Inventory Management of Pharmacy Store

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Introduction

- Inventory management in a pharmacy involves supervision of the flow of goods from the store to the point of sale, the critical function of inventory management is to keep detailed records of each new or returned product as it enters or leaves the store.

- The primary objective of inventory management in a pharmacy store is giving the right medication to the right person at the right time with the right quality.

Inventory Management Process in BMCHRC Pharmacy

Current Inventory Management practices followed by BMCHRC:

Pharmacy Stock Management:

- Drugs which are ordered in bulk are kept where wholesale stock is held, and just 1 - 3 boxes are kept in the front pharmacy.
- Drugs are stored alphabetically on shelves in front pharmacy, cold storage and the place where wholesale stock is stored.
- Shelves of high risk, sound alike, look alike, anti-cancer and narcotics drugs are marked and easily visible.
- Surgical, ointments, antibiotics, injectables and syrups are kept separately and can easily be found on their own place.
- FIFO system is used in the pharmacy.
- The products which are yet to be barcoded are kept in the red shaded area shown in pharmacy layout figure and which are already barcoded are kept on their respective place.

Storage Conditions:

- The temperature of cold storage is kept at 2 to 8-degree Celsius.
- The temperature of the refrigerator is maintained at 8 to 15-degree Celsius.
- The room temperature is maintained at below 30 degree Celsius.
- Power is backed up by generators in the whole pharmacy in case of power outages.
- Daily temperature recording takes place by pharmacy personnel.

Safety Measures:

- There are three fire extinguisher, eight smoke detectors and one fire water pump in case of fire emergencies.
- Surveillance cameras cover each part of the pharmacy.
- Protocols for a code red (fire), code blue (medical emergency), code yellow (external disaster), code black (internal disaster), code violet (violence likely) and code pink (child abduction) are clearly mentioned on a paper in front pharmacy.
- List of anticancer, narcotics, lookalike, soundalike and high-risk drugs are mentioned on a paper, visible in front pharmacy.

Barcoding

- Barcoding system is a part of store management where each pharmaceutical item like tablets, IV fluids, injectables, syrups, and surgical items are given unique identity by sticking barcodes on them. It is a very time-consuming backend process and has its pros and cons. The fundamental objective of implementing barcoding system in any store is to automate the existing process and to eliminate human error.
- **Requirements for implementing the barcoding system in a store:**
- Barcode printer
- Scanners
- Software
- Barcode label roll

Problem Statement

New barcoding system was implemented by the pharmacy to improve customer satisfaction at the point of sale. Though pharmacy was successful in achieving that goal, the barcoding system also brought some problems in the pharmacy. There was a need in changing the existing operations with the new operations in inventory management to get the desired results.

Research Question

What is the impact of the barcoding system on inventory management in pharmacy store ?

Literature Review

- **Electronic inventory systems and barcode technology: impact on pharmacy technical accuracy and error liability.**

The study which was conducted in Aurora, Colorado by Alan R. Oldland, Larry K. Golightly, Sondra K. May, Gerard R. Barber, and Nancy M. Stolpman found out that by using barcoding system with intensified personnel training led in minimizing the technical error rate.

- **Purchasing and inventory management by pharmacist of a private hospital in northeast of Thailand**

In another study conducted in Pathum Thani, Thailand by Chaowalit Monton, Laksana Charoenchai, Jirapornchai Suksaeree proved that new purchasing and inventory systems developed by pharmacist were successful.

- **Computer based drug sales and inventory control system and its applications in pharmaceutical stores**

The study conducted by Ogwo Eme, Uchenna Ugboaja C.A., Faustina Odinakachi Uwazuruike and Chukwu Uka Ukpai in Nigeria proved that by customizing software and use of computers in pharmacy had better results in inventory management of pharmacy.

Objectives

- To study the impact of the barcoding system in the pharmacy store.
- To identify the problems faced by personnel working in a pharmacy with the new system.
- To compare the old system with the new system.

