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Federal Democratic Republic of Ethiopia
Ministry of Health

BRIEF

Implementation of Chlorhexidine for Cord Care

EARLY LESSONS FROM FOUR ZONES IN ETHIOPIA

Introduction

Each year, approximately 3 million babies are born in Ethiopia, around 74 percent of them at home. The 2016 Ethiopia Demographic and Health Survey reported a newborn mortality rate of 29 per 1,000 live births, a rate that has stayed steady over the past 10–15 years[1]. Newborn mortality accounts for 43 percent of all under-five mortality. To help reduce newborn deaths, the Government of Ethiopia is implementing community-based newborn care (CBNC), including chlorhexidine (CHX) for infection prevention.

Severe infection is one of the top three causes of newborn deaths in Ethiopia, resulting in over 16,100 deaths each year.[2] Ensuring optimal cord care at birth and during the first week of life, including use of CHX, especially in settings having poor hygiene, is a crucial strategy to prevent life-threatening sepsis and cord infections and avert preventable neonatal deaths. The national strategy for newborn and child survival has identified CHX for cord care as one of the 34 high-impact interventions to address the country's high neonatal mortality rate.[3] The Federal Ministry of Health (FMOH) piloted the introduction of CHX cord care in four zones (East Gojam in Amahara region, East Shoa in Oromia region, Gurage in SNNPR and East Tigray in Tigray region) in the four agrarian regions of the country.

In support of FMOH planning and implementation of research projects, Save the Children commissioned two operational research studies of CHX implementation in the aforementioned zones (Table 1).

This synthesis report brings together key findings from both studies, programmatic as well as operational challenges, and recommendations for the scale up of CHX at national level. Additional information on these studies, including methods and results, will be published in the Ethiopia CBNC supplement in the Ethiopian Journal of Health Development (EJHD) in 2017.

Table 1: Studies conducted to assess CHX implementation

Study name	Period	Methodology	Short name
Acceptability and feasibility of CHX through CBNC	June 2016	Qualitative	Acceptability Study
Coverage and compliance of CHX implementation	December 2016	Qualitative and Quantitative	Compliance Study

Operational definitions used in the studies

- **Feasible**: CHX could be applied by health workers in facility settings and by caretakers at home
- **Acceptable**: both health workers and caretakers welcome use of CHX for cord care
- **Accessible:** both health workers and caretakers can access/have CHX easily when they need it
- **Compliance:** using CHX once daily for seven days, applying it on the tip and around the cord and letting it air dry for three minutes
- **Chlorhexidine use/utilization:** applied on newborns' cord at least once
- **Distribution modality:** logistics associated with how the supply gets to service point and to users
- **Standard register:** a register developed for this purpose by regional/zonal/woreda health office

Objectives of the studies

To assess if applying CHX to the umbilical cord of a newborn right after birth is acceptable, feasible and being done per national and WHO recommendations. Specific objectives include

- Assess health workers' knowledge, attitudes and practices regarding CHX application
- Assess mothers'/caretakers' knowledge, attitudes and practices regarding CHX application
- Assess CHX accessibility and acceptability at home for women who were not able to go to a facility for various reasons or had home delivery
- Determine the coverage of CHX application to newborns at birth
- Assess adherence with the prescribed application of CHX
- Assess the distribution modality of CHX to facilities and expecting mothers.

Methods

The studies used a cross-sectional study design and employed both qualitative and quantitative methods.

Qualitative in-depth interviews were carried out with providers, family members and other key informants. The study population included mothers who gave birth within the last six months at the data collection period, healthcare providers working at maternity services, health extension workers (HEW) and maternal-child health focal persons from districts and zonal levels.

For quantitative data, a single population proportion formula was used to determine sample size, and households were recruited using a simple random sampling method. Quantitative data were double entered into Epi-Data version 3.1, and STATA version 12 was used to analyze the data. NVivo version 11 was used to code, categorize and analyze qualitative data (transcripts) thematically.

