

Study of Pattern of Availability of Emergency Drugs due to Better Procurement Practices in a Tertiary Care Center

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Abstract

Aim: To study the pattern of availability of life saving medicines for better patient care in intensive care unit and radiology department of tertiary care hospital.

Design: Retrospective observational study in the past six years (2012-2018).

Material and Methods: A team of researchers studied the pattern of availability of routine and life saving medicines in two intensive care units and radiology department of the hospital during the last six years and related it with the newer methods adopted to procure the same. The researchers studied the new and faster methods of procurement adopted in the hospital. The study focused on procurement of drugs for the past three years (2015-2018) by newer methods and compared to older methods of procurement in the previous three years (2012-2015). The research took place at ten bedded trauma intensive care, seven-bedded First floor ICU and department of radiology for availability of routine and emergency medicines.

Statistical Analysis: Categorical variables were presented in number and percentage. The researchers observed significant improvement in availability of life saving and routine medicines in the intensive care unit and radiology department.

Results: The research showed satisfactory availability of life saving medicines in the two designated Intensive Care Units and radiology department due to adoption of new and faster methods of procurement in the past three years (2015-2018).

Conclusion and Recommendation: Adequate training of staff regarding inventory management and implementation of Public Finance Management Systems led to better management of inventory in main store and concerned departments.

Keywords: Online Indent; Messenger; Computer Operator; Training; Buffer Stock; Compliance.

Introduction

Most of the drugs used in intensive care unit and radiology department are life saving for the patient.

India has 1.3 billion populations [1]. In India, eighty percent of poor population lives in rural areas. More than 60 percent people live below the poverty

line in India. The seven low income states of India are Chhattisgarh, Rajasthan, Jharkhand, Odisha, Madhya Pradesh, Bihar and Uttar Pradesh [2]. In government hospital the poor patients are treated free of cost. Even the private and corporate hospitals have to treat certain percentage of patients free as per the supreme courts guidelines [3]. To provide necessary medicines and other items to

the poor patients is always a challenging task as in spite of having sufficient funds and infrastructure at the disposal of government.

Material and Method

The present study was conducted in the two intensive care units and Radiology department of Dr RML Hospital New Delhi. In this hospital before 2015, handling of bills was a manual process. It was a long and cumbersome process with lot of delays in sanction and payment to suppliers. This affected compliance of the suppliers adversely. After 2015, a number of steps have been taken by the government and adopted by the hospital. The initiative taken by government like e-procurements, e-tendering and public Finance Management System (PFMS) were adopted by the hospital.

The other major changes carried out by the hospital are online indent portal, training of staff in computer and e-procurement, posting of computer operator, additional staff as messengers, provision of local chemist for day to day emergency procurement and frequent coordination of store and procurement section with other concerned departments.

A formulary of essential drugs has been adopted by the hospital. The drugs approved in formulary are procured through three well-established systems. Firstly annual demand of drugs is sent to central medical stores from where the hospital receive the available drugs in bulk once in a year but here the time taken to receive the drugs is long and erratic. Secondly, a joint open tender of two central government hospital is done once in

two years. It is major source of procurement of drugs for these hospitals. All the major purchase of routine and emergency drugs is being done based on these tenders. Thirdly, medicines, which are essential and not received through these two tenders, are procured through open limited tender done by this hospital. For this, the medical superintendent of the hospital invites limited tender quotations. These tender quotations for listed drugs are accepted in a wax-sealed envelope. The sealed envelope is put in the tender box by the bidder at the reception of the hospital before the set deadline. Details like stipulated time period for supply of drugs/medicines, chemical analysis test, earnest money, strip and bottle packing of drug as acceptable pack/medicine wrappers imprinted with "Govt/Hospital supply, Not For Sale" in indelible ink/ single manufacturers and single batch items and other terms and conditions of General Financial Rule (GFR) and central government are essential prerequisites for the tender. The tender notice is posted on the Central Public Procurement Portal (CPPP) and hospital website. Several documents including valid drug license for storage/distribution of medicines/drugs, earnest money, undertakings and satisfactory performance certificate of past two years are asked from the bidders. The supply orders are given to the lowest one among the approved bidders. The supplies are received by Inventory Management Section (IMS).

Within the stipulated time, the drugs samples are sent for testing from approved labs. The drugs are issued to indenting departments after a successful test report and in house inspection by inspecting team.

