

# Availability, Price and Affordability of WHO Priority Maternal and Child Health Medicine in Public Health Facilities of Dessie, North-East Ethiopia

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## Research article

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# Abstract

**Background:** Access to health care is a fundamental human right and the provision of affordable, high quality and appropriate medicines for Maternal and child health is a vital component of a well-functioning health system. The study assessed the availability, price and affordability of WHO priority maternal and child medicines in public health facilities, Dessie, North – East Ethiopia.

**Methods:** Retrospective cross-sectional study design was conducted in Dessie town from November 2018 to February 2019. A standard checklist adapted from Logistics Indicator Assessment Tool and WHO/HAI was used to collect data on the availability, affordability, and price of 45 priority life-saving medicines from eight public health centers and two public hospitals. Descriptive statistics (percent and median) were computed for availability and prices. Affordability was reported in terms of the daily wage of the lowest-paid unskilled government worker.

**Results:** Twenty-two medicines were not completely managed. The overall availability of WHO priority maternal and child medicines was 34.02%. The mean numbers of stock outs was 3.9 and mean number of 128.9 days. The mean average point availability was 33.5 % and 7 medicines stock out on the days of assessment. From WHO priority maternal and child medicines, 4 (40%) of the products were unaffordable and 5 (55.5%) had higher price compared to international prices. Ceftriaxone 1gm, ceftriaxone 500mg and hydralazine 20mg injection requires wages of 6.58, 8.01, and 5.02 to cover specific maternal health problems respectively. Median price ratio of priority lifesaving maternal and child medicines in public health facility ranged from 0.65 to 3.19.

**Conclusions:** The average mean period and point mean availability was very low. The available products were encountered with high number of stock outs and unaffordable. Strict control of inventory is recommended to have steady supply of these essential medicines and improve quality of health service. **Keywords:** Availability, Affordability, Price, Medicines and Maternal and child.

## Background

Maternal and child health (MCH) focuses on the determinants, mechanisms and systems that promote and maintain the health, safety wellbeing and appropriate development of children and their mother in communities and societies, in order to enhance the future health and welfare of society and subsequent generations [1]. Accessing essential medicines which satisfy the priority health care needs of the population, are backbone of health care and wellbeing of individuals and populations [2].

The United Nations population fund and World health organizations (WHO) launched the global list of priority medicines for mothers based on the global burden of disease and the evidence of efficacy and safety for preventing or treating maternal, newborn, and child mortality and morbidity [3].

Universal access to high quality priority medicines for childhood and maternal illness is one of the critical elements to improve health service delivery. Yet, lack of access to essential medicines for MCH remains a

major challenge in many developing countries where more than half of their populations lack access to essential medicines [4]. This will inevitably constrain efforts to reduce mortality and improve the health of children and mothers [5].

Nearly 4.7 million mothers, newborns, and children die each year in sub-Saharan Africa [6], 1.2 millions of babies die before they reach one month of age and 3.1 millions of children, who survived their first month of life die before their fifth birthday [7]. Mortality of under five children was 6.3 million in 2013, around 15%, 11%, and 7% of them were caused by pneumonia, diarrhea and malaria respectively [8]. Ethiopia is one of the sub-Saharan countries with high rates of maternal and child mortality [9].

Early diagnosis and treatment with simple antibiotics could avert as many as 600,000 of deaths in case of pneumonia whereas, improving access to oral rehydration salt (ORS) would save as many of 1.3 million children who are dying annually from diarrhea [8]. The provision of affordable, high quality and appropriate essential medicines is a vital component of a well-functioning health system [10] in order to counteract any existing barriers that might hinder medicine access [11]. Nearly 10 million lives could be saved by improved access to essential medicine [12].

Accepting and application of MCH care policy as a general doesn't minimize mortality rate of vulnerable group due to absence of medicines. Therefore, the present study assessed the availability, price and affordability of WHO priority Maternal and Child health medicine in public health facilities of Dessie, North-East Ethiopia

## Methods

**Study area and period:** A study was conducted from November 2018 to February 2019 in public health facility of Dessie town, Ethiopia. Dessie is a town located in the [Amhara region](#), North-east [Ethiopia](#), 400 kilometers far from Addis Ababa. The total population of the town is estimated to be 151,094 among this, 78,203 are females [13]. In Dessie town, there are 8 public health centers, one referral hospital and district hospital serving for Dessie town and the surrounding nearly 8 million populations.

### Study design

A cross-sectional study was conducted in public health facilities Dessie town. Data was retrospectively abstracted from bin card, stock card, and health commodity management information system.

### Selection of health care facilities

The drug outlets were selected according to WHO/ health action international (HAI) methodology, which have been validated to select a representative sample [13]. All of public health facilities which are found in Dessie town were included in this study.

