Available online on 15.01.2021 at http://jddtonline.info

Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

Open Access Full Text Article

Case Study

Drug Supply Management in Health Care Institutions in Sri Lanka: A Case Study

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Article Info:

Article History:
Received 08 Oct 2020;
Review Completed 27 Nov 2020
Accepted 18 Dec 2020;
Available online 15 Jan 2021

Keywords:
Drug Supply Management, Drug Management Cycle, Drug Therapeutic Committees; Rational Prescribing

Cite this article as:
Wijegunasekara JLHR, Drug Supply Management in Health Care Institutions in Sri Lanka: A Case Study, Journal of Drug Delivery and Therapeutics. 2021; 11(1):3-7 DOI: http://dx.doi.org/10.22270/jddt.v11i1.4464

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Abstract

National Health Policy, Primary Health Care Package and National Medicinal Drug Policy have emphasized the importance of adequate supply of safe & effective drugs of acceptable quality in health care institutions. The Medical Supplies Division (MSD) of Ministry of Health is responsible for ensuring an optimum drug supply management, by strategically managing the key steps of Drug management cycle; Selection, Estimate, Ordering, Procuring, Storing, Distribution, Prescribing, and Use by patients. There are strategies followed at different levels.

Objective of the study is to analyze the strategies to improve drug supply management in health care institutions in Sri Lanka. Data collection was carried out using KII, Inspection visits, Review manuals & guidelines, Participation in discussion meetings and Review of secondary data. Prioritization was carried out using nominal group discussion and it was decided to select "Institutional level strategies" for in depth analysis to make recommendations.

The strategies identified were categorized under; Policy; Finance; Process; Facilities & Medicine; Human Resource and Public. Even though a large number of strategies are implemented, there are deficiencies in almost every strategy which leads to stock out of medicine. Root causes for "Deficiencies of Institutional Strategies" were identified using fish born diagram.

Lack of terms of reference for Drug Therapeutic Committees; lack of rational prescribing and prescription audits; high demand for non-formulary drugs; unrealistic estimates, inadequate buffer stocks, delays in redistribution & delays in local purchase; limited stores capacity and suboptimal store management and limited transport availability were found as root causes. Recommendations were made accordingly.

Introduction

Sri Lanka provides health care free of charge to the whole population of the country, aiming at producing a healthy work force for the development of the country.

- With regard to supply of pharmaceuticals, "National Health Policy" emphasizes to ensure adequate supply of safe & effective drugs of acceptable quality.
- "Primary Health Care Package" identifies as its one element, the necessity of provision of essential medicine to the population.
- The objectives of "National Medicinal Drug Policy" states in its objectives to ensure availability & affordability of efficacious, safe & medicine of acceptable quality in a sustainable & an equitable manner.

The "Medical Supplies Division" (MSD) of Ministry of Health is the main organization responsible for providing all Pharmaceuticals, Surgical items, Laboratory Items, Radioactive Items, Printed materials, etc. for government sector healthcare institutions. In addition, MSD is also responsible for supplying dangerous drugs to the private sector in Sri Lanka.

MSD is the central organization for receipt, storage and distribution of all the above items supplied by the "State Pharmaceutical Corporation" (SPC), "State Pharmaceutical Manufacturing Corporation" (SPMC) and "Local Manufacturers" (LM).

The mission of the MSD states to ensure continuous availability of medical supplies for the healthcare services in government sector health institutions through an effective and efficient medical supplies management achieving 6 right item, right quality, right quantity, right price, right place & right time.

To ensure drug availability in institutions, the main strategy is to ensure an optimum drug supply management system with the maximum contribution of all the responsible stakeholders. The following key steps of Drug management cycle should be strategically managed to have an efficient

and effective flow of drug supplies from the raw material to the end user, so that improvement of drug availability in institutions will be guaranteed.

