

# Supply Chain Assessment of Maternal, Newborn and Child Health Commodities in Ghana's Private Sector Facilities, Wholesalers, and Retail Pharmacies

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## ABSTRACT

**Background:** The private sector in Ghana provides 50% of health services in the country yet there is limited information on the supply chain management of MNCH commodities in this sector.

**Aim:** To understand how MNCH commodities are managed within the private sector.

**Method:** A mixed methods approach was used to capture supply chain related data on a subset of MNCH commodities in the private sector. The sampling strategy included the selection of four regions (Ashanti, Greater Accra, Northern, and Upper East) in Ghana. Quantitative data on product management, availability, source, pricing and registration were collected from retail pharmacies, private health facilities and wholesalers. Additionally qualitative data on factors influencing supply decisions were collected from wholesalers.

**Results:** The study showed that retail pharmacies and wholesalers were less likely to manage injectable products like gentamicin, magnesium sulphate and oxytocin as compared to private health facilities. At all three facility types, amoxicillin DT, chlorhexidine gel and ORS + zinc co-pack were the least managed products. The main reason for non-management of MNCH products was “low or no client demand”. Majority of MNCH products had at least half of the most prevalent brands registered. Regarding product pricing, the results showed lower NHIS prices for certain products compared to selling prices at retail pharmacies and health facilities. Ninety percent of all three facility types met at least half of the storage requirements; with 100% of wholesalers and 96% of health facilities storing oxytocin in a working refrigerator. However, 25% of retail pharmacies did not store oxytocin within the recommended temperature range of 2-8 degrees.

**Conclusion:** The private sector is influenced by commercial factors, which could come at a high cost in terms of availability, accessibility, and affordability for individuals and families. There is the need to create a cost incentive that encourages the private sector to offer and

improve access to critical MNCH commodities, including amoxicillin DT, ORS + zinc co-pack, chlorhexidine gel and injectable MNCH products.

*Keywords: Private sector, MNCH, Supply Chain, Wholesale pharmacies, Retail pharmacies*

## **INTRODUCTION**

Globally, nearly 300,000 women die annually from preventable causes during or around the time of birth<sup>1</sup>. Despite the improvements seen in the last decade, most Sub-Saharan African countries are a far cry from Goal 3.1 of the Sustainable Development Goals (SDGs) of a “global maternal mortality ratio (MMR) less than 70 per 100,000 live births by 2030.

In Ghana, though maternal mortality has declined from 349 per 100,000 live births to 308 per 100,000 live births in the last decade, several women, newborns, and children still suffer illnesses or death that can be prevented. To address these challenges and drive action towards the SDGs, health facilities in both private and public sectors should provide high-quality healthcare without disruptions in services.

This article details a private sector study carried out by the Global Health Supply Chain-Procurement and Supply Management project in collaboration with the Family Health Division of the Ghana Health Services that looks at availability of MNCH commodities in the private sector and how these commodities are managed. This contributes to the body of knowledge on availability of MNCH commodities in the private sector, particularly in Ghana.

## **BACKGROUND**

All over the world, millions of mothers, newborns and children experience severe illness or die from highly preventable diseases and disorders. Maternal, newborn, and child morbidity and mortality disproportionately affect low-and middle-income countries (LMICs), which account for 99% of the global burden.<sup>1</sup> In Ghana, maternal, newborn, and child mortality remains high despite the significant progress that has been made in the past decade. As of 2017, maternal mortality ratio stood at 310 per 100,000 live births, newborn deaths at 37 per 1,000 live births and childhood mortality at 52 per 1,000 live births<sup>1</sup>.

Ghana has implemented several interventions aimed at preventing and reducing maternal, newborn, and child mortality. These interventions include capacity building for midwives, improving the utilization of health care through the National Health Insurance Scheme (NHIS), Free Maternal Care program, among many others. While these interventions have improved health seeking behavior, there are still challenges in ensuring equitable access to quality health care.