### Selection of medicines

All medicines survey in this study was taken from the list of “priority life-saving medicines for women and children” developed by WHO [14]. World health organization had chosen the medicines according to the global burden of the diseases and the evidence of efficacy and safety for preventing or treating major causes of maternal and child mortality and morbidity.

The recommended priority life-saving medicines for mothers are oxytocin, sodium chloride, ringer lactate injectable and misoprostol tablets for post-partum hemorrhage; magnesium sulfate

calcium gluconate injection, hydralazine, methyldopa tablets for severe pre-eclampsia and eclampsia; ampicillin, gentamycin and metronidazole injectables for maternal sepsis; misoprostol+mifepristone tablets for provision of safe abortion services and/or the management of incomplete abortion and miscarriage; azithromycin, cefixime capsule and benzathine benzylpenicillin injectable for sexually transmitted infections; nifedipine capsule, dexamethasone and bethamethasone injectables for management of preterm labor.

The recommended priority life-saving medicines for children under-five are artemisinin combination therapy, rectal artesunate and artesunate injectable for malaria; zinc sulphate dispersible tablets and ORS sachets for diarrhea; amoxicillin (capsule), ampicillin, ceftriaxone and gentamycin (powder for injections) for treatment of pneumonia; morphine injectable, oral liquid and granules, paracetamol, and procaine benzyl penicillin (powder for injections) for neonatal sepsis.

### **Data collection tools and procedures**

Data was collected by trained druggist using a standard checklist adapted from Logistics Indicator Assessment Tool (LIAT) and WHO/HAI second edition [9]. The availability of the priority medicines in their WHO recommended strengths and dosage formulations were assessed through physical identification in the stores and dispensaries. The principal investigators coordinated data collection process.

### **Data processing and analysis**

Data were edited and analyzed by using Microsoft® Excel 2010. Medicine availability was calculated as percent availability of individual medicines, mean average percent, availability across a group of medicines and variations between sectors. Gelders S et al (2006) was used to describe availability of medicines in the public healthcare facilities and the ranges was: < 30%, 30–49%, 50– 80%, and > 80% for a very low, low, fairly high, and high availability respectively [15].

Price and availability results are analyzed for individual medicines. Median Price Ratio (MPR), the ratios relative to a standard set of international reference prices calculated using median local unit price divided by international reference unit price. The ratio is thus an expression of how much greater or less the local medicine price than the international reference price [9]. The medicine prices obtained from medical prices guide issued by management science for health [16]. The ideal value for MPR was used to represent acceptable local price ratios developed by Gelders S et al for retail patient prices in the public sector ( $MPR \leq 1.5$ ) [15].

The affordability of treating key health problems using standardized treatment regimens is calculated using the median prices collected during the survey. The treatment cost for an episode of illness is compared to the daily wage of the lowest-paid unskilled government worker to determine the number of days' wages needed to pay for the cost of treatment [9]. This was done by first calculating the daily wage of the workers at the time of data collection. The formula used to calculate affordability is total cost of medicine times thirty divide by smallest salary unskilled government worker [17].

The total costs of medicine for the complete duration of treatments of each disease was determined and converted to the daily wages. According to Robertson J (2009) criteria, medicines that costs less than a day wage was considered affordable and those medicines with the cost of greater than or equal to a day wage was considered unaffordable [18].

### Operational definitions

- **Availability:** product can be accessed at the time of visiting and the last 6 months and records doesn't show stock out periods on bin card records within the health facility
- **Affordability:** it's priced reasonably and the ability to lowest-paid unskilled government worker to pay for the cost of treatment
- **Median price ratio:** ration of median retail price with international price set by management science for health

## Results

Ten public health facilities (2 hospitals and 8 health center) were included in this study. In all health facility the responsible person for managing priority medicines was pharmacy technician and 9 (90 %) doesn't have received training in logistics. Average mean years working experience store man position and at that public health facility was 0.96 and 1.6 years respectively.

### Availability of MCH priority medicines

In this study, overall mean availability of WHO prioritize MCH medicines in the past 6 months was 34.02% (Figure 1). From the overall medicines, 22 medicines were not completely managed in public health facility. This were ampicillin injection 250mg, ORS sachets of 200 ml appropriate flavor, artemisinin combination therapy, artesunate rectal 50–200 mg, procaine benzylpenicillin injection 1 g, Morphine with different strength, paracetamol flexible oral solid dosage forms, misoprostol 200 micrograms, azithromycin oral liquid 200 mg/5 ml, cefixime 400 mg, benzathine benzylpenicillin injection 900 mg, benzathine benzylpenicillin injection 1.44 g, betamethasone injection 6 mg/ml, medroxyprogesterone acetate, artemisinin combination therapy.