Summary of key findings

1. Chlorhexidine is a feasible and acceptable intervention in the Ethiopian setting.
2. There are critical gaps in knowledge, attitude and practice among service providers and mothers.
3. Availability and utilization of CHX outside the health facilities is limited.
4. Poor documentation and reporting hampers evidence generation and monitoring.
5. The supply chain management for CHX creates an unnecessary a parallel system.
6. Continued use of other substances on cord remains a challenge.

Key Findings from CHX Acceptability and Compliance Studies

1. CHX is a feasible and acceptable intervention in the Ethiopian setting

> "I used this Yemesrach ointment (CHX) on my child's umbilical cord as the health worker advised me and the stump got dried and dropped without any difficulty. Its application is very easy, have no any complication and can be used by any laywoman like me. I really love it."
>
> *– IDI participant, 39-year-old mother*

Both studies indicated that CHX for cord care could feasibly be delivered through the government's existing healthcare delivery system: health centres and health posts. CHX feasibility stems from its ease of administration by health professionals, including HEW, as well as mothers/caretakers; its safety record; and because it has no special storage requirements. The intervention was also found to be acceptable by health professionals, HEWs and mothers/caretakers (Acceptability Study).

> "The nurse instructed [me] how to apply this ointment [CHX] at home for six days. I have applied it once daily for the last three days. It is not difficult to apply. Before I apply, I wash my hands with soap, then open the tube and apply on all over the cord and leave the child uncovered for about three minutes. I close the tube, put it in a safe place and wash my hands again with soap."
>
> *– A mother who gave birth five days before the survey*

2. There are critical gaps in knowledge, attitudes and practices on CHX use among service providers and mothers

> "[HEWs] were trained on the steps and procedures of CHX application by health workers from health centres and health office personnel. We had good awareness about CHX application procedures that should be adhered [to] by health workers at health centres and by mothers at home. However, since we do not directly attend delivery and involve on CHX application, we usually perform followup by conducting home visits and check whether mothers apply CHX properly and as per they were instructed by health workers."
>
> *– Key informant HEW from a health post, Sodo*

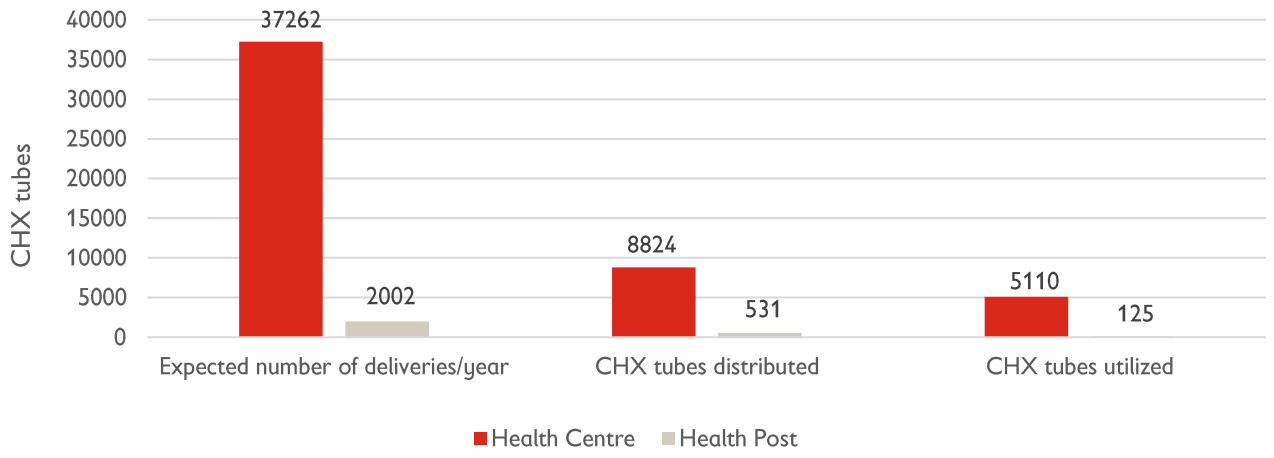
Orientation on CHX use was provided as part of the broader CBNC training to health workers and HEWs; however, knowledge gaps were observed among midwives (Compliance Study). There were some misconceptions about using CHX as treatment for cord infections, and in instructing CHX use until the cord detaches. Some caretakers (14%) reported applying it for more than seven days. Over a third of mothers (40%) reported applying CHX twice a day, saying that they were instructed on use around the time of delivery, hence were in pain, and thus did not comprehend the information (Compliance Study). In one health centre, misconceptions among service providers on the effectiveness of CHX for cord care resulted in the interruption of CHX service delivery for a period of time (Accessibility Study). Conversely, HEWs reported a good level of knowledge about CHX relevant to their role in conducting household follow up with caretakers (Compliance and Acceptability Studies).