1. Selection
2. Estimate
3. Ordering
4. Procuring
5. Storing
6. Distribution
7. Prescribing
8. Use by patients

Process Analysis:

Selection:

Selection of supplies is done using "National Essential Medicine List" prepared by Drug Regulatory Authority and "Hospital Formulary Drug List" prepared by the MSD. Using the above lists, there is a recommended drug list for different levels of health care institutions from which drugs are requested for the annual requirement, by each institution according to their monthly usage. In addition, almost all non - formulary drug requests made by consultants with acceptable justification are procured, without filtering through the Drug Therapeutic Committee of the institution. The number and types of medicines are decided at national level for different levels of facilities.

Estimation:

Annual estimates are automated with the "Forecasted Requirement Module" of Pronto xi software package. Every institution is expected to send the monthly consumption of all the items in the item list allocated to the specific level of according to their service delivery. All institutions are registered in the web portal of MSD under the different levels of institutions with a unique code. Item lists received are examined by the specific Stock Control Officer (SCO) and the Assistant Director (AD) for list deviations, unrealistic estimations, approval from institutional DTCs etc. and are forwarded to D/ MSD for approval. Institutions which are not connected to the online system are provided with soft copies of excel sheets with specific item lists facilitating only of editing the quantity and are expected to forward the hard copies to MSD for the same procedure to follow. Finally MSD is expected to prepare realistic estimates for the national demand. Prioritization methods such as ABC system and VEN system are used to prepare national estimates within the financial allocation.

Ordering:

"Purchasing Order Module" of the Pronto xi package is used in the MSD to place orders with the procuring organizations. Stock Control Branch with Stock Control Officers of relevant sections consolidates the institutional requirements taking into account the issues, estimates, available stocks in hand and stocks already placed in orders. Forecasted National Estimate thus prepared is translated into stock control cards on item wise basis. Final order list is prepared stating the item name, quantity and delivery date, recommended by AD in the section, certified by the Accountant for financial availability and approved by the Director MSD to be transferred to SPC. Items purchased from local manufactures are forwarded from Stock control Unit to the Supply branch to prepare order list to be sent to Local manufacturers. Name patient drug list which is also prepared by the Stock Control Branch, after the approval of the secretory, Health is forwarded to the SPC for purchasing.

Procuring:

Key procuring organization to supply the national requirement to MSD is the SPC. In addition SPMC and other Local manufacturers registered in the National Medical Regulatory Authority (NMRA) are contributing to a minority of items. SPC carries out government Tender Procedure calling quotations from worldwide suppliers through a local agent in Sri Lanka. Local Purchases in national wide stock out /emergency situations are also carried out by SPC using the same procedure. Supply branch of MSD procure supplies from SPMC and Local manufacturers at a predetermined fixed price which may be negotiated after 6 months. In addition institutions are offered the facility of purchasing non formulary items or out of stock items, on name patient basis, with a request from the relevant consultant with adequate justification, from SPC outlets directly or from registered suppliers following tender procedures, with prior approval from MSD.

Supplies are dispatched to the MSD by SPC, SPMC and LMS in installments in 1 month to 3 months intervals. It is also operated by Purchasing order module of Pronto xi package. Procedures such as; SPC branch in the MSD forwarding "wharf dispatch notes" (WDN), "Invoice and sample" to the CIU in MSD, checking the sample by SCO, forwarding to "Consignment Inspection unit", "pricing" by supply branch, bring down "debit note" from MSD, goods taken to the stores, issuing "goods received note" by the store and finance branch to do the "payments" are carried out. Same procedure is carried out with local deliveries with the name "confirmation note" for WDN.

Storing:

There are nearly 20 bulk warehouses and 5 cold rooms in the central medical stores in MSD, providing storage facilities for pharmaceuticals, surgical & medical devices, laboratory chemicals & devices, diagnostic agents & devices, radioactive items, narcotics and printed forms. Furthermore, there are 3 bulk warehouses at Angoda, 5 at Wellawatta, one at Digana and one at Welisara. Additionally, it has a network of 26 Regional warehouses at district level called Regional Medical Supply Divisions (RMSD) for the supply of items to institutions under the administration of provincial government. Each health institution has a main drug store and sub stores in the Indoor and Outdoor dispensaries to provide the wards, clinics and OPD dispensaries with their requirement. Correct stores management practices and stock control practices are expected to prevent wastage, pilferage, quality failure and stock outs.

