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Research Article

Availability of Drugs for Mothers and Children in Community Health Centers in Commune VI of the Bamako Health District

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Abstract

Introduction: Improving maternal and child health is a worldwide priority. An estimated 8.1 million children under five die each year. Approximately 1,000 women, most of whom live in developing countries, die every day from complications of pregnancy or childbirth. The objective of this work was to assess the availability of mother's and child's medicines at the level of the community health center VI of the Bamako district, Mali.

Materials and methods: This were a prospective cross-sectional study which was took place in Bamako in the community health center VI in 12 months over the period from November 2019 to October 2020. We carried out a survey in the 11 community health center VI. Data entry and analysis were performed using SPSS version 21.0 software.

Results: In this study, the sex ratio was 2.66. Half of the people surveyed were doctors (50%) who assumed the role of DTC (Technical Director of the Center). As for the profiles of managers, in our sample, accountants were the most represented with a rate of 31.82%. Almost all depot managers have received training in logistics management (86% of cases). 73.00% of Community health centers correctly followed the SDADME (drug supply and distribution master plan). The Community health centers were supplied by other suppliers in the event of a shortage at the PPM (Popular Pharmacy of Mali) with a rate of 86.40%. The total availability rate of medicines for mothers and children was 60%. Breaks were recorded for eight (08) products. The causes mentioned in relation to drug breaks were, among others: non-ordering of drugs, non-availability at the PPM and non-prescription of drugs by providers.

Conclusion: This study revealed a good availability of drugs for mother and child. However, we found that some of these drugs were out of stock. These shortages were due either to the non-availability of the PPM store, or to the non-ordering of these products by the Community health centers.

Keywords: management, medicine, CSComs, mothers and children, Bamako.

INTRODUCTION

Improving maternal and child health is a worldwide priority. An estimated 8.1 million children under five years die each year and approximately 1,000 women, most of whom live in developing countries, die each day from complications of pregnancy or childbirth[1].

A study by the French Muskoka Fund (FFM) in 2014 found that in ten countries in West and Central Africa and Haiti, 41 million women were of childbearing age, of which each year there were about 45,000 maternal deaths, 848,000 infant deaths, of which 274,000 were newborns[2] .

In Mali, problems related to maternal and child healths are among the priority health actions identified by the authorities[3]. Despite the efforts of the government and its development partners, health indicators remain low. For example, the maternal mortality rate was 587 per 100,000 live-births in 2015 (according to the WHO), infant mortality was 115 per 1,000 births and neonatal mortality was 75 per 1,000 births according to the same source[4].

According to the WHO, many of these deaths are due to conditions that could be prevented or treated with access to affordable priority medicines[1]. These medicines must be available at all times in sufficient quantity, stored, delivered and administered under good conditions, i.e. used in complete safely[5] .

Improving the quality of care is not only the responsibility of the physician, through good diagnosis, but also through the pharmacist collaboration who plays a very important role in the availability and dispensing of medicines[6].

Medicines play an essential role in the prevention and management of certain diseases through good compliance with rational prescriptions[7].

In 2011, WHO, UNFPA and UNICEF developed a list of 30 maternal and child medicines to help countries and partners select, and make available the drugs that will have the greatest effect in reducing maternal, neonatal and child morbidity and mortality[1].

The CHCs, being the first level of contact of the population with the health personnel, must respond adequately to the promotion of household health[8]. Childbirth and on the other hand to provide staff with the necessary resources and devices[5]. It is within this framework that we initiated this work "Evaluation of the availability of mother and child drugs: case of the Community health center VI of the Bamako district from November 2019 to October 2020" so that the results could contribute to the improvement of the quality of services offered in the Community health centers of Mali.

MATERIAL AND METHODS

This was a prospective, cross-sectional study that took place in the eleven (11) community health centers VI of the Bamako district over the period from November 2019 to October 2020. Data collection was carried out by means of a questionnaire submitted to the technical directors of the center and the managers of the drug sales depot with 50% of the sample each. Data entry and analysis was carried out using SPSS version 21.0 software and text processing was carried out on Microsoft Word 2016.

Prior authorization from the Chief Medical Officer of the Refence Center of Commune VI and the DTCs of the CSComs was obtained before the survey began. Verbal consent was obtained from the respondents. Anonymity and confidentiality were guaranteed for all data collected during this study.

RESULTS

Table 1: Represents the socio-demographic characteristics of respondents

Sex	**Workforce**	**Percent**
Men	16	72.7
Women	06	27.3
Qualification		
Doctor	11	50
Medical assistant	01	04.54
State nurse	03	13.64
Accountant	07	31.82
Training		
Yes	19	86.36
No	03	13.64

Men were the most represented with 72.70%, i.e. a sex ratio of 2.66. The majority of respondents (86.36%) stated that they had received training in logistics management.

