

# Factors influencing drug stock-outs at health facilities – mocuba

## Abstract

**Introduction:** Outage of Medicine Stocks is the unavailability of medicines needed by users in health units, pharmacies and medicine stores. In Mozambique, cases of drug stocks breaking in health units constitute a concern for the population of users, academics and the government in finding solutions to resolve this situation. The objective of the present study is to eliminate the factors that influence the rupture of medicine stocks in health units in the district of Mocuba.

**Methodology:** The study was carried out in health units in the district of Mocuba, Province of Zambézia in the year 2023. This is an explanatory and retrospective research, with a quantitative approach. The instruments used were elaborate documents called medication lists, requisitions, delivery notes and data organization sheets relating to the study period. Observation and documentary research techniques were used to collect data. The comparative, statistical and inductive method was used. The sample size was 40 medicines in each month of the research period in the health units. The data was analyzed using the Microsoft Excel 2010 program.

**Results and discussion:** 2400 pharmaceutical specialties from different pharmacological groups were studied, namely: ARVS, Antimalarials, Tuberculostatics, Antifungals, Contraceptives and Antibiotics. The percentage of medicines ordered and not received was 34.9 %. The data collected showed that 36.9 % of medications were received with a low level of satisfaction; The group of unordered medicines constitutes

28.2 % and the percentage of medicines diverted to the informal market was 0 %.

**Conclusions:** The factors that influence the rupture of medicine stocks in health units in the district of Mocuba are: medicines ordered and not received, medicines received with a low level of satisfaction, medicines not ordered and in some situations the diversion of medicines to the informal market.

**Keywords:** ruptures, medicines, health units

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## Introduction

Drug stock-outs are the unavailability of medicines needed by users in health facilities, pharmacies and drug stores. In Mozambique, cases of drug stock-outs are a concern for the user population, academics and the government in finding solutions to this situation. In this context, the supply of medicines according to availability in warehouses without taking into account the epidemiology of common diseases at each level of health care or region is an inadequate way of managing or distributing medicines. In the National Health Service, the use of medicines is guided by a national medicines form, which is a fundamental tool for prescribing medicines and drawing up requisitions at all levels of health care. Proper management of medicines requires planning, searching, stock management, storage, distribution and use. Stock-outs of medicines in health facilities have many negative social and political impacts on patients and carers, such as: worsening of the state of illness in those who don't have access to medicines; deaths; easier transmission of untreated diseases; reduction in the prestige of health services, political opposition, among others not mentioned. It was found that in the period from July to December 2022, most of the stocks of medicines needed by users in the district of Mocuba suffering from illnesses such as HIV/AIDS, malaria, tuberculosis, skin infections, family planning and infectious diseases had a high level of rupture in many health units. The groups of medicines that had the most breakages were ARVS, Antimalarials, Tuberculostatics, Antifungals, Anticonceptives and Antibiotics. In the

district of Mocuba, it was observed that the unavailability of essential medicines was related to the existence of the following factors: medicines ordered and not received, medicines received with a low level of satisfaction, medicines not ordered and diversion of medicines to the informal market. Considering that valuing the results of this study is the path to eliminating medicine stock-outs at any level of health care, it is believed that in the near future the issue can be overcome as long as this generation or the next is committed to this cause. The aim of the study is to eliminate the factors that influence drug stock-outs at Mocuba health facilities.

## Methods

The items that will be covered in this chapter are: geographical location and year of study, type of study, instruments used, definition of instruments used, techniques used, procedures used, methods used, program used in data analysis and sample. The study was carried out in the health units of Mocuba District, Zambézia Province, in central Mozambique in the year 2023. The research was carried out in a context in which Mozambique was experiencing huge problems in the medicines management process in health facilities. This is an explanatory and retrospective study, with a quantitative approach. For this study, the instruments used were documents called: list of medicines, Medicines Requisitions (internal and monthly), Delivery Notes and data organization forms. The list of medicines is the document drawn up by the author containing the codes, names and

pharmacological groups of the medicines. Medicines requisition is the management model used to control the stock file, inventory control and determine the quantity of medicines ordered for consumption in a given period. Delivery note is the pharmacy management document used to send and receive pharmaceutical products or medicines to warehouses and health facilities.<sup>1</sup> Data organization sheet is the document drawn up by the author containing the factors, drug codes, the total quantity of drugs and the percentage during the study period in each health facility. Participant observation and documentary research were used. In the requisitions for medicines, the author extracted the medicines not requested according to observation and comparison between the list of medicines drawn up for the study and the medicines requested in the requisition; in the requisitions for medicines, the author extracted the medicines requested and not received according to observation and comparison between the list of medicines under study and the medicines received in the delivery notes.