3. Availability and utilization of CHX outside the health facilities is limited

Overall reported utilization of CHX was a little over 50% in mothers who gave birth in the last six months before the assessment (Compliance Study). Non-facility deliveries – the primary targets of the CHX intervention according to WHO recommendation – had very low utilization rates (4/76, 5%). Mothers who delivered at health facilities were significantly more likely to apply CHX compared to mothers who delivered at home (Compliance Study). Mothers delivering at home were found not to be receiving CHX and hence were not utilizing it. While contrary to what was expected, a possible explanation is that there was not a clear distribution mechanism for home deliveries. This distribution gap may be due to various reasons, including delays in reaching the facility after labor or a lack of knowledge about the benefits of facility deliveries. The current recommendation made by the FMOH and the Child Survival Technical Working Group (CSTWG) indicated that 70–75% of CHX should be available in health centres and the remaining 25–30% at health posts. However, health posts received less than 6% of the total CHX allocation (Compliance Study). Additionally, the lack of timely birth notification from health facilities also delays postnatal care visits, leading to missed opportunities for counselling on CHX during the first seven days, when it is needed.

Figure 1 provides an overview of CHX distribution and utilization in the year proceeding the studies (October 2015–2016).

Figure 1: Chlorhexidine distribution and utilization (Compliance Study)



4. Poor documentation and reporting hampers evidence generation and monitoring

The implementation in the pilot zones revealed poor documentation of CHX availability and utilization at health facilities (Compliance Study). Two main reasons explain this complication:

1. A lack of standardized recording associated with its distribution.
2. A lack of dedicated space in already existing records.

The absence of a recording and reporting system hampers evidence generation and the ability to monitor and evaluate the utilization of CHX in the healthcare delivery system.

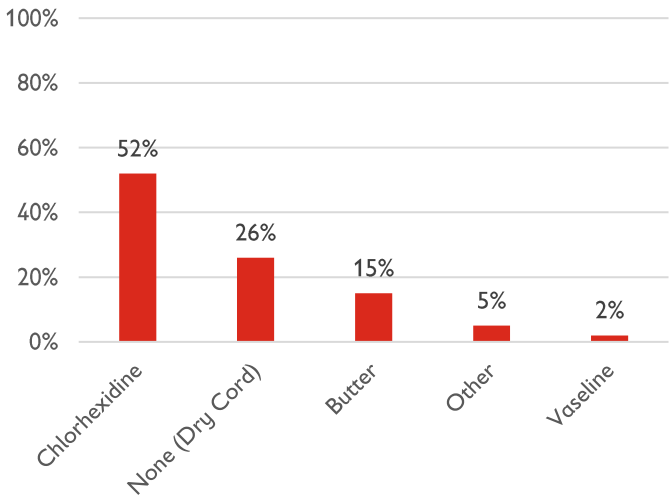
5. The supply chain management for CHX creates an unnecessary a parallel system

For the first piloting zones, as agreed by the CSTWG, a push delivery mechanism was used to provide CHX to health facilities. Even though this was done to avoid possible shortages and stock outs, this parallel system to the government's logistics structure may not be sustainable. In addition, a lack of proper documentation and reporting results in inaccurate CHX quantification (not based on actual consumption of health facilities) and instead yields an unrealistic estimation of the supply (Compliance Study).

