Availability of Essential Medicines and Inventory Management Practice in Primary Public Health Facilities of Gondar Town, North West Ethiopia

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Abstract

Accessing affordable essential medicines is an important factor to address patients' satisfaction and increase their health seeking behavior. The objective of the present study was to assess the essential medicines availability and inventory management practices in public primary health facilities of Gondar town, Ethiopia. Twenty six essential medicines were selected as tracer medicines based on the top ten diseases of the study area. Availability of the tracer essential medicines at the time of the survey was assessed. The six months essential medicines availability, stock out period and inventory management practice of the pharmacy units of the health facilities was also reviewed. The overall average availability of essential medicines was 91%. The mean duration of stock out of tracer medicines of the health facilities in the six months period was 30.5 days. The average frequency of stock out was 0.8 over the six months period. The discrepancy between physical count and stock record count of essential medicines among the surveyed health facilities ranged from 0% to about 60%. The total loss of money due to medicines expiry over six month's period was 1337.6 USD from the six health facilities. Over all, availability of tracer essential medicines at data collection period was good. However, stock out of essential medicines in the six months period was high, and inventory management problems were observed in most of the health facilities surveyed.

Keywords: Essential medicines, Inventory management practice, Primary public health facilities, Tracer essential medicines

1.Introduction

Accessing affordable essential medicines is an important factor to address patients' satisfaction and increase their health seeking behavior. Most leading causes of death such as malaria, infectious diseases, and HIV/AIDS can only be prevented or treated effectively by having appropriate medicines consistently available [1]. WHO estimates about one-third of the world's population is without the access to medicines they need, mostly in Asia and Africa. For this, availability and affordability of essential medicines is taken as one of the millennium development goal in developing countries [2].

Ethiopia is one of the developing countries in Africa with infectious diseases such as TB, HIV, STI, diarrheal diseases, pneumonia and malaria being the major health problems. Provision of basic health services in the country mostly remains to be the responsibility of the public sector. This relies, among other factors, on availing the most cost-effective medicines that satisfy priority healthcare needs of the population in adequate amount, appropriate dosage forms and of assured quality at all times [3].

Based on the common health problems in the country, Ethiopia has developed national essential medicines list starting from 1985 [3]. In 2012 it has also published list of medicines specifically for primary public health facilities of the country to ease making available of the needed medicines at this facility level [4]. However, data on the actual availability of essential medicines and inventory management practices for essential medicines in the primary public health facilities, especially in the study area are scarce. Therefore, this study assessed the essential medicines availability and inventory management practices in public health centers in Gondar town, Ethiopia.

2. Methods

The study was conducted using institution based cross sectional study design. A total of eight primary public health facilities are found in Gondar town. However, only six of them were included in the study. Two of the primary health facilities were excluded as there was no complete record of essential medicines in the health facilities. Data

from the six facilities were collected using standardized checklist from November 30 - December 30/2013. Tracer medicines were selected as representatives of the essential medicines in the health facilities. Tracer medicines were selected based on the ten top morbidities of the study area that can be treated as outpatient from the primary health facilities. Accordingly, 26 tracer medicines were selected that include first line medicines of the ten top morbidities according to the national standard treatment guideline. The list considers medicines and /or dosage forms both for adults and children, and medicines for alleviation of common symptoms [2]. The data for the tracer medicines were collected both by reviewing the bin card for each tracer and by performing physical count of medicines in the stores using trained data collectors. Data was collected retrospectively from the bin card recorded for six months prior to the data collection time. Data at the time of survey was also collected by reviewing the bin card and performing the physical count during the data collection. The quantitative data were entered and analyzed using Microsoft excels, and categorized, analyzed and presented graphically. The research was done after it has got approval by the Research and Ethics committee of the School of Pharmacy, University of Gondar.

3. Results and Discussion

The overall average availability of tracer essential medicines during the survey period in each health center was 23.67 (91%) (Table 1). This result indicated each health center was stoked out for average of 2.33 (9%) tracer medicines during the survey period. The availability of essential medicines in the present study was consistent with reported in public pharmacy from Sudan (90%) and Ethiopia (91%) [7-8]. However, it was higher than previous reports from other different countries ranged from 34.9% to 57.7% [4-6]. The frequency and duration of stock out of essential medicines over the period of six months was assessed as presented in Table 1. The results indicated that, on average, each health center was out of stock for 5.83 (22.4%) tracer medicines over the six months period.

Table 1. Availability during data collection time, and stock out review over six months of tracer essential medicines (n=26) at the six public health centers in Gondar Town, 2013.

Health center	Availability at survey period Number (%)	Stock out at survey period Number (%)	Stock out over six months Number (%)
1	24(92.3)	2(7.7)	2(7.7)
2	21(80.8)	5(19.2)	10(38.4)
3	26(100)	0(0)	4(15.4)
4	24(92.3)	2(7.7)	8(30.8)
5	24(92.3)	2(7.7)	6(23.1)
6	23(88.5)	3(11.5)	5(19.2)