Research Methodology

- **Study Design**: Descriptive Research
- **Sample Size**: 24 Staff Members (88.89% of total staff)
- **Sampling Method**: Convenience Sampling
- **Methods of Data Collection**: A questionnaire is used to collect the primary data, and secondary data was collected by browsing various articles and publications on the internet.

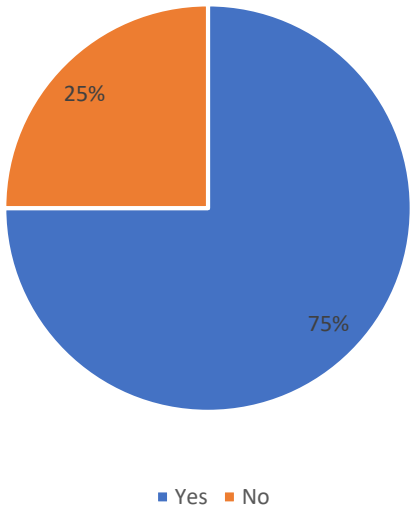
- **Sample Design**
- **Sampling Units**: Staff working in BMCHRC pharmacy
- **Sampling Area**: BMCHRC Pharmacy, Jaipur
- **Time**: 19th February 2019 to 19th May 2019

Ethics

- The consent of taking the survey in the pharmacy was taken from pharmacy head Mr. Mahendra Golecha.
- It was made sure that the name of the respondents will not be shared with anyone and told them to be true while filling out questionnaire.
- One survey was conducted at a time to get unbiased results.

Data Analysis and Interpretations

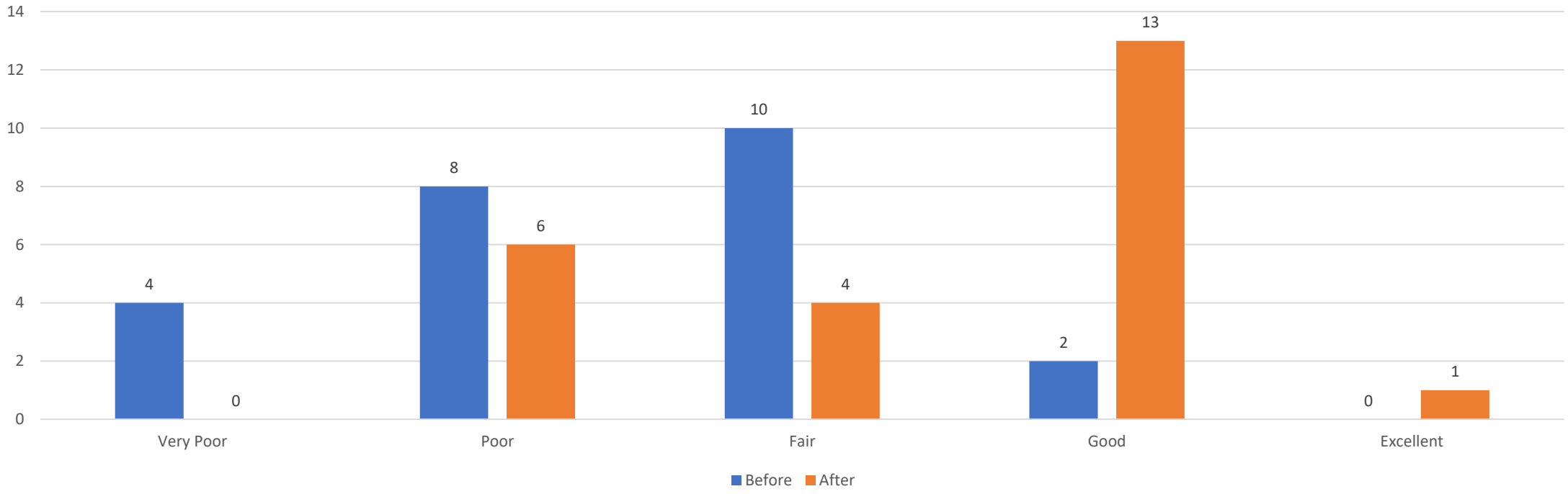
Q.1 Do you think there was a need for barcoding system in the pharmacy?



