

A Case Study: Overview of Management of Drug Supply and Issues Faced at District General Hospital Kalutara, Sri Lanka

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Abstract

This case study aims to provide an overview of drug supply management and identify significant issues related to drug supply management at District General Hospital Kalutara. It is a tertiary care line ministry institution and serves around 1.2 million population in and around Kalutara district. This hospital has 82 units, including 29 wards with 1,099 patient beds. There were 363,364 out-patient visits, 396,151 clinic visits, 100,361 admissions and 23,027 surgeries were performed in the year. There are 30 pharmacists performing duties at this hospital. There are one out-patient dispensary, an Accident and Emergency Unit dispensary and five clinic dispensaries to provide service to out-patients. Around 1,200 OPD patients, 1,500-1,700 clinic patients and 700-800 inward patients get service daily. The main issues identified at this hospital are a shortage of pharmacists, unavailability of proper drug stores with adequate capacity and cool rooms, non-renovated drug stores and pharmacies, unavailability of basic machinery at dispensaries such as drug counting machines and refrigerators and poor participation and contribution of consultants in the annual drug estimate and drug review committee meetings. In the short term, renovation of drug stores and dispensaries and provision of tablet counting machines and refrigerators can be provided. Construction of a new drug store and cool room with adequate storing capacity and appointment of new pharmacists for the hospital can be achieved in the long-term plan. Continued encouragement needs to be done to get the participation and input of consultants in the annual drug estimation and drug review committee meetings.

Keywords — Drug, management, stores, pharmacist.

I. INTRODUCTION

District General Hospital (DGH) Kalutara is a tertiary care institution under the line ministry in Kalutara district. It serves around 1.2 million people in the Kalutara district and beyond its boundaries. The closest major healthcare institutions are Teaching Hospital (TH) Kalubowila and TH Karapitiya, which are 40 km and 75 km away. This hospital has 82 units, including 29 wards. It has 1,099

patient beds. There were 363,364 Out-Patient Department (OPD) visits, 396,151 clinic visits, 100,361 admissions and 23,027 surgeries performed in one year [1].

Management of drug supply includes selection, forecasting, quantification, procurement, storage, and distribution [2],[3]. The Medical Supplies Division (MSD) of the Ministry of Health manages the selection, regulation, supply, and disposal. Use and part of

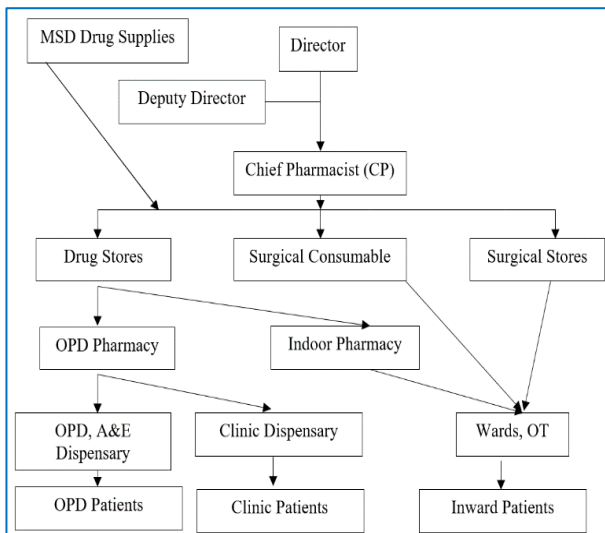


Fig 1 Organisation of drug management at DGH Kalutara, Sri Lanka

disposal are handled by the hospital [3]. Most drug management tasks are managed by pharmacists in the hospital, with the overall supervision and monitoring of the hospital director. The hospital prepares the estimate annually based on the usage of the previous year, with the participation of consultants and submits it to MSD. This process is the initial task to get the necessary medical supplies from the MSD. The preparation of the annual estimate is the most vital part of the management of drugs. Based on the consumption at the institution and availability at MSD, the pharmacist requests MSD and gets the medical supplies from MSD. District General Hospital Kalutara is under the management of the line ministry; therefore, the drug is issued directly from MSD to the hospital. The drug is distributed to indoor pharmacies for inward patients through wards and theatres. The drug is distributed to OPD, Accident and Emergency (A&E) Unit, and Clinic dispensaries through OPD pharmacy for out-patients [3]. The organisation of drug management is shown in Fig. 1.

II. MATERIALS AND METHODS

A. Objective

To identify significant issues in managing the drug supply at District General Hospital Kalutara.