Table 1 presents a subset of critical MNCH commodities that should always be available where MNCH health services are offered. These commodities were identified by the United Nations Commission on Life Saving Commodities (UNCoLSC) in 2012 for their potential to save the

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<sup>1</sup> WHO, UNICEF, UNFPA, World Bank Group, and the United Nations Population Division. Trends in Maternal Mortality: 2000 to 2017. Geneva, World Health Organization, 2019

lives of more than 6 million women and children<sup>4</sup>, therefore, measuring their availability will provide invaluable

Table 1. MNCH Commodities Identified by the UNCoLSC and their Target Health Conditions

Health Area	Commodity	Condition
Maternal	Oxytocin	Postpartum hemorrhage
	Misoprostol	Postpartum hemorrhage
	Magnesium Sulfate	Preeclampsia/eclampsia
Newborn	Gentamicin	Newborn sepsis
	Chlorhexidine	Umbilical cord care
Child	Amoxicillin dispersible tablet (DT)	Pneumonia
	Oral rehydration salts (ORS)	Diarrhea
	Zinc	Diarrhea

### Role of the private sector in the Ghanaian health system

The private sector in Ghana accounts for about 33% of all physical health facilities including hospitals, clinics, and pharmacies, and it provides 50% of health services in the country. For children specifically, 40% of Ghanaian care seekers sought health care for sick children through private sector sources. The private sector is an important provider particularly for middle- and high-income care seekers as compared to lower income care seekers who rely on the public sector.

### Flow of MNCH Commodities in the Private Sector

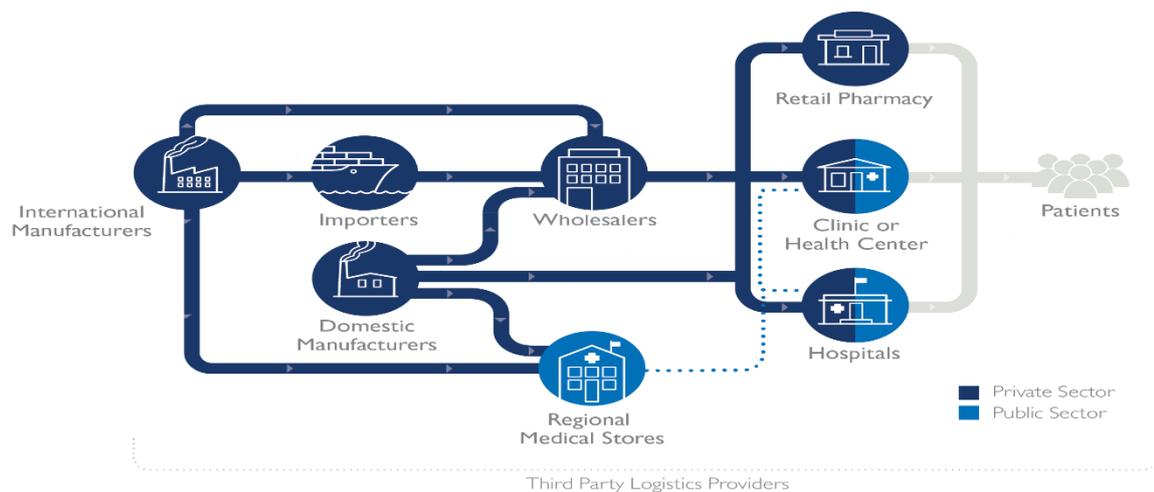


Figure 1. Flow of MNCH Commodities in the Private Sector

## OBJECTIVES

The study objectives were to:

- Determine the availability of MNCH commodities in private sector clinics, hospitals, and private retail pharmacies in four regions in Ghana
- Capture information on available MNCH commodity brands, supply sources, and pricing (where possible)
- Understand storage conditions and practices for temperature-sensitive products, such as oxytocin

## METHODOLOGY

A mixed-methods approach was implemented to capture supply chain-related data on a subset of MNCH in the private sector. Four regions (Ashanti, Greater Accra, Northern, and Upper East) in Ghana were sampled based on their representativeness. The diagram below shows the process used for the methodology.