Interpretation:

- Three-quarter of the respondents responded to the need for a barcoding system in the pharmacy

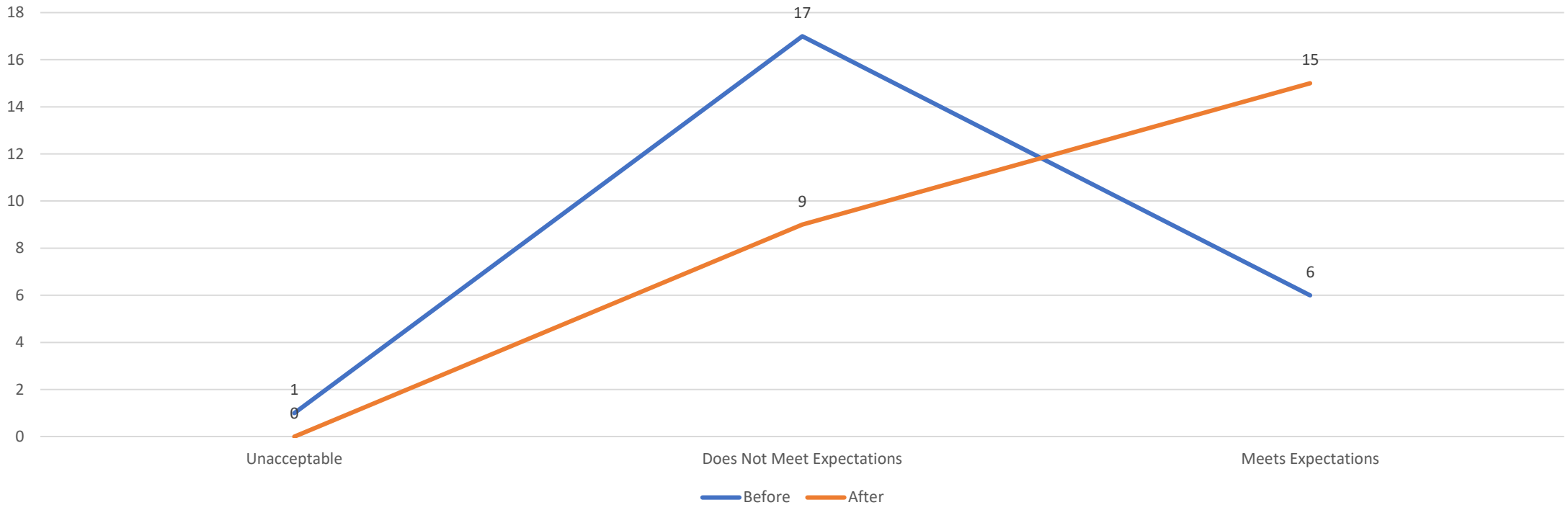
Q.2 Rate the inventory management system before and after adopting a barcoding system



Interpretation:

- More than half of the pharmacy staff (58.33%) had a positive review of inventory management with a barcoding system.

