MEDICAL STORE MANAGEMENT AT ABVGMC VIDISHA (MP): AN ANALYSIS AT TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: The objective of this study was to perform a qualitative and quantitative comparison of the practice and infrastructure with applicable legislations governing hospital pharmacy while the secondary objective was to calculate the average dispensing time of a prescription in the hospital pharmacy.

Methods: Our hospital was established in 2018. A prospective cross-sectional analytic study was carried out in the hospital pharmacy for 6 months (January 23–June 23). A blend of quality control parameters was drafted after referring various guidelines put forward by the statutory bodies. Qualitative data were collected by continuous observation, physical inspection, and after a thorough interview of hospital pharmacists. The collected data were summarized and compared with the standards. Quantitative data on the minimum requirement of hospital pharmacy infrastructure and dispensing time were collected using the designed data collection form and analysis was performed.

Results: The hospital pharmacy met all the criteria that are necessary to satisfy legal requirements, availability of medicine, medicine, and general safety, and most of the quality parameters. However, few deviations were observed in the management of the drug store. The shortage in the floor space and waiting area was identified. In the study, we find that the average waiting time for the patient at the drug distribution center is 180 s and the average drug dispensing time was 130 s. On the basis of our good working in pharmacy, we got NABH approval in 2023 which includes pharmacy with other departments of this hospital.

Conclusion: Majority of the quality parameters were noted to be compliant with the standards. Few deviations were identified and measures to improve them were suggested.

Keywords: ABVGMC Vidisha, Central drug store, Drug distribution center, Always, better, control-vital, essential, desirable analysis.

INTRODUCTION

Hospital pharmacy is an integral department of any hospital that is responsible for the supply and distribution of pharmaceuticals, and surgical and medical inventories. Pharmaceuticals are now an inevitable part of health care services. Hospital supply systems should ensure adequate stock of all the required items to maintain uninterrupted supply. Advances in medical care, drugs, and patient expectations have disproportionately increased the expenditure and burden of fulfilling the demand for timely health care delivery. Moreover, our hospital is doing this duty very well. To know how it can fully fill the demand of patients and cover the wide population of Vidisha district, it was decided to do an analytical study naming Medical Store Management at ABVGMC Vidisha (MP): An Analysis at Tertiary Care Hospital to know about its smooth functioning. About 2/3rd of the hospital budget is spent on purchasing various materials and supplies, including medicines [1]. This necessitates the effective and efficient management of medical stores by keeping close supervision on important drugs, preventing pilferage, and setting priorities in the purchase and distribution of drugs. A study suggested that review and control measures for expensive drugs can bring about 20% savings to the medical store budget. Hence, the essentiality of inventory control is emphasized. Ours is a tertiary care center, and the number of patients coming to the hospital is increasing with the passage of time—about 800–1000 patients in outpatient department per day. To satisfy the health-care needs of the increased number of patients, better drug store management is required. This study is unique as it was never done before in our hospital, and the methods applied can be useful to

others [2]. The government of Madhya Pradesh formulated Madhya Pradesh Public Health Service Corporation Limited (MPPHSCL) to provide best-in-class health-care infrastructure services to over 1300 healthcare institutions [3]. The average dispensing time without waiting was 113.93 ± 28.92 s and the time spent collectively for dispensing and waiting was measured to be 533.13 ± 128.51 s. The average waiting time in the hospital pharmacy was approximately around 419 s [4]. Proper drug store management played a crucial role in medication usage that improved patient outcomes and prevented the misuse of medications [5]. Hospital supply systems should ensure adequate stock of all the required items to maintain uninterrupted supply. Advances in medical care and drugs have disproportionately increased the expenditure on health-care delivery. Therefore, about one-third of the hospital budget is spent on purchasing various materials and supplies including medicines [2].

METHODS

- This is a cross-sectional analytical study at ABVGMC Vidisha from January 2023 to June 2023. This study evaluated the medical supply chain in ABVGMC Vidisha. Respondents were hospital central drug store and drug distribution employees five each in both places and they are pharmacist (master in pharmacy). Qualitative data were collected by continuous observation, physical inspection, and after a thorough interview of hospital pharmacists. There are five non-pharmacist supporting staff in the central drug store and 3 in drug distribution center (DDC) who keeps data on medicine procurement, storage, and distribution. Store is situated in the