Figure 1: Availability of WHO priority maternal and child medicines in public health facility, Dessie, Ethiopia

Individual prioritize medicines period availability in the past 6 months ranges from 10% up to 100%. Pediatric vaccines 100% and amoxicillin dispersible scored tablets 500 mg and azithromycin 500mg were available 100% and 10% respectively (Table 1).

Table 1: Period availability of WHO priority maternal and child medicines in public health facility, Dessie, Ethiopia

The mean point availability of WHO prioritize MCH medicines in the overall health facility was 33.5 % (ranges from 19.4% up to 40.3%) (Figure 2). On the day of assessment, 7 medicines were stock outs in the overall public facility, these are ampicillin 500mg injection, ceftriaxone 1gm and 500mg injection, sodium chloride injectable solution, methyldopa 250mg tablet, female condoms, and ringer lactate solution.

Figure 2: Point availability of MCH medicines in public health facility, Dessie, Ethiopia

The overall public health facilities average mean number of stock outs was 3.9 and number of stock out days were 128.9 in the six months (Figure 3).

Figure 3: Average number and days of stock out in public health facility, Dessie, Ethiopia

Stock out medicines at period of data collection was ampicillin injection 500mg, ceftriaxone injection 500mg and 1 g, and barrier methods of contraception (e.g. condoms) was not available in public health facilities (Table 2).

Table 2: Average number and days of stock out for MCH medicines in public health facility, Dessie, Ethiopia

### **Affordability of MCH medicines**

The wages required purchasing the standard treatment for severe pneumonia with ceftriaxone 1gm injection and post-partum hemorrhage with oxytocin was 8.01 and 0.38 days wages to pay for the treatment required for unskilled government worker income (960) birr respectively (Table 3).

Table 3: Affordability of WHO prioritize MCH medicines in public health facility, Dessie, Ethiopia

### **Price of MCH medicines**

Median price ratio of priority lifesaving MCH medicines in public health facility ranged from 0.65 to 3.19. For amoxicillin dispersible scored tablets 250mg and ORS sachets of 1 liter appropriate flavor was 0.65 and 3.19 respectively (Figure 4).

Figure 4: MPR for WHO prioritize MCH medicines in public health facility, Dessie, Ethiopia

Amoxicillin dispersible 250 mg 1(10%), calcium gluconate injection 100 mg 2(20%), gentamicin injection 40 mg/ml (20 mg/ml) 5(50%), implantable contraceptives estradiol cypionate + medroxyprogesterone

acetate 2(20%), depot injection 150 mg/ml in 1-ml vial 1(10%), hydralazine injection 20 mg 2(20%), magnesium sulfate injection 500 mg/ml 1(10%), and methyldopa tablet 250 mg 1(10%) was found a surplus of before resupply in public health facility.

Health professional working in public health facility pinpointed the reason for stock-outs of priority lifesaving MCH medicines and pharmaceutical fund supply agency did not supplied adequate products 9 (90%), wastage due to expiry of products 6 (60%) and lack of information about MCH medicines 3 (30%) were the stated reason.

## Discussion

Medicines are an essential component of health care delivery in any country. In developing countries, equitable access to safe and affordable medicines is crucial to the health and wellbeing of people. Despite progress made so far in the areas of public health, medicines still remain the single most vital factor in the maintenance of health and the treatment of diseases [19].

In this study, the overall mean period availability of WHO prioritize MCH medicines in public health facilities in the past 6 months was 34.02%. These finding was similar to the study conducted by Abrha (2018) where the availability of priority life-saving was 34.1%[20]. It is also consistent with study conducted by Sautenkova N et al (2012) [21].

According to Gelders S et al (2006) criteria, [15] the present finding was very low. Lower periodic availability also reported as compared to study done by Prinja S et al (2015) in India where the overall mean availability of medicines was 45.2% hand 51.1% in Punjab and Haryana respectively in India [22]. In the Republic of Moldova, mean availability in the public sectors was 51.2%[23] and 46% mean availability was reported in Guatemala by Anson A et al (2012) [24].

The variations to the availability of WHO priority MCH medicines among studies might be due to poor inventory management system and inadequately allocation of fund to health facilities to purchase enough amounts of MCH medicines. Financial constraints or non-efficient budget utilization for treatment of chronic and acute conditions and absence of dollar currency to purchase vital medicines from outside country has more worsen problem in to medicines availability in the health sectors.

The government also doesn't allocate sufficient fund to mobilize MCH care services and neglecting such services to non-governmental organization to facilitate the program which creates a question on mandate for unavailability of medicines. Although, priority lifesaving drugs used for the treatment of various diseases conditions in children and adults [25], many of deaths were due to conditions that could be prevented or treated with access to vital medicines at public-health facilities [26].