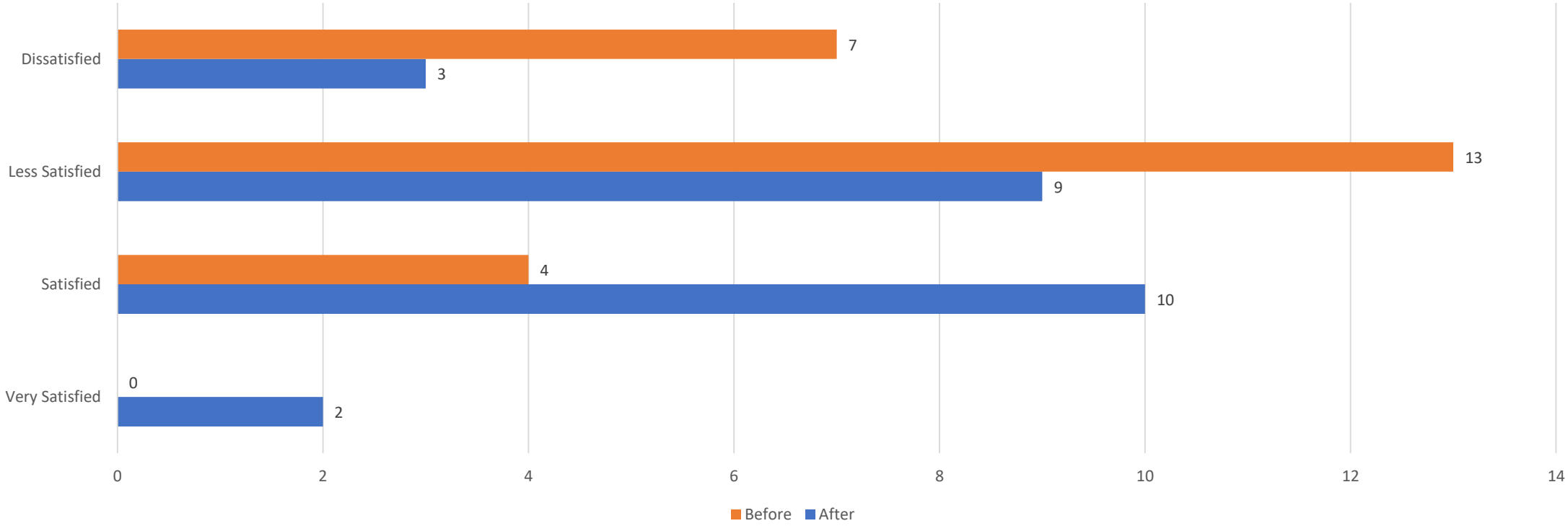
Q.3 Rate the effectiveness of managing virtual and actual stock before and after adopting a barcoding system



Interpretation:

- The effectiveness in managing virtual and actual stock had a positive impact after implementing barcoding system.

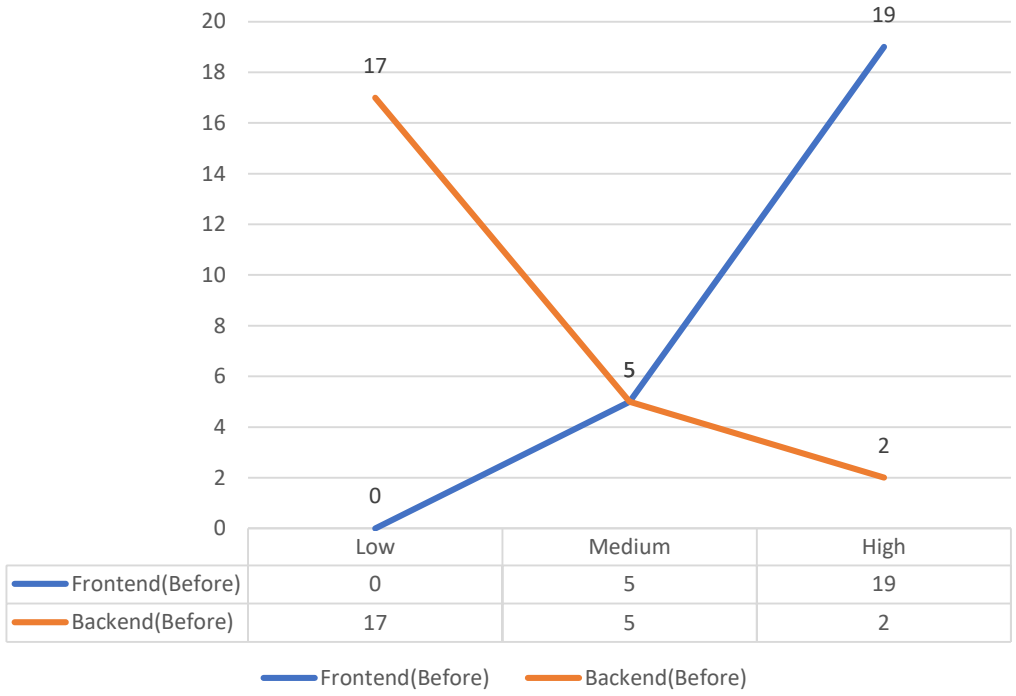
Q.4 Rate the overall quality of service to the customer at the point of sale before and after adopting the barcoding system

