Maintaining the provision and use of services for maternal, newborn, child and adolescent health and older people during the COVID-19 pandemic

Ethiopia: the use of a digital platform

Introduction

Ethiopia has made promising progress towards achieving universal health coverage, particularly in maternal and child health, over the past few decades. Maternal mortality has been reduced by more than one half in the last two decades and under-5 mortality declined from 88 deaths/1000 live births in 2011 to 59 deaths/1000 live births in 2019 (1). The country is working towards achieving the 17 Sustainable Development Goals, with a current overall score of 54.5% and a spill-over score of 99.7% (1-3).

The first case of COVID-19 was reported in Ethiopia on 13 March 2020. A survey conducted in five World Health Organization (WHO) regions to assess countries’ experiences with and responses to maintaining the continuity of essential health services during the COVID-19 pandemic revealed that most countries, including Ethiopia, experienced some degree of disruption in reproductive, maternal, newborn, child, adolescent and youth health (RMNCA) services (4). A two-year (2019-2020) trend analysis of health systems data on RMNCA services utilization confirmed these findings (5).

As of February 2022, Ethiopia experienced four waves of COVID-19. The country’s COVID-19 status is published on the WHO Coronavirus Dashboard (6) and the Ethiopian Public Health Institute weekly epidemiological bulletin (7). The overall COVID-19 response of the country is documented by the Blavatnik School of Government Stringency Index tracker and the COVID-19 Ethiopia Government Responses Tracker (8-9).

Photo credit: Sintayehu Abebe, Amref Health Africa.

Frontline health workers, service delivery and innovation for the COVID-19 response in Ethiopia.
Digital health strategies to mitigate the impact of COVID-19 on the delivery and use of essential RMNCAYH services

The Ministry of Health implemented several strategies to mitigate the impact of COVID-19 on the delivery and use of essential RMNCAYH services. Digital health interventions were important in this effort and included providing toll-free call centre services, remote training of frontline community health workers, regular phone calls and virtual meetings with regional health bureaus to monitor health system performance and the use of digital communication platforms.

Digital health infrastructure

In 2019, 48.3% of the Ethiopian population had access to electricity, with significant disparities between urban (92.8%) and rural (36.3%) areas. Despite high mobile cellular network coverage in Ethiopia (97.0%), in 2016 58% of the population owned a mobile phone and only 15% of households had internet access at home (10-11 and WHO Regional Office for Africa (AFRO), unpublished observations, 2021).

Ethiopia has a satellite-based communication network (known as WoredaNet) with high bandwidth connectivity used for messaging, sharing data and voice and video conferencing across government institutions. A national data centre stores information from different government sectors and agencies. The major applications hosted include the Ethiopian government portal (www.ethiopia.gov.et), Electronic Health Management Information Systems, and the Integrated Financial Management Information System (12).

In 2015, Ethiopia’s Ministry of Health introduced the Information Revolution - an initiative that focuses on digital transformation of the country’s health system. An assessment of the Information Revolution in 2021 found that significant progress had been made towards achieving its goals (13). In September 2021, the Ministry of Health launched a digital health blueprint to serve as a governing document to standardize digital health tools over the next decade (14).

Mobile health (mHealth)

Before the COVID-19 pandemic several mHealth platforms were in operation in Ethiopia, used mainly for creating community awareness, training health workers, and delivering essential RMNCAYH services. A list of mHealth platforms available in Ethiopia can be found on WHO’s online Digital Health Atlas (15).

An m-Health learning platform, Leap, was chosen for in-depth review and documentation by the Ministry of Health, as it was considered important to mitigate the indirect effect of COVID-19 in maintaining the delivery and use of essential RMNCAYH services during the COVID-19 pandemic.

* Details are available at https://www.who.int/publications/i/item/9789240040595, pp. 34 – 40.
The Leap platform

Description of the platform
The Leap platform was introduced to train frontline community health extension workers (HEWs) in Ethiopia in May 2020. Nearly 40,000 HEWs (85% rural, 15% urban) are deployed throughout the country to serve the community in more than 7,587 health posts. Leap enables HEWs to undergo training remotely at any time using mobile phones anywhere in the country (16-17 and Ethiopia Ministry of Health, unpublished observations, 2020).

The platform operates offline (i.e. does not require internet connectivity) through interactive voice response and text messaging technology, making the training available to HEWs with any type of mobile phone. The training is self-paced, can accommodate up to 120 learners at one time, and is available in five local languages (Afaan Oromo, Afar, Amharic, Somali and Tigrigna).