The medicines received with a low level of satisfaction were extracted from the delivery notes according to the observation of the request on the medicine requisition and the quantity provided on the delivery note. It was difficult to quantify the detour of medicines from the National Health System to the informal market at the time of data collection because the health units did not have data on medicine consumption and internal distribution was random, i.e. it did not comply with the standards established by the MoH. This process took place in 10 health units in the district of Mocuba, namely: Mocuba District Hospital, Samora Machel Health Center, Sede Health Center, Padre Usera Health Center, Muanaco Health Center, Mugeba Health Center, 16 de Junho Health Center, Pedreira Health Center, Namagoa Health Center and Mocuba Sisal Health Center. The organization of the data into the sequence of factors identified was based on in-depth observation and comparison of the documents used in the period under study. The Comparative, Statistical and Inductive method was used, culminating in the non-random selection (non-probability sampling) of 40 medicines from the list drawn up. The data was analyzed using Microsoft Excel 2010. A total of 2,400 pharmaceutical specialties from different pharmacological groups were included in the study: ARVS, Antimalarials, Tuberculostatics, Antifungals, Anticonceptives and Antibiotics. They were then divided into 4 (four) identified factors, namely: medicines ordered and not received (all those requested by the health units and not supplied by the supply depot); medicines received with a low level of satisfaction (all those received by the health units in smaller quantities compared to the order placed with the supply depot); medicines not ordered (all those not ordered from the supply depot during the requisition preparation process) and detour of medicines to the informal market (these include medicines sold to the black market).

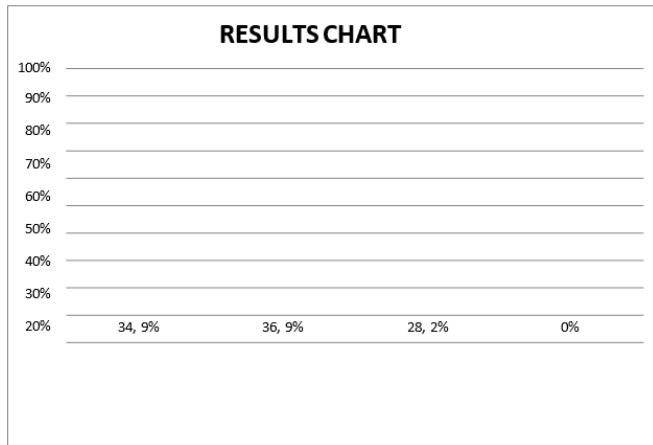
## Ethical aspects

The study received ethical approval from the Institutional Bioethics Committee for Health of the Province of Zambézia. Ref: 149/CIBS-Z/23

## Results

A total of 2,400 pharmaceutical specialties from different pharmacological groups were studied, namely: Anti-Retrovirals, Antimalarials, Tuberculostatics, Antifungals, Anticonceptives and Antibiotics. The percentage of medicines ordered and not received was 34.9%; the data collected showed that 36.9% of the medicines were received with a low level of satisfaction; the group of medicines not ordered constituted 28.2% and the percentage of medicines diverted

to the informal market was 0% (there was a lack of consumption data and the distribution of medicines was random) (Figure 1, Table 1).



**Figure 1** Graphical representation of results.

34.9%- Pedidosis Medications Not Received

36.9%- Medications Received with Low Satisfaction Level

28.2%- Medications not ordered

0%- Diversion of Medicines to the informal market

**Table 1** The percentage of medicines ordered and not received

Factors	Total number of medicines in the period	Percentage (%)
Medicines ordered and not received	838	34,9
Medicines received with a low level of satisfaction	886	36,9
Medicines not ordered	676	28,2
Medicines diverted to the informal market	0	0
Total	2400	100

## Discussion

The results confirmed that there was a lack of compliance with the principle of the Central de Medicamentos e Artigos Médicos of equitable distribution of medicines to the different levels. Therefore, the dissatisfaction of the requests for medicines in the delivery notes during the process of distribution of medicines from the intermediate warehouse in Mocuba to the warehouses of the health units and in the distribution from the warehouses of the health units to the internal services had a cumulative of 71.8%. There was also a lack of attention in the planning of orders in the requisitions for medicines from the district's health facilities, amounting to 28.2%.

The researcher also found that certain medicines were ordered and not received in certain health units at the same level of health care, and in others at the same level, medicines were ordered and received in the same month of the distribution period. This phenomenon of variation in satisfaction or dissatisfaction in the distribution of medicines from the intermediate warehouse in Mocuba to their dependents and from the warehouses of the health units to their dependents also occurred for medicines received with a low level of satisfaction. It was noted that there were discrepancies in the health units of the same level in relation to medicines not ordered at each stage of the requisition

period. In order to guarantee the existence and correct use of medicines at the various levels of the Health System, it is necessary to include consumption data in medicines management procedures and to comply with the levels of prescriptions for medicines.<sup>1-3</sup>

## Conclusion

The factors that influence the stock-outs of medicines in the health units of the Mocuba district are: medicines ordered and not received, medicines received with a low level of satisfaction, medicines not ordered and the detour of medicines to the informal (black) market, although this study had limited access to data to quantify the latter factor.

## Recommendations

Restructure the operating policy of the health units of the SDSMAS - Mocuba; Open a District Medicines Depot to supply the Health Centers. Issue mandatory orders and instructions to the Mocuba District Government to eliminate the sale of National Health System medicines in the district's markets and neighborhoods.

## Acknowledgments

None.

## Conflicts of interest

The authors declare that there is no conflict of interest.

## Funding

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