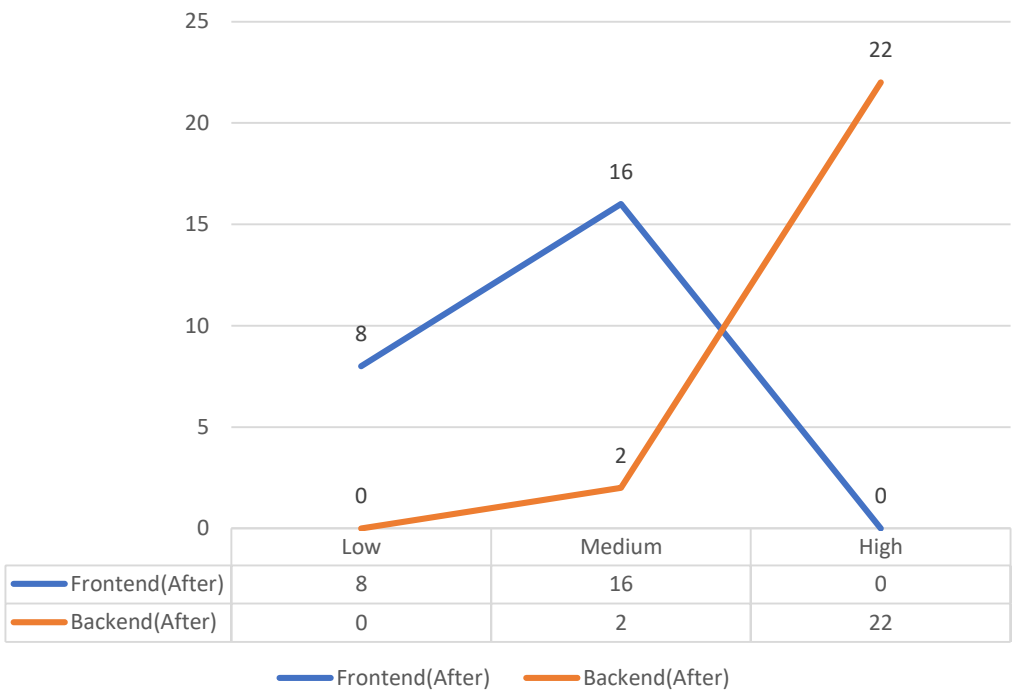


Interpretation:

- 50% of the respondents think the quality of service to customer improved after implementing new technology.

Q.5 Rate the workload capacities on the front end and backend processes, before and after implementing barcoding system