basement of the hospital building and DDC in the ground floor with a cool environment. The drug store has three deep freezer and two refrigerators while DDC has three refrigerators for heat-sensitive medicine. More than 90% of drugs were purchased through MPPHSCL website. Direct purchases made up 10% through market. We had generated data from working at our drug store, which uses the MPPHSCL website for the procurement of drugs. The store has a separate expired drug section. The store contains safety stock, a stock ledger, vouchers, and invoicing. The store had an electronic ledger. Medicines are well placed in shelves, and for monitoring room temperature dial thermometer is present. Madhya Pradesh Public Health Services Corporation Limited is a public company incorporated on March 06, 2014. It is classified as a government company and is registered with the Registrar of Companies, Gwalior. It is involved in human health activities. One of the key objectives of the MPPHSCL is to act as the central procurement agency for all essential drugs and equipment for all public healthcare institutions under the Department of health and medical education in Madhya Pradesh. The company procures drugs worth crores and above with more than 250 different types of medical equipment and also provides services needed for the health sector. The corporation has also been entrusted with the setting up and running of all kinds of modern medical, paramedical, or medical-based ancillary facilities, such as hospitals, pathological labs, diagnostic centers, and X-ray and scanning facilities.

- The vital, essential, desirable-always, better, control (VED-ABC) classification of items was done in consultation with physicians and senior staff of the department of pharmacology. The vital category included the drugs that should be available in the hospital at all times and are critically required for the survival of the patients. Essential items, as per the WHO, are those that satisfy the healthcare needs of the majority of the population and are intended to be available at all times and in adequate amounts. Desirable items are those of the lowest criticality, the shortage of which would not be detrimental to the health of the patients. A matrix of nine groups was formulated by combining ABC and VED analysis. Management improved drastically due to automation, with disposal orders being initiated four months before the expiry of drugs and correct demands being generated 2 months before the depletion of stocks. The monthly expense summary of drugs was now being done within 10 days of the closing month.

RESULTS

The hospital pharmacy met all the criteria that are necessary to satisfy legal requirements: Availability of medicine, general safety, and most of the quality parameters. By following the above steps, we got approval from NABH for our hospital, including the pharmacy. In the study, we find that the average waiting time for the patient at the drug distribution center is 180 s and drug dispensing time was 130 s. All the hospital supplies are in smooth flow. NABH approval was appreciated by the government of Madhya Pradesh.

DISCUSSION

We preferred the integrated work management analysis. In a tertiary care center, along with proper care, the timely availability of drugs is a prime concern. From our study, we found that the categorization of drugs by the ABC-VED matrix helped us narrow down our focus on category I drugs, which required high management priority and stringent control as they consumed the maximum budget. From our study, we found category I drugs consumed about 69.1% of the budget. Rational use of drugs and the imposition of a flexible budget in this category can bring about substantial savings without harming patient care. Category II drugs consumed nearly 29.9% of the budget. The ABC-VED matrix can help us improve drug availability, reduce emergency purchases, and ensure adequate inventory control, thereby reducing the financial budget. In our study, it was observed that the maximum budget was consumed by the injections of human albumin and ferric carboxymaltose. Psychotropic drugs managed as per the narcotic drugs and psychotropic substances Act. Ultimately contributes toward maintaining the materials at the optimum level and at the minimum cost. The subgroups AV and AE of category I are comprised of only 23 drugs and monitored by economic order quantity (EOQ), and the ordering of these items is rational and justifiable. As