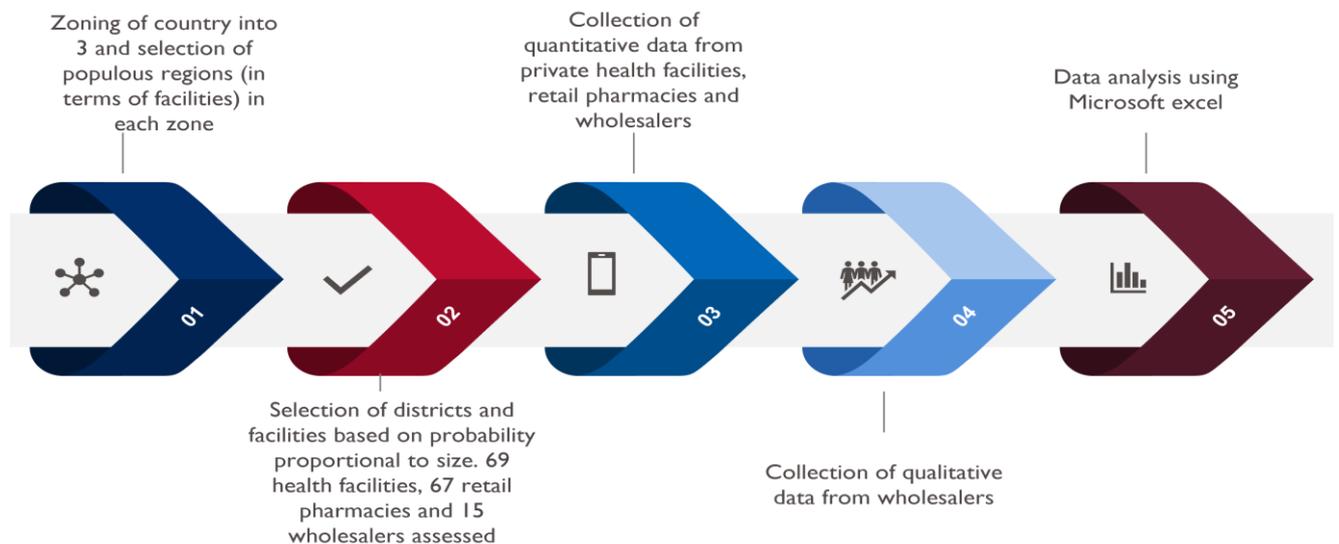


Figure 2. Process for methodology

## FINDINGS



Figure 3. Percent of Health Facilities, Retail Pharmacies, and Wholesalers that Manage MNCH Commodities

**Product offerings & availability:** Overall, private health facilities manage a wider range of MNCH products as compared to retail pharmacies and wholesalers. At all three facility types, amoxicillin DT, chlorhexidine gel and ORS + zinc co-pack were the least managed products. Retail pharmacies and wholesalers were less likely to manage injectable products like gentamicin, magnesium sulphate and oxytocin compared to private health facilities.

- “We do not stock some of the MNCH commodities because there is low client demand and we do not want expiries on hand.”
- “Looking at the list, it is only about two [MNCH] products that I stock to sell. With the others, I don’t stock them at all. The demand from my customers is what I normally bring. That’s why I don’t sell those things. For some of them when you stock, you end up losing your money. It will end up getting expired.”

All three facility types reported “low or no client demand” as the leading reason for non-management of MNCH products, however, this reason was mostly prevalent at the retail pharmacy and wholesaler levels as highlighted in the quote below.

Most health facilities did not experience stockouts for MNCH commodities, apart from chlorhexidine, amoxicillin DT, and ORS + zinc co-pack. Retail pharmacies and wholesalers had high stockouts of injectable drugs, as well as ORS + zinc co-pack. Findings also indicate that retail pharmacies and wholesalers have higher stockout rates for oxytocin as compared to misoprostol, contrasting health facility level data.

**Product quality:** Only four products (magnesium sulfate, misoprostol, nifedipine, and chlorhexidine) had all prevalent brands registered with the FDA. A majority of MNCH

products had at least half of the most prevalent brands registered. In contrast, only one brand of labetalol was registered as compared to two brands that were unregistered and one brand that had an expired registration. In addition, dexamethasone did not have prevalent brands that were registered. For general storage conditions, 90 percent of all three facility types met at least half of the storage requirements. At the retail pharmacy and wholesaler levels, two storage indicators had lower adherence: products stored on shelves/pallets and products stored away from walls and floors. For cold chain storage of commodities, almost all health facilities and wholesalers stored oxytocin in a cold chain equipment. In contrast, almost one-quarter of retail pharmacies did not store the oxytocin between 2–8°C.