Distribution:

Stocks in the MSD are visible online to every institute in the country. "Request & sales order module" of pronto xi is used for this purpose. There are 95 line ministry institutions, 579 provincial ministry institutions and 350 public health centres of Medical Officer of Health, using the system.

There are two systems to distribute supplies;

"Pull system" which is more frequently practiced in MSD is that requests are made by line ministry institutions and RMSDs to the MSD to arrange dispatch of items on scheduled days. Process go through prioritization of institutions, decision of quantity of items by SCOs, assembly of items in stores, release of stock transfer voucher, release of items by dispatch unit and out of premises note by security office. Once the received button is pressed in the institution,

transported stocks are added automatically and levels in institutions are updated.

"Push system" which is arranged regularly by RMSD and infrequently by MSD functions in an advanced programme on monthly or weekly basis to distribute supplies from the center to the periphery. Inventory handling module of pronto xi package is used to streamline the process.

Supplies are stored in the main stores of different sections and are distributed on weekly basis to Indoor dispensary to be distributed to wards and to Outdoor dispensary to be distributed to OPD patients & clinic patients. Wards receive supplies on weekly basis and on demand basis to replenish the ward stocks. Predetermined buffer stocks are kept at each level to avoid out of stocks.

Use:

Use of pharmaceuticals consists of prescribing, dispensing and use by patients. Prescribing officers are expected to follow rational prescribing, use generic names and standard treatment guidelines and to avoid poly pharmacy and over prescribing. Dispensing officers are responsible for accountability of drugs and are expected to practice stock control methods to prevent wastage and pilferage. Patients are to be educated about the policy of Ministry of Health to provide all the drugs prescribed in government sector institutions being free of charge to the end user to terminate out of pocket expenditure.

Current situation of drug supply management in institutions:

All the above stages in the drug management cycle are responsible in improving the drug availability at institutional level. Sri Lanka has been able to improve the drug availability in institutions with numerous strategic efforts made at all the above described stages successfully. However, there are infrequent complaints of stock out situations leading patients to buy medicine from outside pharmacies. Literature indicates that this situation is mainly due to irrational prescribing, prescribing non formulary drugs and very rarely due to quality failure situations.

WHO situation analysis 2013 has found that;

- % availability of key Essential Drug List drugs was 89.6%, 79% and 72%;
- % Out of Stock of currently used items was below 5% in all the above institutions;
- % prescribed drugs dispensed was 92%, 91% and 99%

in Referral Hospitals, in Base / Divisional Hospitals and in Primary Health Care Centres respectively. Even though 20% of key items were not available there were alternatives and over 90% of prescribed drugs were dispensed.

It is worthwhile to study the strategies implemented and to explore the deficiencies to further implore the drug availability in institutions.

Prioritizing an area for in depth analysis:

In the prioritization process, using nominal group discussion among 4 trainee colleagues, it was decided to select one level for in depth analysis by root cause analysis to find root causes and to make recommendations. The "Institutional level strategies" was selected for this purpose.

In depth analysis of strategies at institutional level:

Methodology

Key Informant Interviews, Inspection visits, Review manuals & guidelines, Literature review, Participation in discussion meetings, Review of secondary data.

Identified Strategies

Policy:

- Establishment of Institutional Drug Therapeutic Committees (IDTC) to review drug availability, distribution & storage of medicine, review prescription audits, monitoring of medicine use, discuss budget issues and to review drug policies.