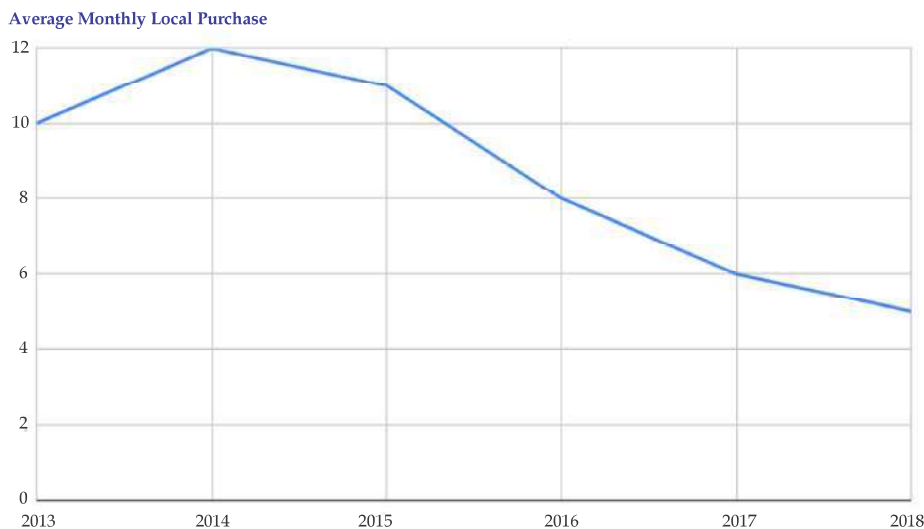


Fig. 1: Showing downward trend in local Purchase

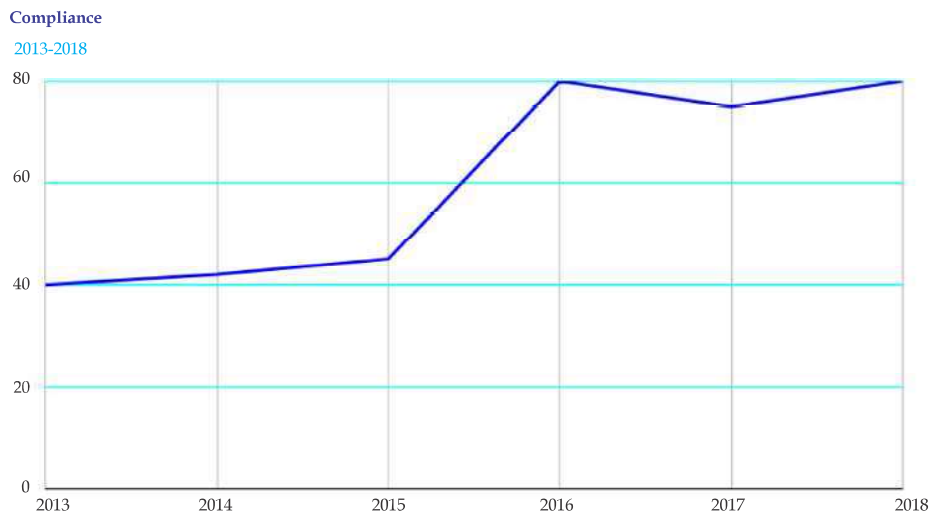


Fig. 2: Shows upward trend in compliance of suppliers since 2012-2018

Researchers in this study examined the pattern of availability of emergency drugs in two ICU and radiology department of the hospital. They also examined the time taken to receive the medicines from suppliers and processing of their bills by procurement, inventory management section, accounts and payment department. Finally the availability of drugs was checked in end user departments i.e. two ICU and radiology department.

Discussion

India is a low-middle income group country, most of the patients cannot afford the high cost of treatment, and it becomes crucial in case of emergencies. It is because of these reasons that the availability of drugs matters a lot for poor patients. Since the health is a state subject and providing healthcare to the patients is responsibility of state the government hospitals need robust procurement system and more so in case of emergency drugs to deal with emergency.

Streamlining the supplies of medicines and other items involves many steps like timely generating the demands from user departments, preparing specifications, placing tenders, tender evaluation, and approvals from authorities and placing orders to drug suppliers. After placing the orders to supply the medicines, another exercise is to receive the medicines, inspection as per contract, distribution to different departments before they reach the patients. After the supplies reach the store, the next step is processing of bills by inventory management. Since the manufacturing and supplying medicines is capital-intensive process and require a lot of

investment the timely payments to the suppliers matters a lot to them. The improvement in our system led to timely payments to the suppliers.

This has resulted in timely completion of procurement cycle and timely payments to the suppliers for their supplies made. Thus, receiving timely payments have encouraged suppliers to make their further supplies timely and therefore better compliance and better availability of emergency drugs.

The researchers found improvement in overall compliance of suppliers after introduction of various newer procurement practices adopted by the hospital in the year 2015.

Special efforts made by the hospital to place computer operators or trained staff for online indents for the emergency and other medicines. A thorough record of drugs used in emergencies was maintained. Timely placing the demands and timely issuing the supply order by the procurement section was initiation of process of procurement. Timely indenting the drugs by the user department through computer-generated indents also was a factor in receiving the drugs in time in the user department. The bills submitted to the inventory management system (IMS) section were processed through Public finance management system (PFMS) by procurements section and led to timely payment to supplier.