**Product pricing:** Generally, maternal health commodities recorded higher prices at retail pharmacies and newborn health commodities recorded higher prices at private health facilities. Prices for zinc and amoxicillin suspension were higher at retail pharmacies as compared to private health facilities, while prices for ORS were lower at retail pharmacies compared to health facilities. Overall, wholesaler prices were lower than prices at retail pharmacies and private health facilities. Comparatively, NHIS prices for products such as hydralazine, methyldopa, nifedipine, oxytocin, and dexamethasone were lower than prices at retail pharmacies and private health facilities.

**Product sourcing:** To assess sources of supply for MNCH commodities, the study found out that wholesalers are the main source of supply for MNCH commodities at the health facility and retail pharmacy levels. On the other hand, wholesalers depend mostly on local manufacturers for MNCH commodities.

## **DISCUSSION**

Results showed limited availability of commodities at all three facility types. The reasons attributed to this challenge were a lack of awareness around MNCH commodities as well as availability of substitute formulations. In the private sector, stocking of MNCH commodities is heavily influenced by commission and client demand dynamics. This was evident in responses for reasons for stockout. Some respondents mentioned fear of expiries and loss of profit as reasons for stockout and this can impact product availability at the health facility. For instance, although injectables cannot be administered at these facility types, they should be adequately stocked to help improve access and avert potential complications in mothers, newborns and children.

An important aspect of product availability is product quality, which can be assured through rigorous product registration. Some MNCH commodities were not registered by FDA and others had expired. There is the need to ensure that all MNCH commodities on the market are registered by the FDA. Proper storage of commodities is also essential to assure product quality. Almost all facilities had working cold chain storage. In the private sector, a greater proportion of entities that have working cold chain equipment available monitor cold chain temperatures daily, ensuring that equipment remain between the recommended temperature of 2-8°C.

Product affordability is an essential component of delivering reliable maternal and childcare. Price differences between NHIS and service delivery outlets were mainly driven by the brands

of MNCH commodities available at the time of the survey as NHIS prices were within the minimum and maximum price thresholds in these facilities. Price dynamics can influence dispensing decisions for facilities that offer NHIS services hence regular review of NHIS prices is necessary.

Health facilities and retail pharmacies reported wholesalers as their source of MNCH commodities. This dependence on wholesalers illustrates the crucial role that they play in meeting the demand of clients for life saving. Further interviews conducted revealed that wholesalers had a clear preference for supplying to the private sector (11 out of 14 supplied more than 50% of MNCH products to private entities), citing timely payment and demand predictability as common benefits.

## **RECOMMENDATIONS**

- There is the need to review the policies (National Essential Medicines List, National Treatment Guidelines and National Health Insurance Price List) that guide stocking and pricing decisions on MNCH products and disseminate them widely. Going forward, it is essential to incrementally introduce mechanisms for pooled procurement based on centralized forecasting to improve demand planning and supply of MNCH commodities in the private sector.
- Registration data retrieved from the FDA showed that approximately half of the most prevalent brands for each commodity were unregistered or had an expired registration. This data depicts a need for regulators to take action to ensure that only high-quality commodities are available in the market. Moreover, there must be improvement in cold chain storage including storage of oxytocin, particularly for retail pharmacies, and appropriate temperature monitoring.
- There is the need to conduct regular price reviews for all commodities on the NHIS including MNCH products.
- GHSC-PSM and GHS together with other stakeholders should conduct a further study of the current pricing mechanism of the national and private health insurance schemes to inform the establishment of the exceptional pricing structure for MNCH life-saving commodities considered to be of low commercial value within the private sector.

## **CONCLUSION**

This assessment provides insights into strengths and weaknesses in the private sector supply chain for MNCH commodities in Ghana. Findings confirm that the private sector is influenced by commercial factors, which could come at a high cost – in terms of availability, accessibility, and affordability – for individuals and families. Currently, public sector facilities are the main beneficiaries of interventions aimed at promoting MNCH care in Ghana, however, there is a strong need to target the private sector due to its growing role in the delivery of MNCH commodities and services.

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