6. Continued use of other substances remains a challenge

As Figure 2 indicates, although some mothers (26%) applied nothing to the cord (including CHX), a few mothers reported use of other substances to the umbilicus stub, including butter, Vaseline, animal dung and other antiseptics. This demonstrates that norms exist of adding substances that are potentially harmful to the cord and the baby.

Figure 2: Reported substances applied to the cord (Compliance Study), N=584



Conclusion and Recommendations

The community-based pilot of a CHX intervention in the four agrarian regions of the country showed that CHX can be implemented within the Ethiopian health system. Both studies highlight a number of programmatic and operational caveats, including knowledge gaps, CHX availability outside the health system, documentation and supply chain management, and application of other substances to the cord. The following recommendations aim to guide the effective scale up of CHX at the national level.

As the move to scale up CHX gets underway, we caution FMOH and partners to ensure these key elements are in place as priorities: stronger monitoring and evaluation, effective strategic behavioural change and communication (SBCC) approaches, and streamlined supply chain management.

Recommendations based on study findings

- ***Improve knowledge, attitude and practice among service providers, notably midwives.*** Intensive SBCC interventions addressing service providers is needed to harmonize cord care messages (dry cord care versus use of CHX) to mothers and families. Different national training manuals and guidelines need to be disseminated effectively in order to elevate the understanding of the benefits CHX use has in preventing neonatal cord infections.

- ***Influence families to use CHX rather than another substance.*** Even with the availability of CHX, a significant number of mothers use other items such as butter, Vaseline and animal dung to care for the cord. Hence, it is very important to include use of CHX for cord care into antenatal care (ANC) counseling in all the visits and by both health workers and HEWs. It is also advisable to include another family member during counseling to make sure CHX is properly applied at home. Chlorhexidine use should also be integrated in the family health card for HEWs and health development army volunteers to reinforce the message during home visits. Considering that at least 78% of all deliveries occur outside the health facilities, a specific approach to influence CHX use needs to be developed and implemented.

- ***Identify solutions to improve communication between health facilities and HEWs to support timely followup.*** For those women who deliver in health facilities, better documented communication between health facilities and HEWs using referral slips is needed for timely home visits to help mother use correct applications.

- ***Improve monitoring and evaluation***. To facilitate documentation of CHX utilization at health facility and community levels and improve proper monitoring and evaluation of the service as essential part of the newborn care/immediate newborn care (ENC/INC) package, CHX monitoring needs to be integrated into routine service delivery recording, reporting registers and forms.

- ***Integrate CHX into national supply chain systems.*** There is a need for stronger supply chain management of CHX as other essential commodities. We recommend including CHX in the national integrated pharmaceutical logistic system (IPLS) to ensure its continuous supply and availability at health centers and health posts.

REFERENCES

1. Central Statistical Agency (CSA) [Ethiopia] and ICF. 2016. Ethiopia Demographic and Health Survey 2016: Key Indicators Report. Addis Ababa, Ethiopia, and Rockville, Maryland, USA. CSA and ICF.

2. Liu L, Oza S, Hogan D, et al. Global, regional, and national causes of under-5 mortality in 2000–15: an updated systematic analysis with implications for the Sustainable Development Goals. Lancet 2016; published online Nov 10. http://dx.doi.org/10.1016/S0140-6736(16)31593-8.

3. Federal Ministry of Health. 2015. National Strategy for Newborn and Child Survival in Ethiopia, 2015/16 – 2029/20. Addis Ababa, Ethiopia.

Cover photo: In SNNPR, Gurage Zone, Fatuma , a 22-year-old mother, is pictured here with her daughter Mewuded.
(Photo credit: Tadele Shonde/Save the Children)

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ACKNOWLEDGEMENTS

We thank Li'elena Research and Development Consultancy PLC (LRDC) and MERQ Consultancy PLC for conducting the assessments. We also thank child health case team of FMOH for their guidance and inputs.

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Published by
Save the Children Ethiopia
Ethiopia Head Office, Old Airport
Near Bisrate Gabriel Church
Dire Complex Building, P.O. Box. 387 Addis Ababa,
Ethiopiahttps://ethiopia.savethechildren.net/

First published April 2017

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