Medicines such as cefixime 400 mg, betamethasone injection 6 mg/ml, medroxyprogesterone acetate, artemsinin completely absent in public health facility. This was similarity to absences of essential medicines in the north part of Ethiopia [20]. This might be due to longer time required to update newly

emerging WHO priority medicines to treatment guidelines at country level and letter in hospital and health center level. Absence of legal accusation system for the non-availability of WHO priority MCH medicines is also the claimed reason.

In this study, the overall public health facility average mean number of stock out days was 128.9 over six months. High number of stock out days as compared to study conducted by Fentie (2015) in Gondar (30.5 days) [27] and lower than Kibira (2017) study 13 reproductive, maternal, newborn, and child health commodities and stock outs ranged from 14 days [28]. This difference might attribute to poor stock management, quantification and procurement practices.

The mean average number of stock out was 2.29 and once for individual drugs like oxytocin injection and amoxicillin dispersible tablets 250 mg which is lower (9.1) as compared to stock-outs of essential health products in Mozambique and for drugs such as for Oxytocin, number of stock out was 2.6 at the district level [29]. The finding also lower than study done by Getahun et al (2015) where amoxicillin 250 mg scored dispersible tablets number of stock out was 33 [30]. This might be due to difference in study period, they conducted longer period of time (almost 3 years). Regular and consistent availability of the necessary medicines is the topmost priority for any health sector. Shortage of pharmaceuticals adversely affects the quality of health care and the condition will be sever if stock out is prolonged.

In adequate supply from the supplier, lack of information about MCH medicines and expiry were the mentioned reasons for stock out of WHO prioritized MCH medicines. This reason were similar with the study conducted by Getahun et al [30]. This might be due to pharmaceutical supply to public health facilities throughout the country is being managed by the same supplier [31] as a result of lack of strong information communication system between the supplier.

The mean average point availability in the overall health facility was 33.5% and on the day of assessment, stock outs of medicines were ampicillin 500 mg injection, ceftriaxone injection 1 gm and 500 mg injection sodium chloride injectable solution, methyldopa 250 mg tablet, female condoms and ringer lactate solution. The finding was lower as compared to study in Tanzania reported that the overall mean availability was 60% and stock outs of at least one product on the day of the assessment [32]. This discrepancy attributed to expiry of medicines before use.

In the present study, lowest paid government worker in Dessie town unable to purchase the product to cover full course of treatment like ceftriaxone 1 gm injection, hydralazine 20 mg injection and tetanus antitoxin which require more than daily wage. The result were lower than studies in china where the affordability of amoxicillin 250 mg for treatment of severe pneumonia was 1.4 [33]. A study conducted by van Mourik M revealed that for treatment of infectious disease with ceftriaxone 1 g injection, 15 days wages required [34]. Lowest paid government worker were unable to afford due to their lower financial income [18].

The MPR was 4 (55.5%) and considered to be high. The ORS sachets of 1 liter were 3.19 times greater, gentamycin injection was 2.14 times greater and Amoxicillin 250 mg 0.65 times lower than international

median prices. It was a higher MPR (1.53) as compared to Sado E and Sufa A study [35]. Senarathna (2011) study revealed that MPR for oral rehydration salts was (2.22) and lower MPR for amoxicillin (1.82) [36]. Such difference among studies might be due to price inflation of dollar exchange rate and profit markup range added to retail patient price for medicines. Some medicines supplied from donor without price and this medicines price setting used for auditing purpose. Besides, high prices were more pronounced when purchasing done from private wholesales during stock out. Although the cost of health care services for MCH including WHO prioritize medicines was covered by the government, the burden still relies on the government.

The availability and affordability of medicine with reasonable price in public health facilities to consumers have strong impact on reducing maternal, newborn, child morbidity and mortality. This study have a significance for the government, stakeholders, managers and policy makers to develop national regulations and strategies to enhance access to WHO priority MCH medicines for public health facilities.

The point and period availability formula considers the availability of medicines ranged from low to over stock regardless of health institutions need. But in real world, the availed WHO prioritize MCH medicines might not be sufficient and doesn't show how much amount of medicines is adequate. The affordability formula failed to incorporate wages of people in informal sector who were below salary income of the government. Moreover, in MPR calculation, the international price used for comparison was the list of medicine by management science for health 2015 version and doesn't update yet and it has limitation to reveal MPR ratio at present time.

## **Conclusion**

The average mean availability of WHO prioritized MCH medicines in the past six month and point mean availability was very low and high number of stock outs. One third of WHO prioritized medicines was completely unmanaged in all health facility. From WHO priority list of medicines, some of the products were unaffordable. Strict inventory control is recommended to have steady supply of these essential medicines and improve quality of health service.

## **Declarations**

### **Abbreviations**

HAI, Health action international; MCH, Maternal and child health; MPR, Median Price Ratio; ORS oral rehydration salt and WHO, World health organization

### **Ethics approval and consent to participate**

The ethical issue of the research was approved by Ethics Review Committee of Pharmacy Department, Wollo University and Dessie health department.

