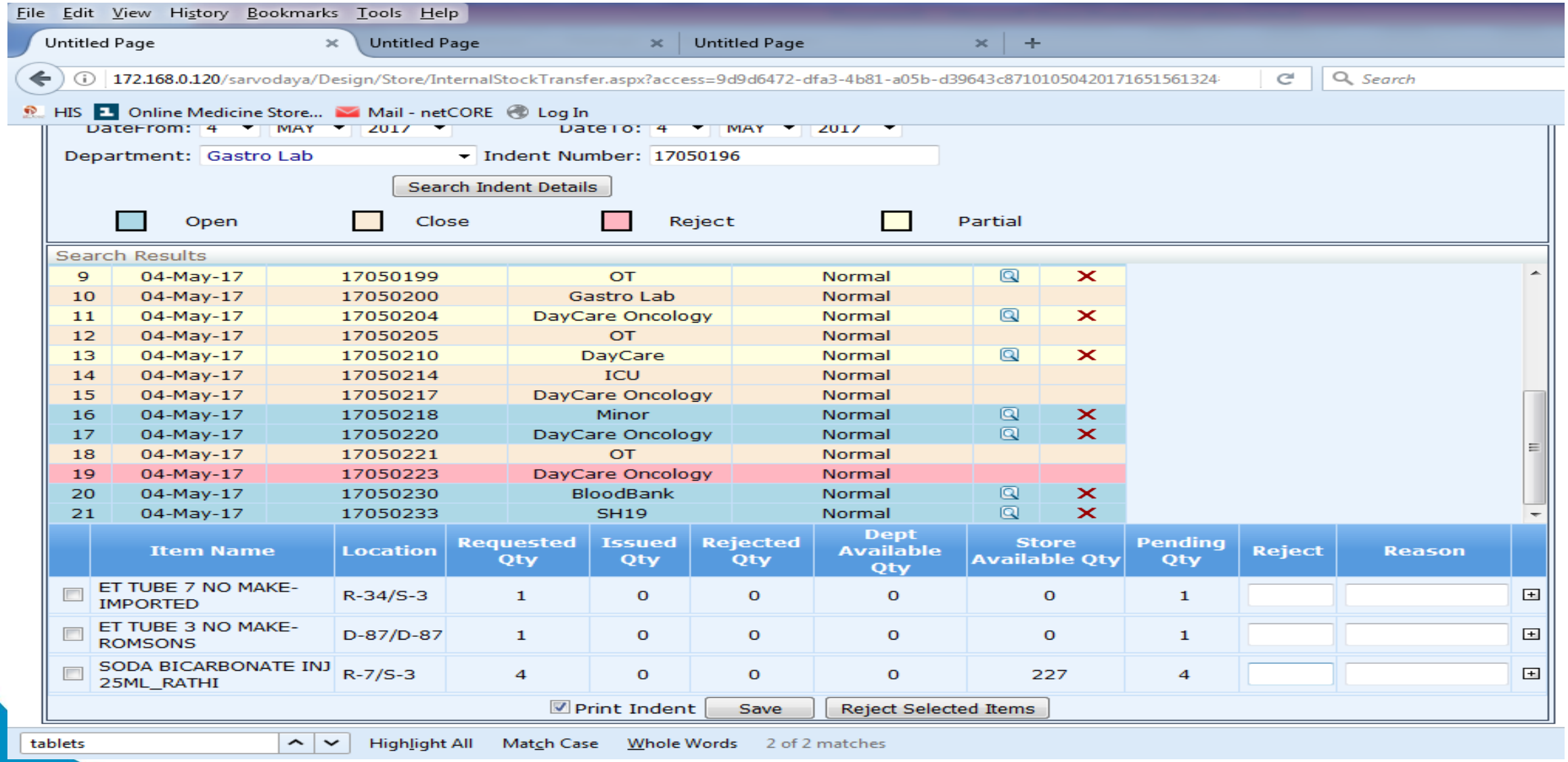

Unlabeled racks

labeled racks

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New racks added for storage of drugs