B. Methodology

1. Key Informant Interview (KII) with the chief pharmacist (CP), pharmacists of drug stores, indoor pharmacists, out-patient department pharmacists, clinic pharmacists and prescribing medical officers.
2. Observatory visit to the drug stores, indoor pharmacy, OPD pharmacy, OPD dispensary and clinic dispensary.
3. Interview with patients who got drugs from the dispensary.

C. Problem Identification

The above methodology at DGH Kalutara identified several issues: out-of-stock situation of drugs, improper estimation of drugs, shortage of human resources, shortage of storage facility, quality failure of drugs, etc. These situations cause extra burden to the pharmacist as well as to the administration, especially to the director.

III. PROBLEM ANALYSIS

The fishbone diagram is one of the basic quality tools [4]. This tool is used to identify the possible causes of a problem [5]. This tool is used in this case study to find out the issues related to drug supply management at DGH Kalutara and used the data gathered through KII, observatory visits and interviews.

The analysis used the components of resources, man (human resource), machine, material, and method (process) to find out the issues related to the management of drugs at DGH Kalutara.

A. Human Resources

Human resources have a severe effect on the management of drug supply. The drug supply management is mainly managed by pharmacists and supported by Saukya Karya Sahayaka (SKS/ Junior Staff). This process needs more human resource, as only a few processes are digitalised and is only available in some units.

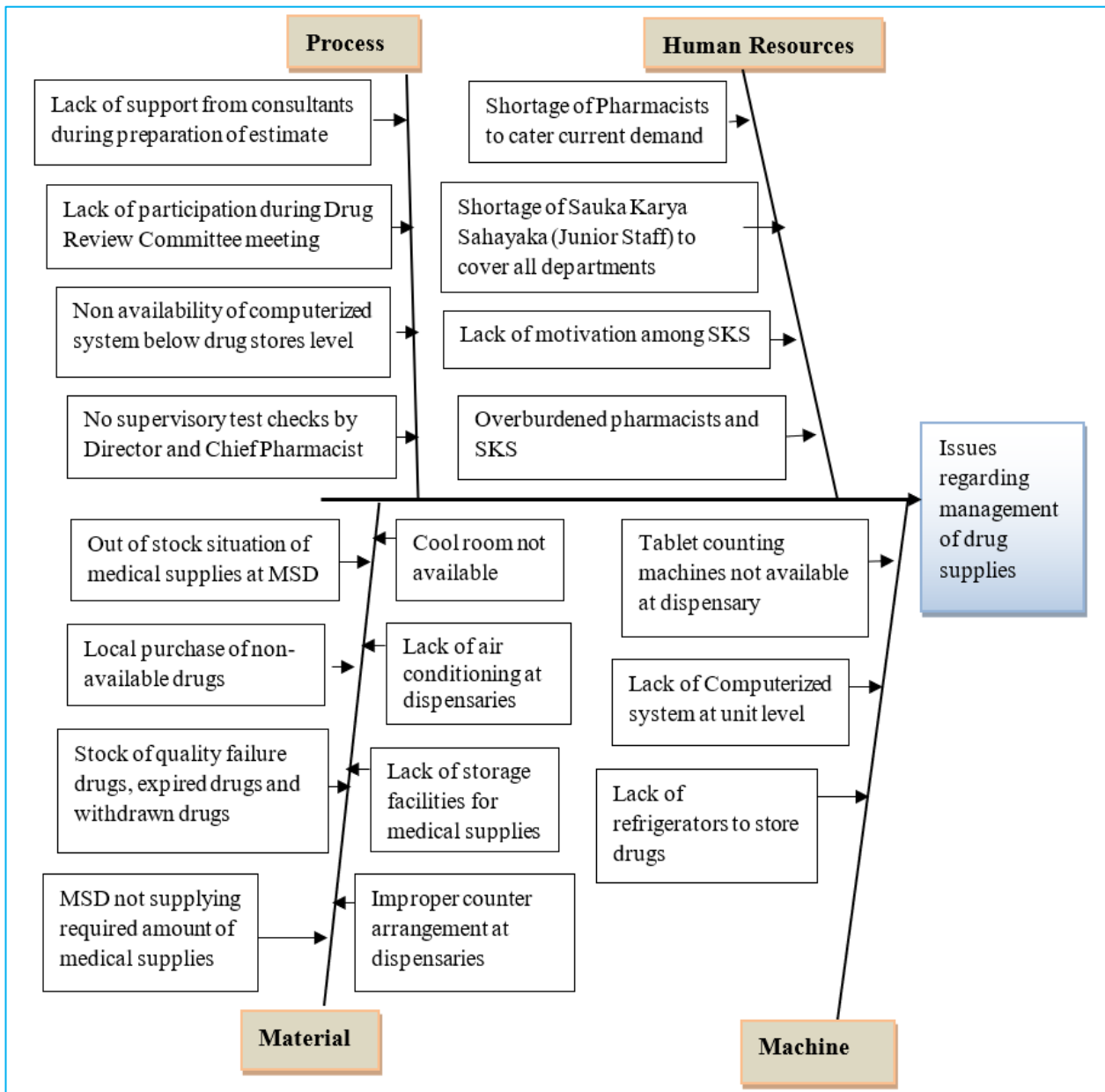


Fig 2 Fishbone diagram on issues regarding the management of drug supplies at DGH Kalutara