## Consent for publication

None

## Availability of data and materials

The datasets are available from the corresponding author upon reasonable request.

## Competing interests

The authors declare that they have no competing interests.

## Funding

None

## Authors' contributions

ADH analyzed and wrote the manuscript. SAM proofread the manuscript. All authors approved the final version of this manuscript.

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## Tables

Table 1: Medicines available at public health facility in the past 6 month, Dessie, Ethiopia

No	list of MCH medicines	Availability
1	Amoxicillin: dispersible, scored tablets 250 mg	90%
2	Amoxicillin: dispersible, scored tablets 500 mg	10%
3	Ampicillin: powder for injection 500mg	40%
4	Ceftriaxone: powder for injection 1 g	100%
5	Ceftriaxone: powder for injection 500mg	60%
6	Ceftriaxone: powder for injection 250 mg	10%
7	Gentamicin: injection 40 mg/ml(20 mg/ml)	90%
8	Oxygen: medicinal gas	20%
9	ORS sachets of 500 ml and 1 liter, appropriate flavor	10%
10	ORS sachets of 1 liter, appropriate flavor	80%
11	Zinc: 20 mg scored dispersible tablet	60%
12	Artesunate: injection dosage forms 50-200 mg	10%
13	Lamivudine + nevirapine + zidovudine — tablet 30 mg + 50 mg + 60 mg;	40%
14	Vitamin A: capsule 100 000 IU strength	50%
15	Vitamin A: capsule 200 000 IU Strength	10%
16	Morphine: granules injection 10 mg/ml	10%
17	Oxytocin: injection 10 IU in 1?ml ampoule	90%
18	Sodium chloride: injectable solution 0.9% isotonic	80%
19	Sodium lactate compound: injectable (Ringer's lactate)	80%
20	Magnesium sulfate: injection 500 mg/ml in 10?ml Ampoule	50%
21	Calcium gluconate injection: 100 mg/ml in 10?ml ampoule	40%
22	Hydralazine: powder for injection 20 mg	50%
23	Methyldopa: tablet 250 mg	30%
24	Metronidazole: injection 500 mg	20%
25	Mifepristone + misoprostol*: tablet 200 mg + tablet 200 micrograms	10%
26	Azithromycin: capsule 250 mg	10%
27	Azithromycin: capsule 500 mg	10%
28	Nifedipine: immediate release capsule 10 mg	20%
29	Dexamethasone: injection 4 mg	30%
30	Tetanus vaccine	60%
31	Oral contraceptives (pack of 2)	70%

32	Intrauterine devices and barrier methods of contraception(e.g. condoms)	40%
33	Implantable contraceptives estradiol cypionate + medroxyprogesterone acetate	60%
34	Efavirenz 600mg + lamivudine300mg+ tenofovir 300mg	70%
35	Artemether - Lumefantrine	20%
36	Artesunate: injection dosage forms 50-200 mg	20%
37	Chloroquine 250mg	10%
38	Oral polio vaccine	100%
39	Bacille Calmette-Guérin	100%
40	Pneumococcal conjugate vaccine	100%
41	Measles vaccine	100%
42	Tetanus Toxoid Vaccine	100%
43	Penta Valent	100%
44	Intractable Polio vaccine	100%
45	Rotavirus vaccine	100%

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Table 2: Average number of stock out and number of days for MCH priority medicines, Dessie, Ethiopia