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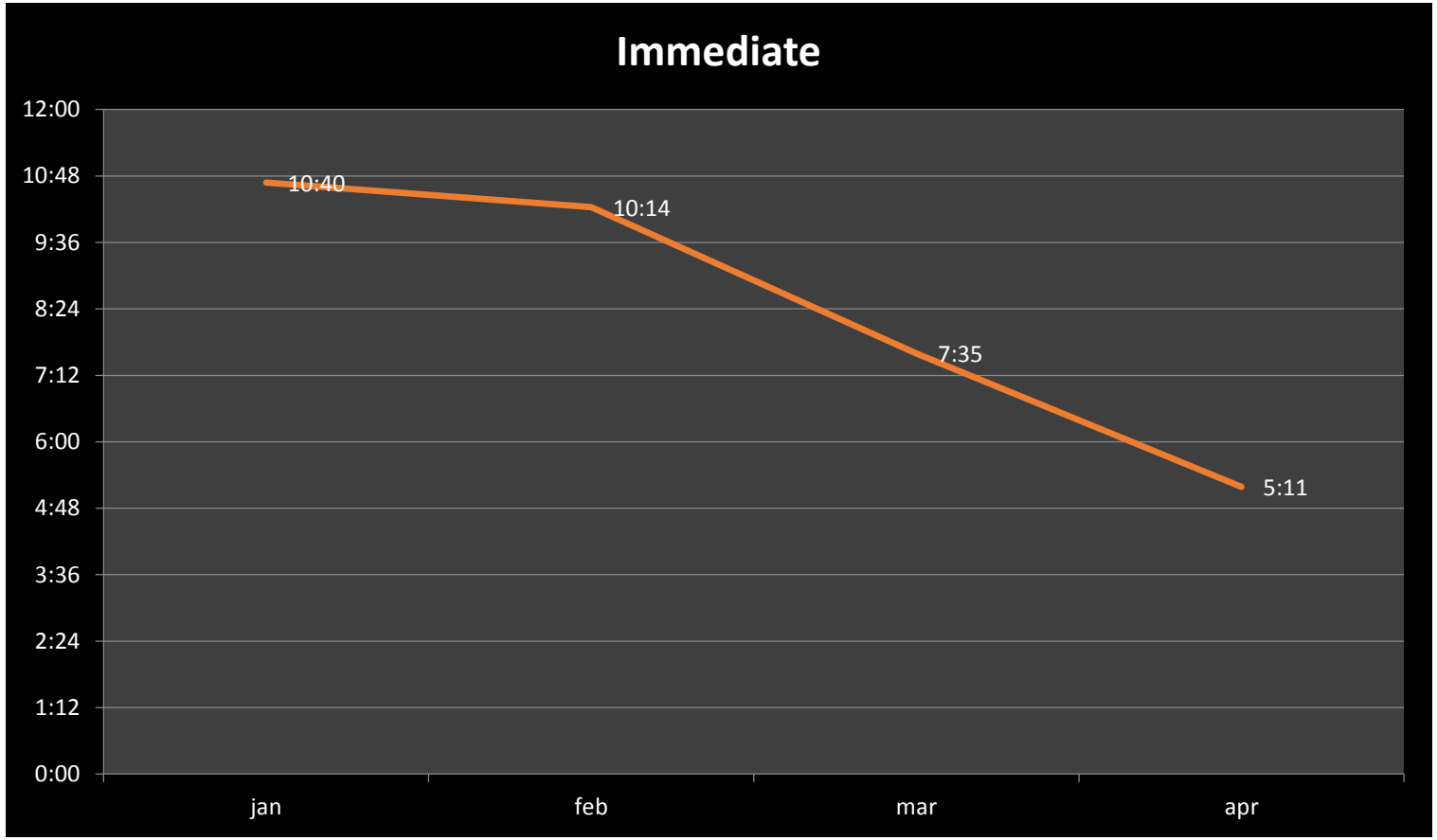
PERIOD OF STUDY