Table 2: Distribution of community health centers according to the period of the order

Order period	Workforce	Percent (%)
After the inventory	06	54.54
Stock is at a minimum	03	27.27
Stock is sold out (out of stock)	02	18.19
Total	11	100

According to the ordering medicines, all the community were supplied by a requisition system. More than half of the community health centers placed their orders after the inventory.

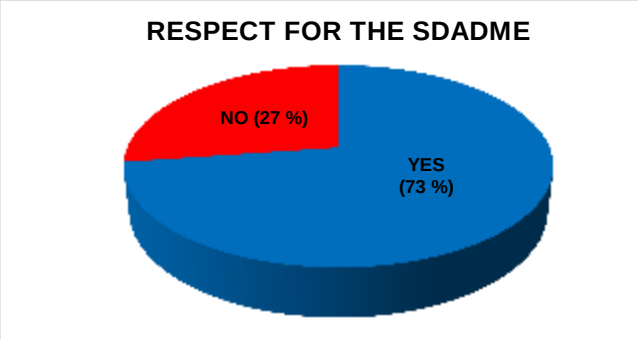

Figure 1: Distribution of CSComs according to compliance with the SDADME

The majority of the community health centers have complied with the master plan for the supply and distribution of essential medicines (Figure 1).

Table 3: Distribution of community health centers according to the reasons given for non-compliance with the SDADME

Reasons for non-compliance with SDADME	Workforce	Percent (%)
High price of medicines	05	45.45
Unaware of SDADME	01	9.090
Avoiding stock-outs	02	18.18
Delayed delivery	01	09.09
Order of the Management Committee (ASACO)	01	09.90
Other benefits (Credit agreement)	01	09.90
Total	11	100

The high price of medicines (45.45% of cases) at the popular pharmacy of Mali (PPM) was the reason most mentioned by the community health centers for not respecting the SDADME.

Table 4: Distribution of maternal and child tracer drugs according to their availability in the community health centers

Medicines	CSCOMS										
	1	2	3	4	5	6	7	8	9	10	11
Amoxicillin 500 mg gelule	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Amoxicillin 250 mg sirop	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ampicillin 1g injection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Artemether - lumefantrine 80/480 MG cp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ceftriaxone 1g injection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ciprofloxacin 500 mg cp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Erythromycin 250 mg sirop	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Metronidazole 200/5ml sirop	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Oxytocin 10UI/ml ; 1 ml inj	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Paracetamol 500mg cp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quinine injection 100mg/ml ; 2 ml	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Iron+folic acid 60 mg/400 cp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SRO sachet	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nifedipine 10mg cp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Phytoménadione injection (VIT k1)	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Benzathine benzylpénicillin 2,4 MUI injection	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sulfadoxine- Pyriméthamine 500mg + 25mg cp	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gentamycin injection 40 mg/2ml	No	Yes	Yes	No	No	No	No	Yes	No	No	No
Sulfate de magnesium 500mg/ml, 2 ml inj	Yes	No	No	No	No	No	No	No	No	Yes	Yes
Zinc 20 mg cp	No	No	No	No	Yes	No	No	No	No	No	No

Stock-outs were recorded for eight (08.00) products including Zinc 20 mg cp, Magnesium Sulfate Injection 500 mg/ml, Gentamycin 40 mg/2 ml injection, Sulfadoxine-Pyrimethamine 500 mg+25mg cp; Phytomenadione Injection (Vit K1), Benzathine Benzylpenicillin 2.4 MUI Injection, ORS Sachet, Nifedipine 10 mg cp

Table 5: Breakdown by cause of rupture of maternal and child tracer drugs

Medicines	Reasons of drug shortages in the CSCOMS			
	Not available at the PPM	Lack of prescription	Low prescription	Never used at CSCom
Gentamycin injection 40 mg/2ml	1	6	1	3
SRO sachet	**0**	**1**	**0**	**0**
Zinc 20 mg	2	4	0	3
Sulfate de magnesium 500mg/ml, 2 ml inj	0	2	2	4
Benzathine benzylpénicillin 2,4 MUI injection	1	0	0	0
Sulfadoxin- Pyriméthamine 500mg + 25mg cp	2	0	0	0
nifédipine 10 mg	1	0	0	0
Phytoménadione injection (VIT k1)	1	0	0	0
TOTAL	8	13	3	10

Among the causes of disruptions mentioned by the CSCOMS, the lack of prescription of medicines was the most cited

DISCUSSION OF RESULTS

This study took place in all the community health centers of department VI of the Bamako district. It lasted from November 2019 to October 2020. Department VI was chosen as the study site because it is the largest and most populous of all departments of Bamako district.