It is important to treat patients in the first golden hour of emergency in case of stroke. Thrombolytic started within the first 60 minutes after onset is associated with best outcomes for patients with acute ischemic stroke [4]. In this study, Injection Tenecteplase buffer stock was twenty in coronary

care unit and ten in medicine emergency. When the stock was consumed by 50 percent, hundred percent was procured by the staff to avoid shortage situation.

Similarly store buffer stock of Injection Dopamine was 2400, Injection Noradrenaline 4850, Injection Adrenalin 7174, hydrocortisone 4851 respectively. The buffer stock calculated from last three-month consumption of drug. Thus increasing the buffer stock also helped in managing the availability of emergency drugs.

Similarly, very low birth weight infants need variety of drugs and intervention during first golden hour of birth [6]. Our study reflects that medicines were stocked in Neonatal intensive care unit (NICU) according to the consumption. Buffer stocks of medicines like the surfactant are maintained in the NICU to avoid shortage.

Thus, the ICU and radiology staff maintained buffer stocks of items in regular demand after 2015 to avoid shortage during emergency hours. Apart from this, the stores also maintained adequate buffer stocks of item to fulfill the requirement.

Items in special demand required justification for usage. Antibiotics used according to culture and sensitivity report.

Cardiac emergency drugs, antibiotics and antifungal medicines are easily available since past three years in comparison to previous years.

Our study suggests that drugs like Tigecycline and colistin were not approved by appropriate authority and the culture facility were not available in the hospital before 2014. These special demand antibiotics are procured on the basis of culture and sensitivity reports. Our institute strictly practices the antibiotic policy and infection control guidelines, to prevent drug resistance [6,7,8,9].

Our study reveals that Levetiracetam local purchase has increased in our hospital in the year 2017. The reason was that it was not approved in the hospital formulary.

Our Study reveals that enough stock of life saving medicines is available in the department of radiology. Iodinated and gadolinium-based contrast are used in the department, which can cause severe allergic and anaphylactic reactions and cause decline in renal functions in some patients [10]. To deal with such anaphylactic reactions emergency drugs are required. Availability of these drugs is life saving. The departments of radiology along with department of anaesthesiology have preparedness teams to manage life-threatening emergencies in our hospital.

Another important finding was that the requirement of emergency Local purchase of drugs fell by 50 percent after 2015, because the stock was in place.

In this research we found that emergency drugs can be procured within an hour from the local chemist if the same is not available.

Availability of emergency life saving medicines can save patients life. Apart from treating patients, arrangement for adequate life saving medicines is responsibility of the physician and staff [11,12].

Our hospital provides round the clock support to the staff in procuring medicines. The skill for acquiring adequate supplies of life saving and resuscitation kit is an administrative skill, where the junior staff should be subjected to regular training. Our study shows that all junior staff, resident doctors were aware of various modes of procurement during routine and emergency hours. They also ensured adequate stock of medicines during holidays.

Statistical Analysis

Categorical variables were presented in number and percentage. The researchers observed significant improvement in availability of life saving and routine medicines in the intensive care unit and radiology department. The average monthly local purchase declined to significant proportion as shown in Figure 1 and the percentage of compliance of suppliers showed significant improvement of about 40 percent as shown in Figure 2.

Result

The initiatives taken by the government like e procurements, e tendering and public Finance Management System (PFMS) resulted in processing the procurement of drugs faster. These computer based programmes helped in generating demands, placing orders and processing their bills faster. Public Finance Management System (PFMS) played major role since manual payment system has been done away with leading to better compliance of suppliers in their next supplies due to timely payments. Computer operators prepare timely and accurate indents depending upon the usage and future requirement of drugs, which helps in placing supply orders timely. Another factor which led to availability of drugs is better inventory management practices. The inventory management system (IMS) department has started keeping a higher buffer of

emergency drugs. The end user departments also started keeping a higher buffer of emergency drugs leading to better availability of the same. An overall 40 percent improvement in compliance of suppliers for delivery of medicines was noted. The research showed satisfactory availability of life saving medicines in the two designated Intensive Care Units and radiology department due to adoption of new and faster methods of procurement.

Conclusion and Recommendation

- a. Maintenance of adequate buffer stocks of life saving medicines is of prime importance in a tertiary care hospital.
- b. Adequate training of staff in demand generation, approvals and timely placement of order for procurement of medicines during routine and emergency hours plays a great role in availability of life saving medicines.
- c. Culture and sensitivity based procurement of antibiotics in emergency avoids the unnecessary procurements and yields better results.
- d. Regular audit and research for overall improvement in procurement system.
- e. Introduction of Public Finance Management System (PFMS) has helped in streamlining the timely payments to vendors and therefore better compliance in procurement cycle.
- f. Emergency medicines were easily available through specific demand.

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