DGH Kalutara is developing in many aspects, and many new services have started, such as the A&E Unit, Dialysis Unit, Oncology Unit, etc. Still, there needed to be an increment of pharmacists to cater to the developing hospital's needs to provide the expected service to the clients. The workload of pharmacists increased with the addition of new services. Currently, 30 pharmacists are working in the pharmacy department, but there is a need for 36 pharmacists. With the shortage of six pharmacists, the unit is functioning to provide the service. It is evident that the chief

pharmacist also looks after local purchases, which consumes most of his time due to frequent out-of-stock situations, in addition to his function as the chief pharmacist. They are facing difficulties in taking leave even in case of an emergency. There is no system for motivating human resources in the hospital, which hinders the quality-of-service provision.

Assistance to the pharmacists is given by SKS. There are seven dispensaries arranged to provide service to clients. They are not in a single place and are dispersed throughout the hospital. Therefore, the need for SKS is more

than estimated. As they all work in different places, they cannot support each other. As mentioned earlier, the motivational strategies are not functioning well, and there is poor teamwork. Every SKS consider that their unit is more important than the pharmacy department.

B. Process

In managing the drug supply, estimation of the requirement for the institution is the most vital activity. The estimation is done yearly for the following year's requirement. It is the responsibility of the head of the institution to make sure the estimation is realistic. Most of the task is done by the pharmacists. The contribution and inputs of consultants are vital in the estimation process because the prescribing pattern and usage of instruments vary among the consultants, even in the same speciality. In DGH Kalutara, the contribution from consultants in the preparation of estimates is poor, which leads to several supplementary estimates in the middle and latter part of the year.

The drug review committee (Drug Therapeutic Committees) meeting is an essential platform in the hospital for monitoring the efficient management of drugs. The forum allows for decision-making by consensus among representatives of different units involved in the management of drugs. In a DGH, it should be conducted monthly [3]. In the meeting, monitoring of supply and use of drugs, monitoring of local purchases, use of special medications, to ensure economy in the use of drugs, to ensure adequate supply of critical/essential medicines and to ensure consumption of drugs within the financial allocation are discussed. Therefore, the participation of representatives from all units is necessary. The consultants are the main stakeholders to provide feedback regarding the management of drugs. The involvement of consultants and their feedback could be better in the meeting at DGH Kalutara. Therefore, it is challenging for the management to make the necessary decision and measure for the smooth functioning and supply of drugs.

The Medical Supplies Division (MSD) of the Ministry of Health has provided an information system to the DGH Kalutara; via this system, they can communicate with the MSD to place requests and know the availability of drugs in the MSD and other institutions. In the hospital, this system is limited to stores. It is unavailable in the wards and other units except the OPD dispensary. Therefore, the availability of drugs in the units cannot be traced at once. Thus, managing the drugs during shortages becomes difficult. They should go through the manual system to find the availability of drugs at wards and other units.

The chief pharmacist's role is to periodically test-check the sub-stores, wards, and other units. In addition to the CP, the director or the deputy director also should do the test check [3]. This supervision enhances the efficiency of the management of the drugs at each unit. In addition to his duty, the chief pharmacist performs the local purchase of drugs for the institution. There is a shortage of drugs for many drugs these days; therefore, he is overburdened with that task. That limits his supervisory function as the chief pharmacist.

C. Machine

There is a need for more machines in the pharmacy department. Refrigerators are essential to maintain the temperature of certain drugs such as mixed syrups, insulin, etc. When the refrigerator is not available, the mixed syrups are discarded on the same day, even though they can be kept under a specific storage temperature for more than one day. There is a wastage of valuable drugs. There is no refrigerator to keep mixed syrups at the OPD dispensary.

The information management system is available only up to the drugstore level. Below that level, such as dispensaries, wards, and units, the drug management is managed manually, except for the OPD Dispensary. The system has a module for the teams, but no computers and network facilities are available at wards and units. If the system can be

implemented to that lower level, the drugs can be managed effectively and efficiently.