The most commonly out of stock tracer essential medicine was Amoxicillin (125mg/5mL) suspension, where it was out of stock in four of the six health centers surveyed at the time of data collection. However, seventeen (65.4%) tracer essential medicines were all available in all the health centers surveyed. Average tracer essential medicines availability during data collection time by stock levels at six public health centers is depicted in Fig. 1. From the total available tracer essential medicines in the six health centers, 12% were in critical level, 15% were in safe (normal) stock level and 73% were in overstock level.
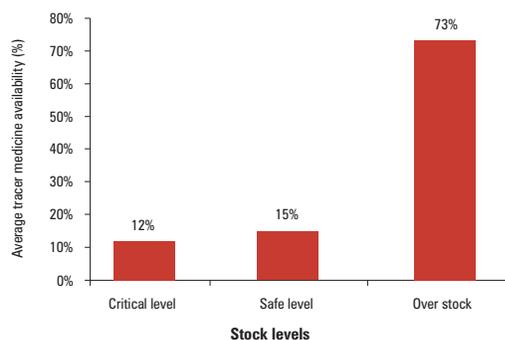
Fig. 1: Average tracer medicines availability at the survey period by stock levels at six public health center of Gondar town, 2013.

One of the indicators for inventory management problems in health facilities is a discrepancy between stock record balance and physical count of medicines. The rate of discrepancy among the surveyed health facilities is shown in Fig. 2. The result shows the rate of discrepancy was not uniform among health centers. The discrepancy rate ranges from 0% to about 60% among health centers. In one of the health center, physical count was less than stock record balance for about 50% of the tracer essential medicines surveyed. This may indicate that for half of the medicines available in this health center, a certain amount of medicines is damaged or lost, or remain not updated when issued. This indicates inventory management problems in some of the public health centers in Gondar town.

The average length of days of stock out for the tracer medicines over the six months was 30.5 days with average stock out frequency of 0.8 (Fig. 3). Almost similar days of stock out (26.5 days) were reported from Sudan [7-8]. Among the tracers surveyed; chloroquine syrup (for average of 197 days), coartem (for average of 124 days) and amoxicillin suspension (for average of 90 days) were the three tracers stocked out for longer periods.
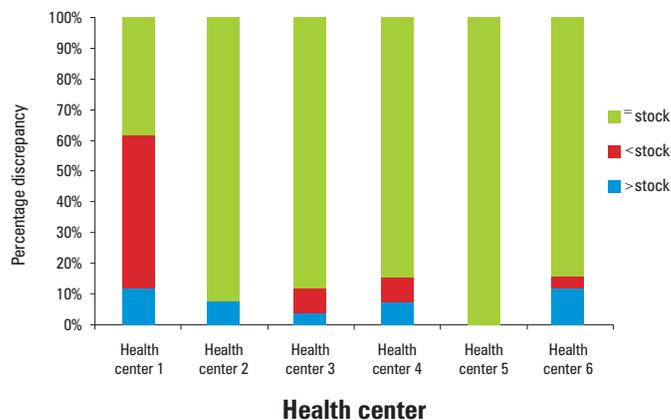
Fig. 2: Percentage discrepancy between physical count and stock record count of tracer medicine at six public health centers of Gondar Town, 2013
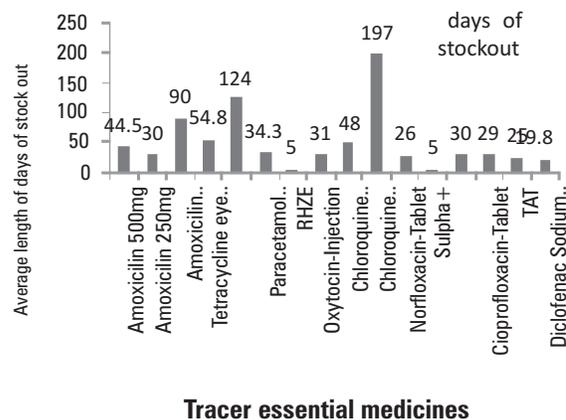
Fig. 3: Average length of days of stock out of tracer essential medicines over six months of survey at six public health centers of Gondar Town, 2013

A total of 1,338 USD was lost from the six health centers due to the expired medicines over six months period (Fig. 4). As depicted in the figure, from the total tracers, money loss on expiry of ferrous sulphate takes the lead followed by coartem.
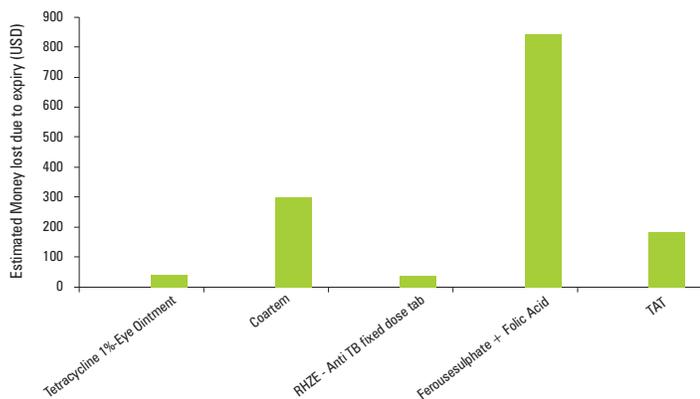
Fig.4. Estimated Money (USD) lost due to expiry tracer essential medicines over six months periods at six public health centers of Gondar town, 2013.

4. Conclusion

The average availability of essential medicines in the public health centers in Gondar town was good. However, the health centers were stock out for significant percent of essential medicines over the six months period. There was also wastage of drugs and discrepancy of record balance with the physical count in many of health facilities. Health facilities should perform proper and consistent inventory management practice. Long duration of stock out for essential medicines should be improved

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