OCT'2016 to APRIL'2017

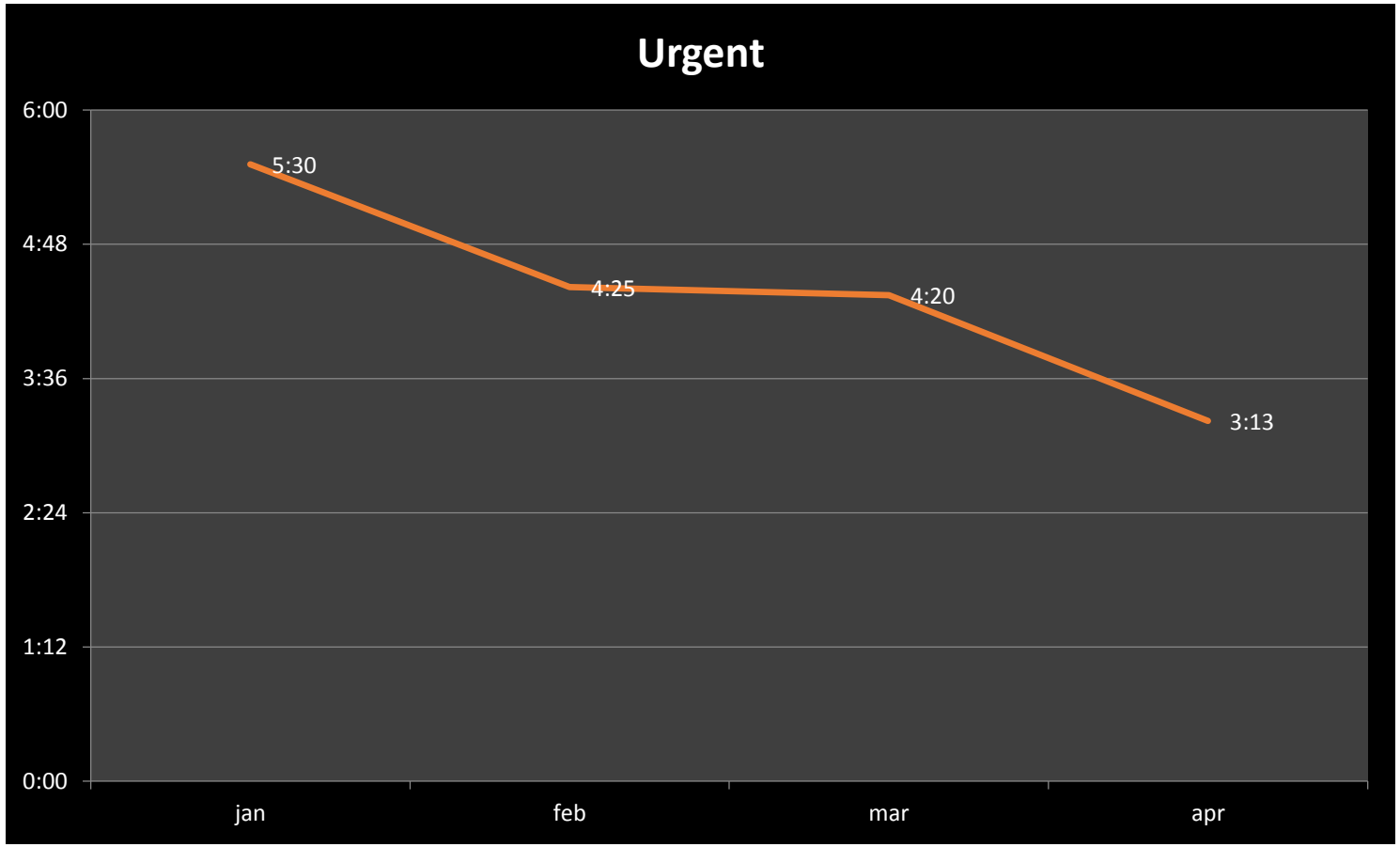
Immediate Medicine

Immediate medicine average TAT (Hr:min)	
January	10:40
February	10:14
March	7:35
April	5:11