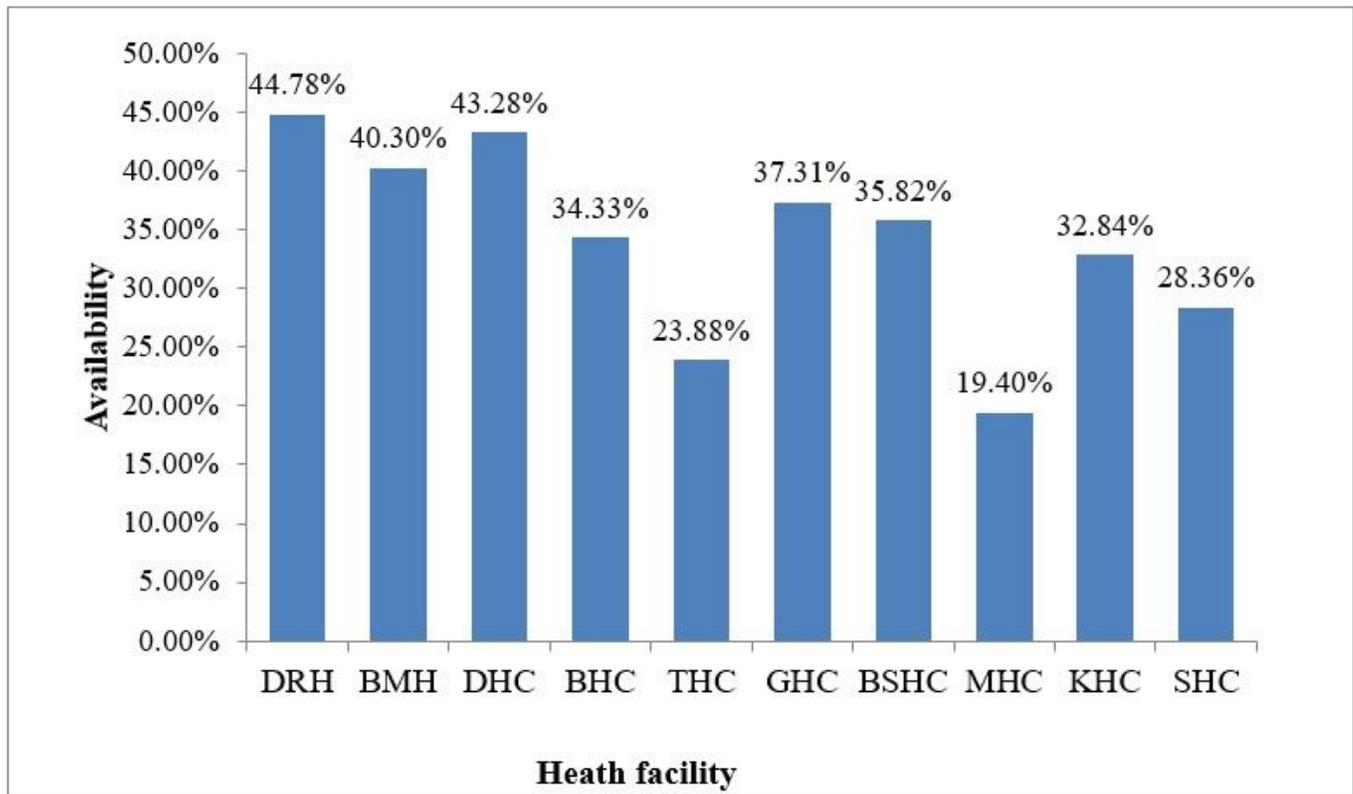
S.N	list of MCH medicines	Number of stock outs(most recent 6 months)	Total number of days of stock outs
1	Amoxicillin: dispersible, scored tablets 250 mg	1	30
2	Ampicillin: powder for injection 500mg	5	165
3	Ceftriaxone: powder for injection 1 g	7	204
4	Ceftriaxone: powder for injection 500mg	3	195
5	Gentamicin: injection 40 mg/ml(20 mg/ml)	1	10
6	Morphine: granules injection 10 mg/ml	1	15
7	Oxytocin: injection 10 IU in 1-ml ampoule	1	25
8	Sodium chloride: injectable solution 0.9% isotonic	4	95
9	Sodium lactate compound: injectable (Ringer's lactate)	4	58
10	Magnesium sulfate: injection 500 mg/ml in 10-ml Ampoule	1	30
11	Calcium gluconate injection: 100 mg/ml in 10-ml ampoule	1	60
12	Hydralazine: powder for injection 20 mg	1	15
13	Methyldopa: tablet 250 mg	3	90
14	Dexamethasone: injection 4 mg	2	140
15	Tetanus vaccine	1	7
16	Oral contraceptives (pack of 2)	1	60
17	Intrauterine devices and barrier methods (e.g. condoms)	2	90

Table 3: Affordability of WHO prioritize MCH medicines, Dessie, Ethiopia

No	Condition	list of MCH medicines	Treatment schedule	Days wages to pay for treatment
1	Pneumonia	Amoxicillin: dispersible, scored tablets 250 mg	25mg/kg *14.5 kg PO BID for 7days =21 cap	0.38
2	severe Pneumonia	Ceftriaxone: powder for injection 1 g	80 mg/kg*14.5kg IV daily for 10 days=12 vial	6.58
3	severe Pneumonia	Ceftriaxone: powder for injection 500mg	80 mg/kg*14.5kg IV daily for 10 days= 24 vial	8.01
4	Neonatal sepsis	Gentamicin: injection 40 mg/ml(20 mg/ml)	5mg/kg*14.5kg IV daily for 10 days= 10 amp	1.17
5	Diarrhea	ORS sachets of 1 litre, appropriate flavor	75ml/kg* 14.5kg= 2 sachet	0.32
6	Postpartum hemorrhage	Oxytocin: injection 10 IU in 1-ml ampoule	10 units IM stat	0.25
7	Postpartum hemorrhage	Sodium chloride: injectable solution 0.9% isotonic	1000ml	1.08
8	Postpartum hemorrhage	Sodium lactate compound: injectable (Ringer's lactate)	1000ml	1.22
9	Severe pre-eclampsia and eclampsia	Hydralazine: powder for injection 20 mg	20mg/ml IM BID daily	5.02
10	Prevention of tetanus	Tetanus antitoxin	10000 IU IM after skin test	3.45