Four hundred to five hundred clients get the service from each clinic dispensary. The SKS pack the drugs manually. It consumes a lot of time for several SKS. Every day, they should spend considerable time on this process. This process can be simplified by tablet counting machines unavailable here.

D. Material

In this case, materials can be considered as drugs and other supporting materials for the drug supply.

Out of stock situation of drugs at MSD is a considerable issue in the management of drugs. MSD provides drugs based on their availability at MSD, not based on the request of the institution. The amount provided by MSD may not be sufficient for a continuous supply of those drugs. That causes the frequent out-of-stock situation of those drugs at the institution. Because of this situation, pharmacists should go to MSD frequently to collect drugs. In addition, the cost of transport and other claims also increase.

To provide a continuous supply of drugs during out-of-stock situations, the institution locally purchases those items with the approval of MSD. The local purchase process is more complex than shopping. There should be a request from the consultant who prescribes those items. The request should be verified by the pharmacist and forwarded by the director to MSD to get the approval for local purchase. MSD checks the request and verifies with the stores, impending deliveries, and other institutions. Finally, the permission is granted by MSD for the purchase of the drug locally. When the institution receives the approval, it should call for at least three quotations from suppliers. One supplier is chosen from among them, and a purchase order is given to get the drugs. After the delivery of drugs or before delivery, based on the conditions, the payment is made by cheque. Then, the drugs are distributed to relevant units. This whole procedure should be followed for each request.

When there is a more significant number of drugs in out-of-stock situations, the workload is very high. Currently, this is handled by the chief pharmacist in addition to his routine work because of the shortage of pharmacists.

Another main issue is the out-of-date drugs, quality failed drugs and withdrawn drugs. They should be disposed of in a proper manner. Disposal of drugs which are expired or quality failed is done by MSD. Before the disposal, they should be audited to verify the records. Until such time, they all should be kept under proper storage. There are a considerable number of drugs under this category at DGH Kalutara, which consumes a lot of the storage capacity of drug stores. The MSD doesn't take regular measures for the disposal of these drugs.

With the development of the DGH Kalutara, the drug stores are developed at a different pace. There needs to be a proper drugstore. They are functioning in the abandoned quarters. The storage conditions in the quarters are not suitable for the storage of drugs. That can lead to a decrease in the efficacy of the drugs. In addition to that, there is a possibility of damage to the drugs due to poor storage conditions.

There is no cool room to store the drugs which need to be stored under specific temperature conditions. Therefore, the need for refrigerators is increased for this purpose. There needs to be more capacity in the refrigerators to store drugs. If they are not stored correctly in the fridge, the drugs can be damaged and cannot be used. It will cause a substantial financial loss. At the same time, if they are administered to the patients, they can cause severe side effects and even death. Due to the improper storage of drugs, the efficacy of the drugs may also be lost.

In the dispensaries and the drug stores, the capacity of the air conditioners is not adequate to maintain the temperature for the storage of drugs. Their capacity is inadequate, or there are no air conditioners in some places. It may lead to damage to the drugs due to poor storage conditions.

The counter arrangements in the clinic dispensaries need to be made more user-

friendly. The ergonomic factors should have been considered during the planning and implementation stage. Most pharmacists complain of neck and shoulder pain due to the arrangements. The height of the counters, the distance of the pharmacist from the counter, the size of the counters, sitting arrangements and the chair of the pharmacists need to be considered during the process.

IV. PROPOSALS

Among the issues discussed were the significant issues in managing drug supply. They are a shortage of pharmacists, unavailability of proper drug stores with adequate capacity and cool room, need for renovation of the currently functioning drug stores and pharmacies, unavailability of basic machinery at dispensaries and poor participation of the consultants in the annual drug estimate and drug review committee meeting.

A. Shortage of Pharmacists

This issue can be shorted out by long-term planning. Currently, the available number of pharmacists is 30, and the approved carder is 36. The shortage of six cadre for pharmacists should be filled before thinking of revising the cadre. Therefore, it should be vigilantly observed for the next batch of pharmacists who will get an appointment. Before the ministry finalises the distribution list, the director should make an effort to allocate pharmacists to the hospital. At the same time, the concurrence of the union of the pharmacists was also considered. When the pharmacist is appointed through a new appointment, that will be a net gain for the hospital.

If any retired pharmacists are willing to work after retirement, they can apply for an appointment to work in places with a shortage. This effort is also a temporary measure to solve the issue. Finding a suitable person is the major issue. After retirement, only a few like to work in the public sector. The process also takes a little longer time to get the approval of the Public Service Commission.