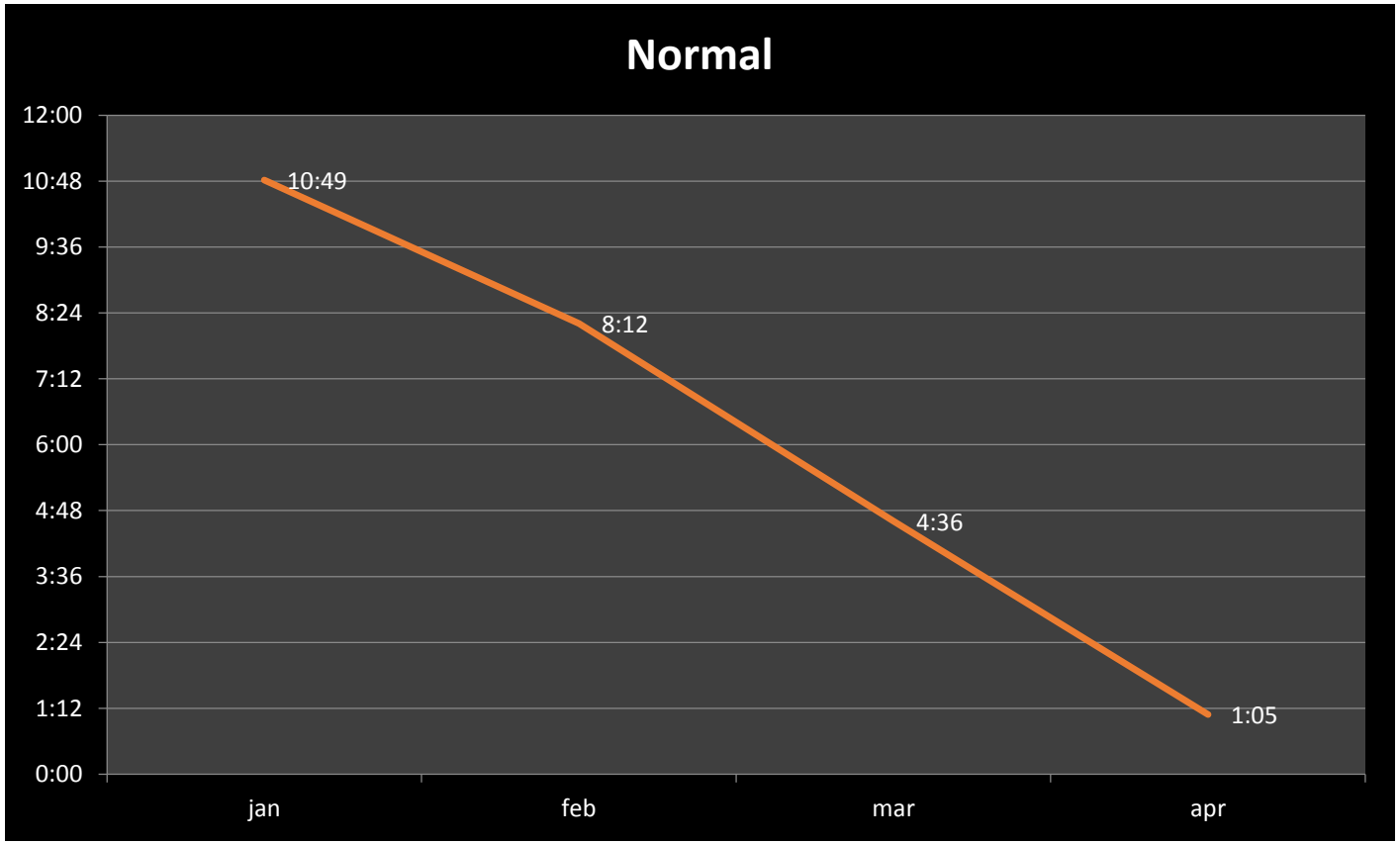
Urgent medicine

Urgent Medicine Average TAT (Hr:min)	
January	5:30
February	4:25
March	4:20
April	3:13