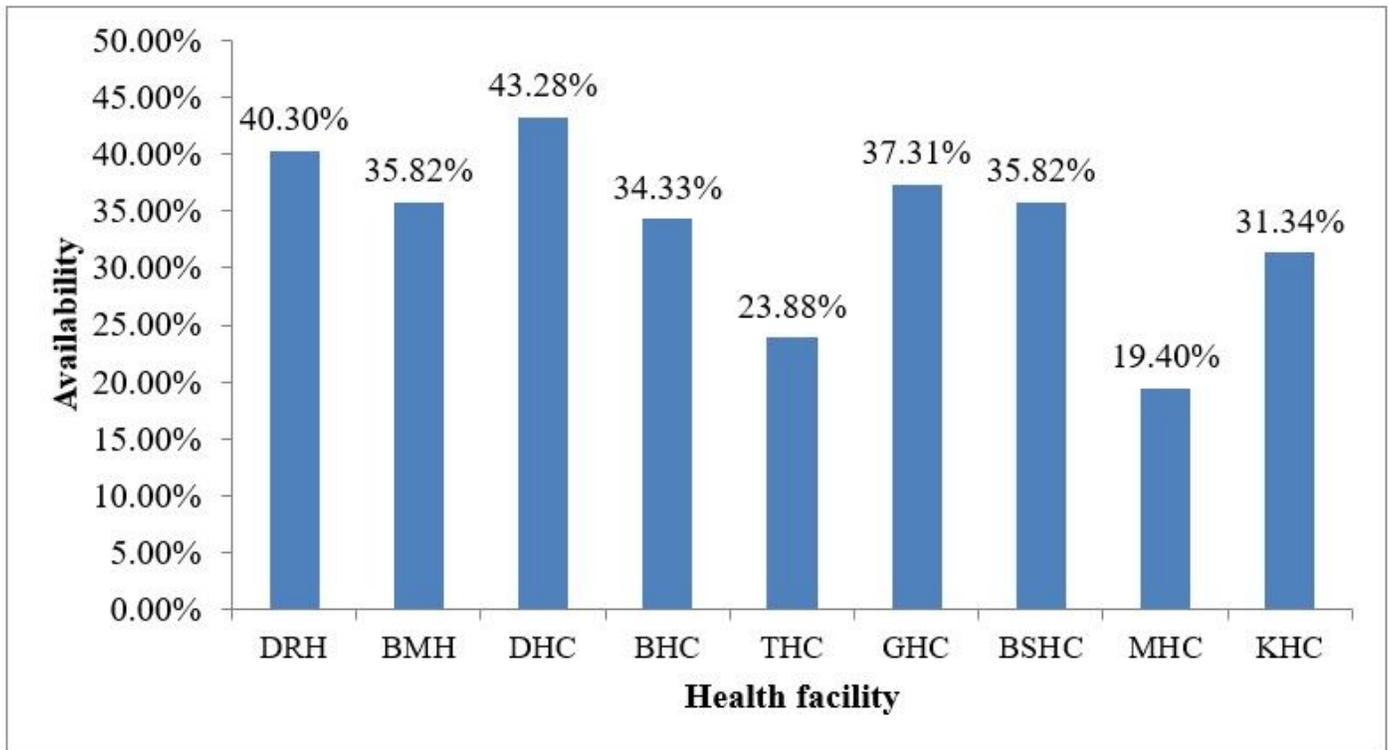
\*Average weight under five years old in Ethiopia is 14.5 kg (37, 38).