There will be intern pharmacists after their training is over at training schools. The director should make the necessary request to the Director/Training, Ministry of Health. They will be allocated for six months to get trained at hospitals. That will be a short-term relief for the shortage of pharmacists. These intern pharmacists are young and energetic and like learning the system. Therefore, it is an excellent opportunity to use them to teach as well as to get service from them.

When a plan is made for the development of the hospital, it should consider the additional need for human resources. That should be followed up properly, and the request should be forwarded to the Director/ Planning at the Management Development and Planning Unit at the Ministry of Health through the FR71 form. Then, only necessary amendments will be made to the care of the hospital. This is one of the critical functions of the institutional planning unit. They should be vigilant in looking after all the aspects of planning. If this is considered during planning, there will be no issues regarding the shortage of approved cadres in the future.

B. Unavailability of Proper Drug Store

This issue can be dealt with by proper planning and execution of the plan. There should be a master plan for the institution. That should be revised periodically to cater to the institution's needs with the population's demand. The capacity of the drugstore should be decided considering all future developments. The drugstore should be able to stock the items for at least three months. This capacity will prevent out-of-stock situations most of the time. When there is a proper, adequate capacity drug store available, available drug at MSD can be requested and stored to cater for the demand. Planning, getting approval, finding the source of funds, and implementing takes time.

As there is no other possibility of constructing a new drug store, renting out a building close to the hospital to store the drugs is possible. That can be done easily and quickly till the hospital gets a suitable alternative.

Finding a suitable building in the vicinity of the hospital is a challenging task. Finding allocation for the rent is also to be negotiated with the Ministry of Health. For the security of the drugs, it needs security personnel.

C. Renovation of Current Drug Stores

The currently functioning drug stores can be renovated to store the drugs safely. This renovation can be done by the hospital authority. The drug stores at the quarters can be renovated to store the drugs. The indoor dispensary can be properly airconditioned. Drug issuing counters at the clinic dispensaries need to be modified to suit the function, and the air conditioning needs to be replaced to suit the needs. By doing the necessary renovations, the morale of the staff increases, and they will give the maximum support to provide the service. The drugs also will be kept in proper storage condition without damage to distribution to the clients.

D. Shortage of Machinery at Dispensaries

There are no tablet counting machines at the clinic dispensaries. These machines can be purchased by the hospital authority. It will improve the efficiency of the SKS and their morale. Providing refrigerator to the dispensaries prevent wastage.

E. Poor Participation of Consultants

In gatherings such as Consultant Meetings, the importance of contribution by consultants to the management of drugs should be stressed. The consultant's participation and assistance should be acknowledged, and feedback should be given to them as early as possible. This process will increase their contribution to estimate and drug review committees.

V. RECOMMENDATIONS

Getting pharmacists through new appointments will be the best solution to this issue. It will be a permanent solution to this issue. The construction of drugstores will be the best solution. Till then, renovation of the

currently available stores will be the feasible solution. Providing air conditioning for the necessary places will prevent damage to the drugs. Making essential modifications in the clinic dispensaries will increase the morale of the staff.

Providing tablet counting machines to clinic dispensaries and refrigerators to the dispensaries and necessary wards will prevent the wastage of drugs. Making the consultants aware of the available means, such as consultant meetings, will improve their participation and contribution.

VI. IMPLEMENTATIONS

The director should work on the new pharmacist appointment with the Ministry of Health from now onwards with proper justification. The chief pharmacist and other pharmacists should work through their union to get the pharmacist in the new proper batch as an additional one, not a replacement.

The drug stores can be renovated through proper estimation in the short term. This is the responsibility of the director, accountant, relevant pharmacist, MO/Planning, consultation firm, and contractors. It takes about six months for completion.

Purchasing of tablet counting machines and refrigerators is the responsibility of the director, pharmacist, accountant, and purchasing officer. This process takes around three months to complete. The estimated cost is approximately one million rupees.

Participation of the consultants is to be emphasised continuously via all the means by the director. The pharmacists also encourage the consultants to get their feedback regularly.

VII. CONCLUSIONS

The main issues identified are shortage of pharmacists, unavailability of proper drug stores with adequate capacity and cool room, need for renovation of the currently functioning drug stores and pharmacies, unavailability of basic machinery at dispensaries and poor participation of the consultants in the annual

drug estimate and drug review committee meeting.

The solutions can be achieved in the short term and long term. In the short term, renovation of drug stores and dispensaries and provision of tablet counting machines and refrigerators can be provided. In the long term, the construction of drug stores and new pharmacists can be allocated for the hospital. Continued measures are needed to get the participation of consultants in drug supply management. These can be achieved only via team effort.

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