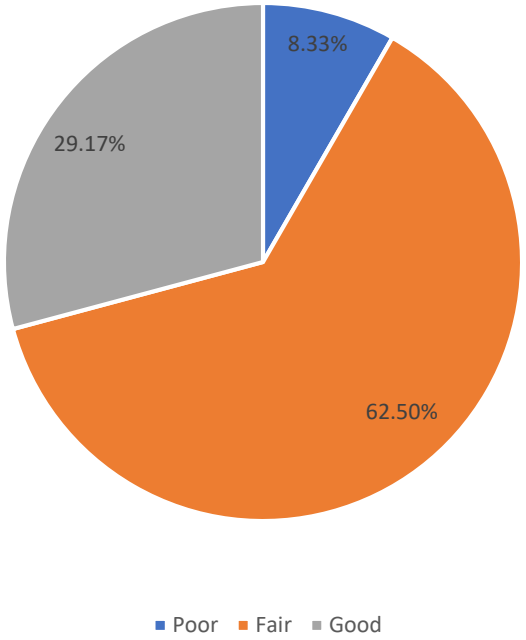


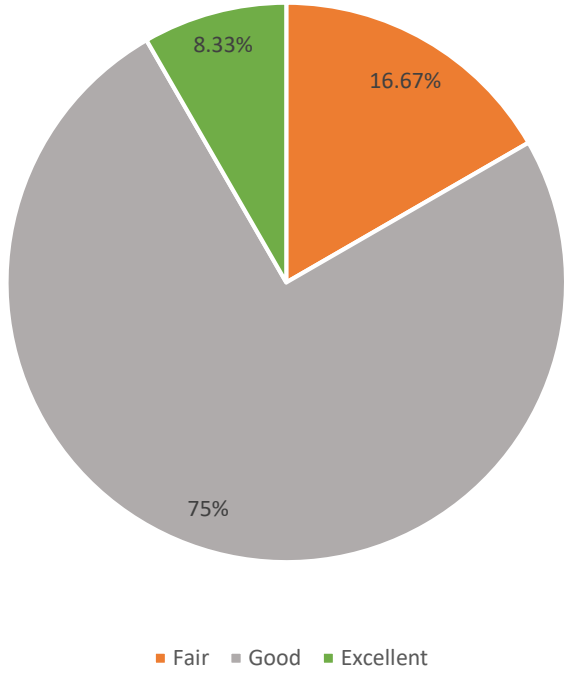


Interpretation:

- There was a high workload seen in the backend process of inventory management compared to low workload in the frontend after adopting the barcoding system and vice versa before adopting it.

Q.6 Rate the overall sales return process before and after adopting the barcoding system





Interpretation:

- 83.33% of respondents gave positive feedback in the sales return process after implementing barcoding system.

Change Analysis

Criteria	Positive Change	Neutral	Negative Change	Total
Inventory Management System	17 (70.83%)	6 (25%)	1 (4.17%)	24 (100%)
Effectiveness in Managing virtual and actual stock	10 (4.17%)	14 (58.33%)	0	24 (100%)
The overall quality of service to the customer at the point of sale	12 (50%)	12 (50%)	0	24 (100%)
Workload Frontend	24 (100%)	0	0	24 (100%)
Workload Backend	0	2 (8.33%)	22 (91.67%)	24 (100%)
Sales Return Process	15 (62.5%)	9 (37.5%)	0	24 (100%)
Total	78 (54.17%)	43 (29.86%)	23 (15.97%)	144 (100%)

Interpretation:

- On a average 54.17% of positive change was seen in the responses.

Observations and Conclusion

- The overall inventory management in the store improved by adopting new technology.
- There were fewer errors while checking actual and virtual stock by implementing barcoding system.
- The new system improves the quality of service to the customer at the time of point of sale.
- The workload on the frontend and backend processes of inventories had vice versa effect.
- The sales return process was seen to improve by using a barcoding system.
- The average total positive change in the responses was 54.17% which was not up-to the expectations as 75% of the staff said there was a need for barcoding system.

BARCODING SYSTEM

SWOT Analysis

STRENGTHS

- Low-cost technology.
- High returns on investment.
- It Improves efficiency and customer satisfaction.
- Automation of billing work.
- Easy access to data.

OPPORTUNITIES

- New technology will open gates to new and improved working conditions in pharmacy.
- It will have an advantage over other pharmacies