According to the socio-demographic characteristics, the sex ratio was 2.66 in our study population. In 2006, a study done in Benin by SOMDA.C found that out of 10 clerks (manager), 7 were male[9]. On the other hand, in 2018 Berthe and Sidibe (2019) had found respectively in their studies the managers of the female gender with a rate of 56% and 74.5%[10,11]. Our result could be explained by the fact that men are more available for DV management activities than women in the major cities. Almost all warehouse managers have received training in logistics management (86%). This result is identical to that of Coulibaly and Dembele who found in their study in Bamako that almost all (86.9%) of the managers felt they had participated in at least one training session on the logistical management of essential medicines[6,13]. On the other hand, Berthe (2018) found in a study that almost half of the DV managers had not received at least one training session on the logistical management of essential medicines[10]. Our result was confirmed by the DPM's 2013 survey report on monitoring the availability of essential medicines, particularly for mothers and children, in health facilities in Mali (Kayes, Sikasso, Mopti and Bamako district). It found that the majority of pharmacy managers (70.8%) had received training in logistics management.

In our study, 73.0% of the community health centers followed the drug supply and distribution master plan. This result is lower than Berthe (2018)'s who reported in his study that 96.0% of orders for Essential Medicines made by the DVs of the community health centers and referral health center followed the (SDADME)[10]. Whereas, studies made in Kayes by Konate (2000) and by Traore (2019) in kalabancoro revealed that the community health centers did not follow the SDADME with a rate of 66.33% and 60%, respectively[7,12].

In our study the majority of community health centers were supplied by other suppliers in case of a break in the PPM with a rate of 86.40%. This result is different from that of Sidibe (2019) who, in his study of thirty community health centers in Bamako, found a rate of supply by the PPM of 63.33%[11]. These differences could be explained by the fact that our study took place in the city of Bamako, which has several other suppliers of essential medicines who sometimes grant discounts, credits or other types of incentives to their clients. In this study, 54.54% of orders were made just after the inventory, 27.27% when the stock was at minimum and 18.19% when the product was exhausted. Sidibe (2019) found that orders were made by the manager and the DTC according to a variable or unknown periodicity with a rate of 20%[11]. The total availability of medicines for mother and child was 60%. Quinine injection 200mg, ciprofloxacin 500mg, Ampicillin, Amoxicillin 500mg, Oxytocin, Iron + Folic Acid, Paracetamol 500mg did not experience any breakage throughout the study. Ruptures were recorded for eight (08) products including Zinc (10 community health centers), Magnesium Sulfate Injection (10 community health centers), Gentamycin 40mg/2ml Injection (8 community health centers), Sulfadoxine-Pyrimethamine 500mg+25mg cp (SP) (2 community health centers) and Vitamin K1, Benzathine, ORS, Nifedipine in (1 community health center).

This result is close to Traore in 2019 which recorded shortages of: gentamycin 40mg, nifedipine, magnesium sulphate inj and zinc in kalabancoro community health centers. However, Sidibe recorded ruptures of Artemether+Lum20/120mg/pl/24cp, oxytocin 10UI inj, paracetamol 500mg cp, Ferrous salt Folic acid cp 500mg[12]. These results would be due to the frequent shortages of medicines at the PPM but also to the non-prescription of some of these medicines at the level of the community health centers.

Several causes were mentioned by the surveys in relation to drug shortages, including not ordering the drugs, not being available at the PPM and not prescribing the drugs by the providers. A different result was found by Traore. Evaluation of the availability of medicines for mothers and children, 5 cases community health centers in the health district of Kalabancoro where the main causes of drug shortages were either a lack of prescription by doctors or non-availability at the referral health center[12].

CONCLUSION

The health of households depends fundamentally on the health of the mother and child. The objective of this study was to assess the availability of 20 maternal and child tracer drugs in eleven community health centers in the department VI of the Bamako district. During the course of this work, we found that the majority of the community health centers followed the master plan for the supply and distribution of essential medicines. The list of maternal and child tracer drugs was absent in a number of community health centers. Among the maternal and child tracer drugs, only Sulfadoxin pyrimethamine, and combination. of Artemether and Lumefantrine dispersible tablet were free. Finally, we also recorded a good availability of medicines for maternal and infant use. However, our survey enabled us to understand that some medicines were out of stock, such as Gentamycin and magnesium sulphate which were due to a lack of prescription and the non-ordering of medicines by Community health centers. For Zinc was the non-availability at the PPM and lack of Benzathine, Vit K1, ORS, nifedipine, SP prescriptions were due to non-availability at the PPM. Several causes were mentioned in relation to the reasons for drug shortages, notably the non-ordering of drugs, non-availability at the PPM and the non-prescription of drugs by providers.

Conflicts of interest: all authors have read and approved the latest version of the manuscript and have declared no conflicts of interest

Authors' contributions

Concept, analysis and writing and editing: TS

Correction of the manuscript: CI, TMS, MF

Validation of the latest version: BS

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