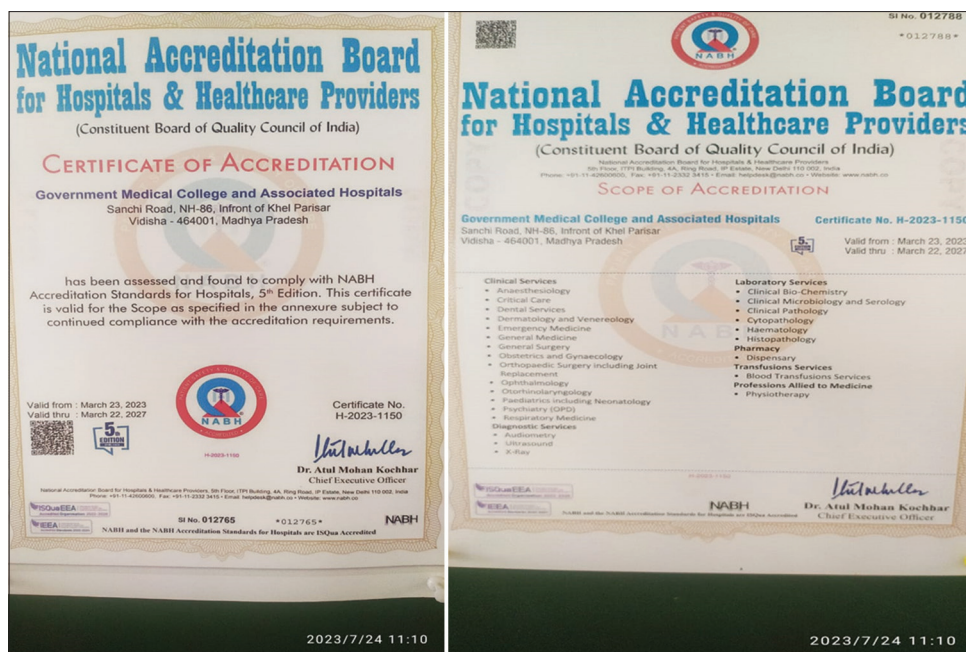| Management flow chart at central drug store and DDC at ABVGMC Vidisha (MP)	
Drug management in the drug store of hospital (flow chart and steps followed)	**Drug management in the DDC (flow chart and steps followed)**
1. Receiving demand letters from different clinical departments of medical college and hospital in the indent book.	1. A requisition or invoice for required medicine is sent to the hospital drug store through the MPPHCL portal.
2. The demand for medicine matches with the last 6-month expenditure of that medicine from the same department, from where demand is generated. And it is being done for every medicine.	2. Requisition or indent received by the hospital drug store and execution of the same in accordance with the FIFO method
3. Compilation of demand for the same drug with different departments	3. Medicines and drugs brought from the hospital drug store to DDC through a medicine trolley
4. Each medicine is divided into two categories according to ABC-VED (always, better, control-vital, essential, desirable) analysis: Fast-moving (AV, AE, BV, BE, and AD) and slow-moving (BD, CD).	4. Drugs are physically checked against their respective batch numbers, expiry details, total count, and pack size of drug formulation.
5. Giving demand of an extra 25% of medicine of fast-usable drugs.	5. The drug is then acknowledged in the MPPHCL portal and stock register with their total count, batch number, and expiry details.
6. Demand letter sent to the dean office through the medical superintendent office of the hospital.	6. Received drugs are then placed in respective racks in accordance with their pharmaceutical significance (category-wise) considering the FIFO method.
7. Demand sent by the dean office to the purchase department of the college	7. Patients visit DDC and submit the prescription with a slip (which is retained at DDC) containing the same medicines which are written in prescription. We check for a likeness on medication ordered in slip with patient prescription and identity details.
8. A purchase order is given through the MPPHCL website "mpaushadi" to a verified vendor whose tender is accepted by MPPHCL officials for a particular medicine.	8. Medicines given according to prescription maximum for 7 days, we also narrate to patients how to take them, and we keep slip of the prescribed medicines only (for audit purpose) and main prescription paper return back to the patients.
9. Vender will forward medicine to the demand generation site within 45 days.	9. The medicine is then entered into the MPPHCL portal with compulsory entries like name of patient, age, sex, medicine detail, and counts.
10. Verification of batch number, quantity, forms of drug, bill amount, etc.	10. Patient leaves DDC
11. Freezing of bills on the MPPHCL website and generation of vouchers	11. The same process is followed every time with every patient.
12. According to the demand letter, send medicines to departments and vouchers generated on the MPPHCL website	

DDC: Drug distribution center, FIFO: First in, first out

category II drugs consume a limited amount of budget, these drugs can be ordered once or twice in a year. EOQ, along with ABC-VED analysis, can be effectively applicable in government hospitals. To avoid the unavailability of drugs, order placement has to be done in advance to cover the processing time.

This may be attributed to our hospital drug formulary and antibiotic policy of our hospital and to some extent the continuous efforts made by us to satisfy the healthcare needs of our area within the limitations of the budget of the medical store. The inflation index represents the general trend and is not constant for all commodities. In developing countries where the value of money is changing every day, the purchasing power of the currency is also changing. Due to this impact, items that cost less in the current year will cost more in the forthcoming years. As the inflation factor for the future years cannot be predicted in advance, the drug expenditure prediction for the forthcoming years cannot be done, but it can be done better using regression analysis. Therefore, the ADE for the forthcoming years was estimated using regression analysis. The store has an expiration date section.

CONCLUSION

The majority of the quality parameters were noted to be compliant with the standards. A few deviations were identified, and measures to improve them were suggested.

CONFLICTS OF INTEREST

The author has no conflicts of interest.

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