WEAKNESSES

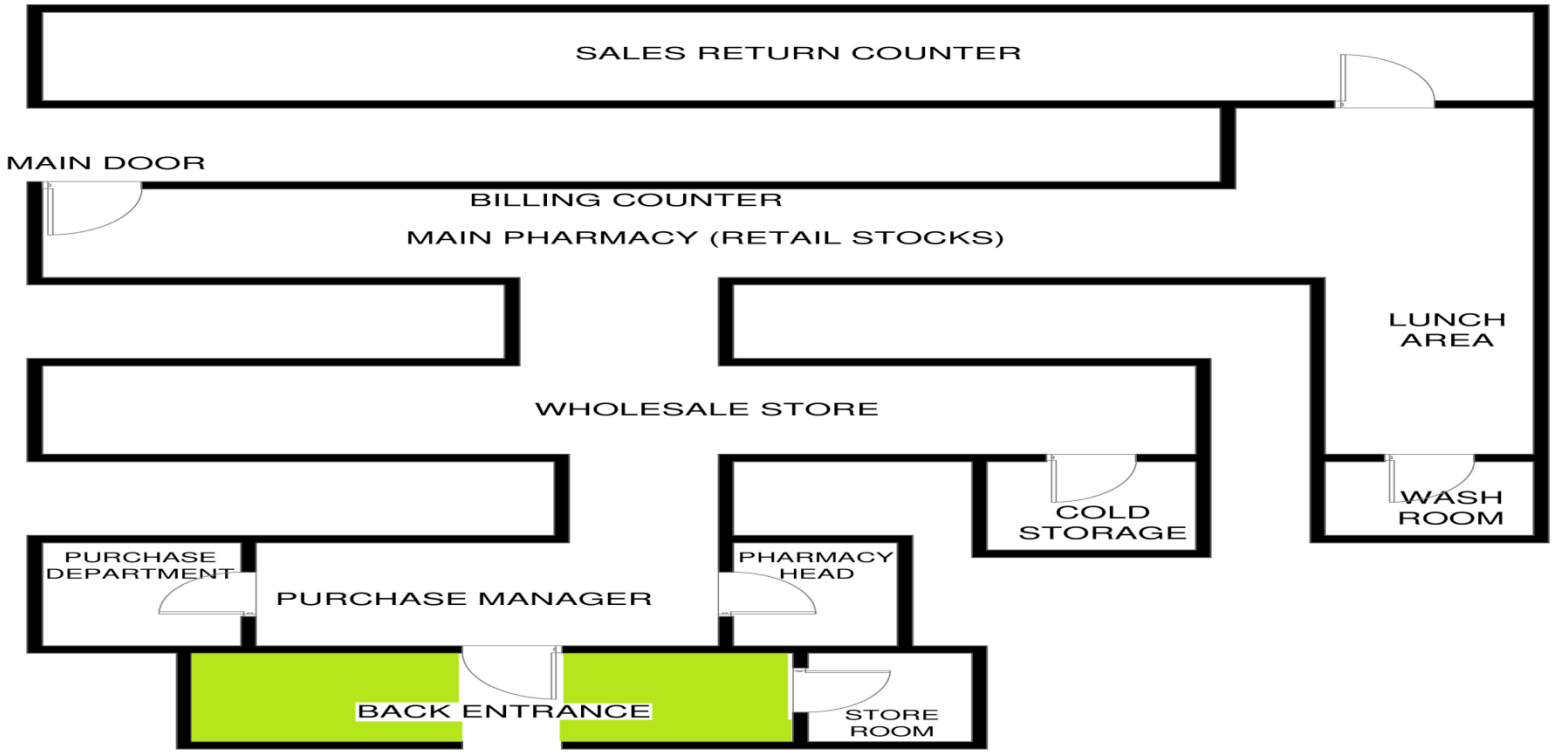
- It needs adequate staff training.
- Increase in backend workload.
- Needs to increase staff.

THREATS

- Without adequate training of staff to the new system can give adverse outcomes.
- New technology in future can pose a threat to this one.

Suggestions

- Changing the place of barcoding operations



- Need for more employees
- Assigning Tasks
- Employee Training
- Autonomy
- Surveillance

Limitations

- This study is limited to BMCHRC Pharmacy, Jaipur.
- The barcoding system was newly started from 1st February, 2019 and was not at 100% capacity.
- The findings and suggestions may or may not be valid to all pharmacies who have adopted the barcoding system.

Appendix

- Questionnaire

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