Finance:

- Budgetary allocations decided by MSD for line ministry institutions and by Provincial Directors of Health Service (PDHS) & Regional Directors of Health Service (RDHS) for provincial ministry institutions are utilized efficiently when selecting and forecasting the requirement. Every effort is made for efficient management of Local Purchasing within the allocated financial allowance.

Process, Facilities & Medicine:

- Realistic estimations made for annual medicinal requirement taking into account, the previous years' consumption, expansion plans of service delivery, morbidity trends and past stock out data using Medical Supplies Management Information System (MSMIS).
- Appropriate buffer stocks are maintained at all levels such as main store, Indoor Drug Dispensary /Out Patient Department (OPD) and wards.
- Drug ordering and supply tracking is done with MSMIS which is easy, quick and transparent.
- For line ministry institutions, the pull system from MSD is operated with institutions placing orders monthly or even weekly to replenish the stores, while RMSDs distribute to provincial sector institutions on monthly or weekly basis for an uninterrupted supply.
- Transport facilities which include lorries and cold chain systems are available in line ministry institutions for themselves and RMSDs to distribute to provincial sector institutions.
- Good Stores management practices such as allocating adequate spaces, maintaining correct temperature, proper arrangement of drugs, use of vertical and horizontal space, First-in First-out and First-expire First-out policies for distribution, maintaining maximum & minimum reorder levels and segregation of expired items are implemented in all stores. E-MSMIS is used for improving stock management. Wards and OPD/clinic dispensaries maintain stock registers to maintain buffer stocks, to be alert on re-order levels and to prevent wastage and pilferage.
- There is easy access to stock availability in island wide institutions online for quick requests and redistributions. MSD is very efficient in issuing medicine even beyond approved levels.
- Any drug which is not available in MSD or for redistribution can be obtained by local purchase on the

written request of the consultant on name patient basis. Local purchase process is accelerated using e-MSMIS to reduce paperwork & correspondence delays.

Human Resource:

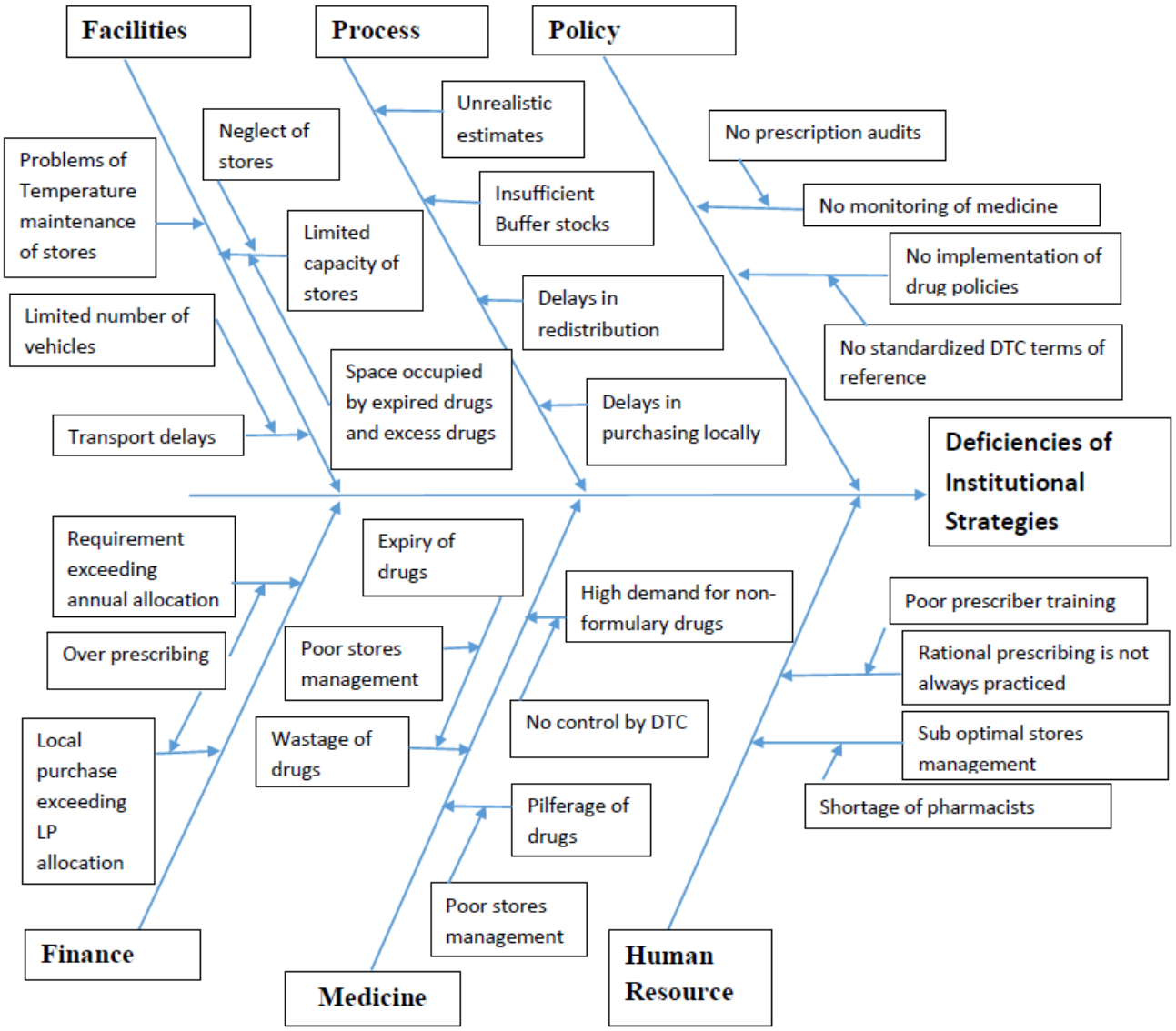
- Adequate provision of human resources for ordering, collection, storage, book keeping and dispensing purposes.
- Employ pharmacists to manage RMSDs and hospitals.
- Continuous Medical Education for prescribers on medicines use: rational prescribing, use of antibiotics, standard treatment guidelines.
- Train the staff in using MSMIS to speed up drug management system.
- Medical personal are determined to ensure timely orders and availability of drugs and take all the precautions to facilitate continuous drug availability.

Public:

- Public education on safe and prudent use of medicines

Even though a number of strategies are implemented there are deficiencies in almost every strategy which could lead to stock out of medicine.

Root cause analysis of Deficiencies of Institutional Strategies:



Conclusions:

Deficiencies of institutional strategies are due to following root causes;

- No standardized DTC terms of reference to implement drug policies.
- No prescription audits carried out to monitor medicine use.
- Unrealistic estimates, inadequate buffer stocks, delays in redistribution & delays in LP causing unavailability of drugs.
- Limited stores capacity due to neglected stores and space occupied by expired & excess drugs.

- Transport delays due to limited number of lorries in RMSD
- Rational prescribing not always practicing due to poor training.
- Suboptimal store management due to shortage of pharmacists.
- High demand of non-formulary drugs due to poor control by DTC.
- Wastage and pilferage of drugs due to poor stores management.
- Annual requirement and Local Purchase exceeding annual allocation due to over prescribing.

Recommendations:

1. Standardized Terms of reference for the Institutional DTC should be established to implement its stipulated functions.
2. Prescription audits should be carried out to monitor the medicine use.
3. Adequate buffer stocks should be maintained to improve availability.
4. Improve stores capacity by proper stores management practices, accelerating condemning of expired items and avoiding storing excess drugs.
5. Arranging transport facilities by the institution itself.
6. Training of prescribers on rational prescribing.
7. Efforts to correct shortage of pharmacists.
8. Demand for Local Purchase should be adequately controlled by institutional DTCs.
9. Proper stores management practices to prevent wastage and pilferage.
10. Over prescribing should be controlled, for annual usage and Local Purchase, to stay within the annual allocation.

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