## Figures



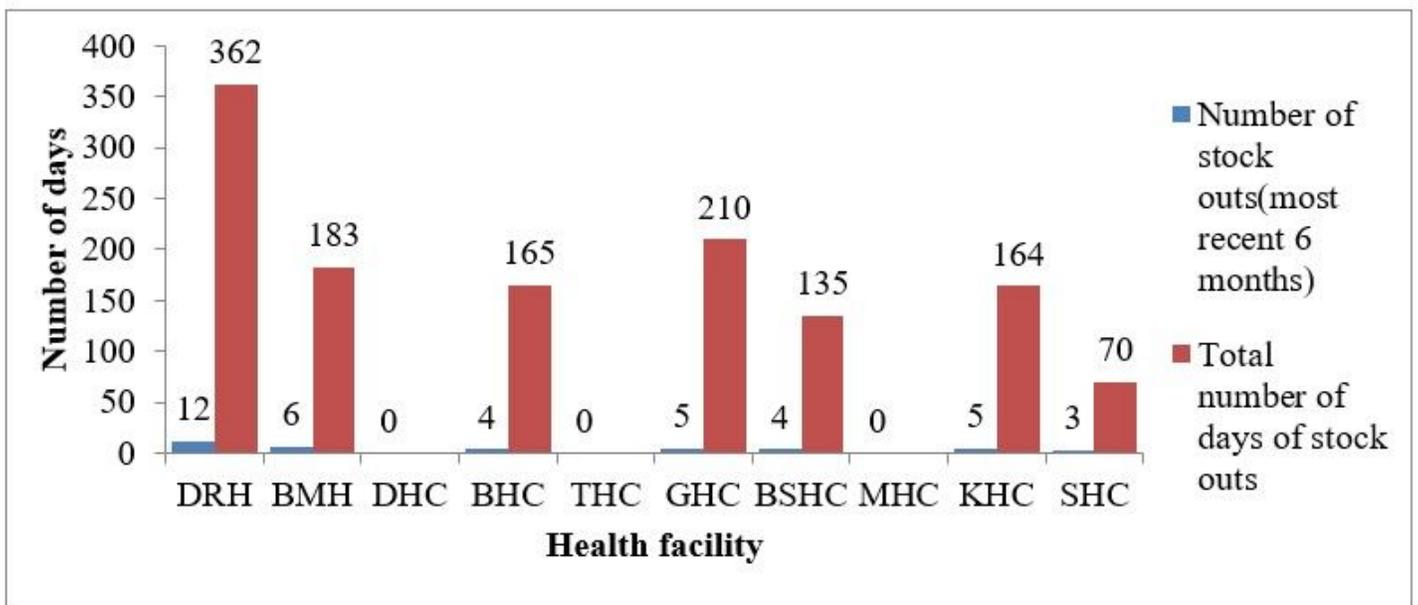
**Figure 1**

Availability of WHO priority maternal and child medicines in public health facility, Dessie, Ethiopia



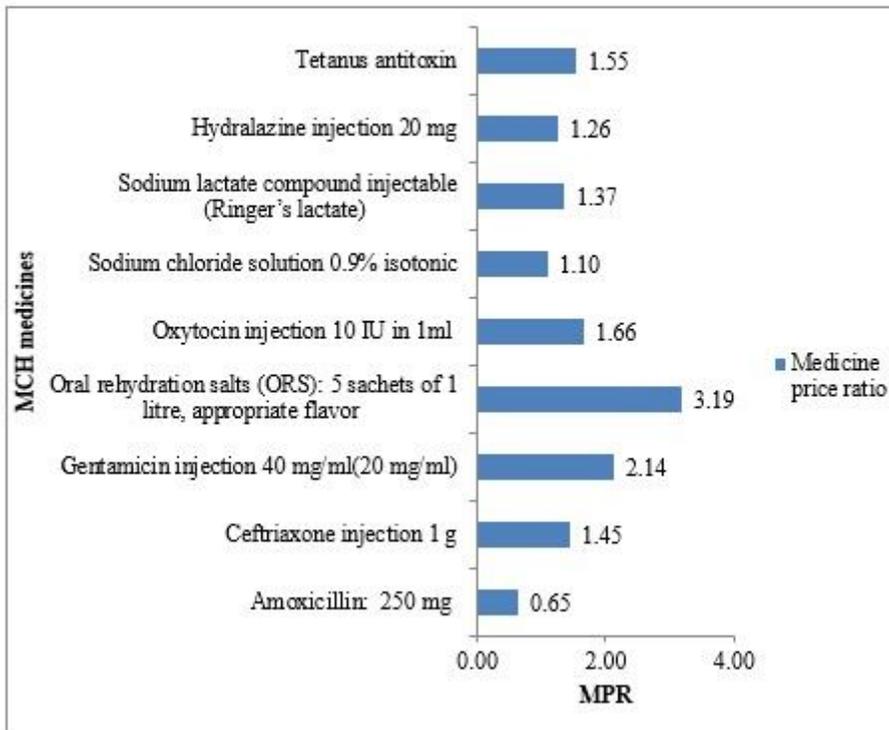
**Figure 2**

Point availability of MCH medicines in public health facility, Dessie, Ethiopia The overall public health facilities average mean number of stock outs was 3.9 and number of stock out days were 128.9 in the six months (Figure 3).



**Figure 3**

Average number and days of stock out in public health facility, Dessie, Ethiopia Stock out medicines at period of data collection was ampicillin injection 500mg, ceftriaxone injection 500mg and 1 g, and barrier methods of contraception (e.g. condoms) was not available in public health facilities (Table 2).



**Figure 4**

MPR for WHO prioritize MCH medicines in public health facility, Dessie, Ethiopia