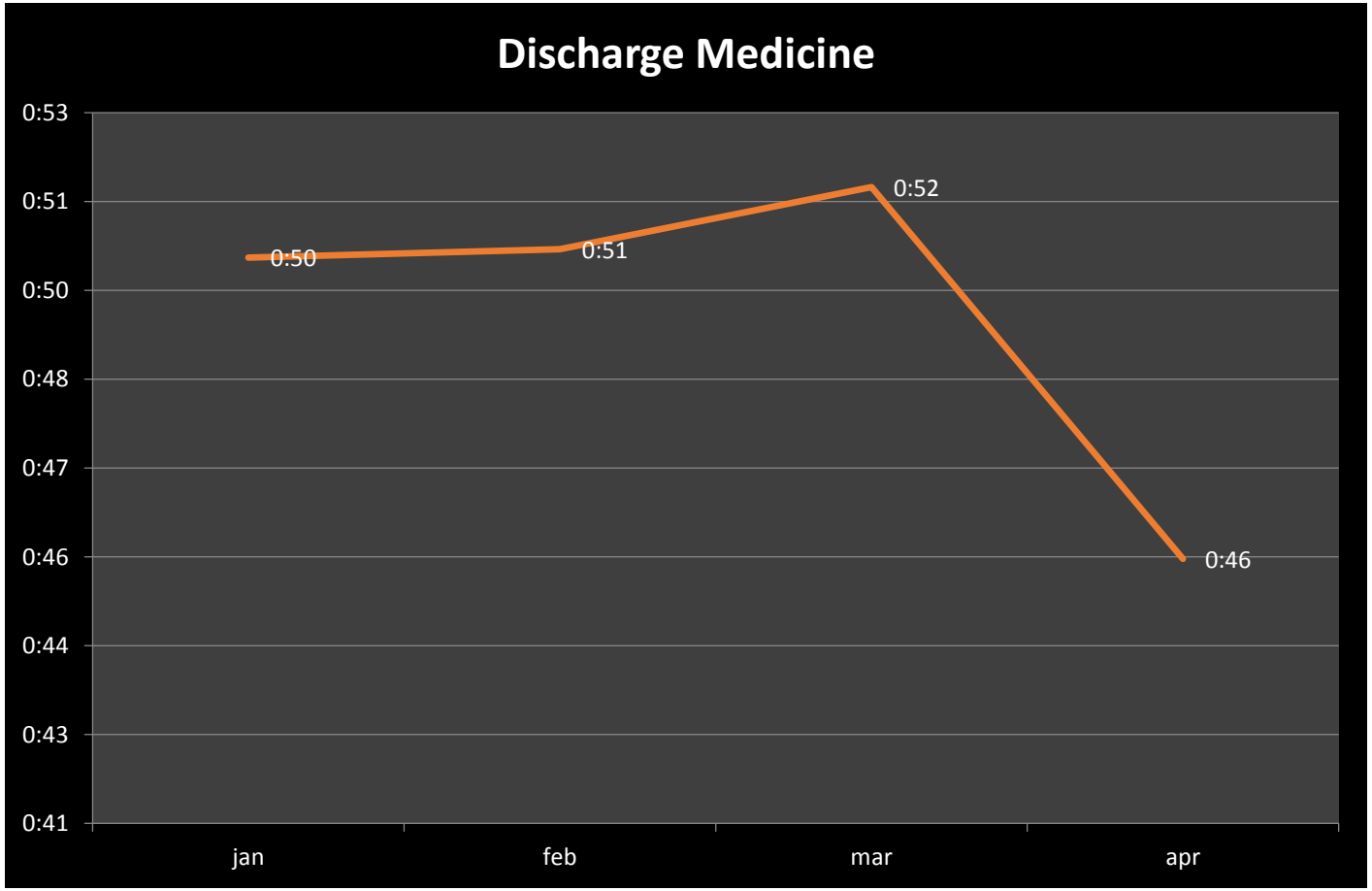
Normal medicine

Normal Medicine Average TAT (Hr:min)	
January	10:49
February	8:12
March	4:36
April	1:05



Discharge medicine

Discharge Medicine average TAT (Hr:min)	
January	0:50
February	0:51
March	0:52
April	0:46



Results

- The average TAT of discharge, normal, immediate and urgent medicine in the month of January was 50 minutes, 10hour:49minutes and 10hour:40 minutes, 5 hour:30 minutes respectively which was quite high.
- The major problem was that there is stock out of medicine because re-order level was not fixed, layout of pharmacy was not linked with hospital information system, racks were not labelled, FIFO policy was not being followed, and formulary was also not followed by the doctors. Purchase requisition was generated based on physical counting all these factors lead in delay of medicine.
- The problem from the nursing staff of receiving the indent was a major issue due to non-availability of the medicine. The other problem faced was rising of normal indents in wards because indented time was not defined. The return of medicine was another issue which needs to be addressed as the returns came at any time which engages the pharmacist. After intervention it was noted that in April TAT was reduced to 46minutes, 1hour: 5minute, 5 hour: 11minute and 3hour: 13 minutes respectively.

TARGETS

1. Rigorous training of pharmacy staff for the effective use of HIS
2. Bar code is to be implemented
3. Before dispensing the medicines staff will recheck and signed the invoice receipt
4. Training to the nursing staff to receiving medicines in system and to write the receiving time on the invoice receipt.

Conclusion

- The application of quality improvement methods i.e. DMAIC approach, FISH BONE analysis, 5W1H and 5WHY resulted in improvement in the pharmacy process. Time of delivery of medicine from pharmacy to respective department was significantly reduced. At the end it also increased the patient satisfaction and improved the patient care. After implementing these actions there was remarkable improvement in IPD pharmacy.

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DISCUSSION