When Leap was first rolled out, it included four modules to train HEWs on COVID-19 prevention, symptom identification, contact tracing and case containment; a referral protocol; methods to reduce COVID-19-related stigma and discrimination; and the provision of psychosocial support (18). In March 2021, RMNCAYH-specific content was introduced with an additional eight modules: adolescent and youth health; family planning; maternal and neonatal health; prevention of mother-to-child transmission of HIV; child health; the expanded programme on immunization; nutrition; and the integrated pharmaceutical logistics system. The training modules were developed by experts from the Ministry of Health and Amref Health Africa.b

Implementation of the platform
The Ministry of Health provides integrated refresher training to HEWs at least once a year. Before the pandemic, the training for RMNCAYH was provided in-person. During the pandemic, the Ministry of Health published guidelines with provisions for remote learning to mitigate the impact of COVID-19 on the continuity of essential health services (Ethiopia Ministry of Health, unpublished observations, 2020). In line with this guidance, Leap was rolled out jointly by Amref Health Africa and the Ministry of Health, targeting HEWs, their supervisors and city administrators. The initiative was initially jointly managed by Amref Health Africa and the Ministry of Health; however, its operation has been run by the Government of Ethiopia since August 2021.

b Amref Health Africa is a health development nongovernmental organization with an office in Ethiopia.
The Ministry of Health, in collaboration with Ethio Telecom, collected and registered the phone numbers of HEWs and their supervisors from all regions in a central database. A text message was sent to all participants registered on the database to prompt them to enroll. Once they responded to this text message, they were automatically enrolled in the training and received further instructions on how to complete it. Experts from Amref Health Africa and the Ministry of Health monitored the registration and enrollment process, and the number trained was sent to regional health bureaus, zones and districts (Woredas) through a Telegram group – a cloud-based instant messaging service. Data from the initiative were hosted on Ministry of Health servers and used for monitoring and real-time visualization of the number of HEWs who enrolled and completed the training. The HEWs’ knowledge gain was evaluated through a quiz for each module; they needed to score at least 80% to pass and be certified.

**Outcomes of implementation of the platform**

A total of 36 345 HEWs and 2796 supervisors were registered on a central database (see Table 1 and Figure 1); 9451 HEWs and 824 supervisors enrolled through the Leap platform by replying to an SMS and started the training. As of 1 September 2021, five months after the initial launch, the RMNCAYH training was completed by 410 HEW supervisors (14.7% completion rate) and 3305 HEWs (9.1% completion rate). About one third (35.0%) of the enrolled HEWs completed the training.

**Table 1. Completion rate of mobile-based training by region, 1 September 2021**

<table>
<thead>
<tr>
<th>Region</th>
<th>Registered</th>
<th>Enrolled</th>
<th>Completed</th>
<th>Completion rate (%) of the total registered HEWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addis Ababa</td>
<td>1086</td>
<td>47</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Afar</td>
<td>641</td>
<td>199</td>
<td>92</td>
<td>14.4</td>
</tr>
<tr>
<td>Amhara</td>
<td>8487</td>
<td>2199</td>
<td>762</td>
<td>9.0</td>
</tr>
<tr>
<td>Benshangul Gumz</td>
<td>973</td>
<td>420</td>
<td>165</td>
<td>17.0</td>
</tr>
<tr>
<td>Dire Dawa</td>
<td>206</td>
<td>11</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Gambella</td>
<td>372</td>
<td>9</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Harari</td>
<td>181</td>
<td>17</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Oromia</td>
<td>15 176</td>
<td>3981</td>
<td>1181</td>
<td>7.8</td>
</tr>
<tr>
<td>Sidama</td>
<td>1794</td>
<td>1200</td>
<td>635</td>
<td>35.4</td>
</tr>
<tr>
<td>Southern Nations, Nationalities and Peoples’ Region</td>
<td>5902</td>
<td>1352</td>
<td>466</td>
<td>7.9</td>
</tr>
<tr>
<td>Somali</td>
<td>1527</td>
<td>16</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Tigray*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>36 345</strong></td>
<td><strong>9451</strong></td>
<td><strong>3305</strong></td>
<td><strong>9.1</strong></td>
</tr>
</tbody>
</table>

*Training was not carried out in Tigray.

**Fig. 1. Total number of HEWs registered, enrolled and completing mobile-based training as of 1 September 2021**

According to focus group discussions with 20 HEWs by Amref Health Africa, HEWs found the training to be timely and helpful for coordinating the COVID-19 response. The easy access to training materials was convenient for revision whenever needed. The self-paced approach provided flexibility and allowed HEWs to organize their learning around their busy schedules, without affecting their daily duties. HEWs said the remote format was helpful in reducing the risk of transmission of COVID-19 (17, 19).

Challenges encountered in the implementation of the platform

Despite the initial positive feedback from HEWs regarding Leap, the overall completion rate for the training was low, due to a variety of reasons (17, 19).

- A major challenge for health workers was accessing the mobile network because of low network strength, making it difficult to receive training text messages.
- When training was interrupted due to network challenges, the system would reset and restart the training from the beginning of the module.
- Some health workers said that they did not have adequate orientation on the training and its benefits (19).
- Frequent phone number changes by HEWs and the use of shared phones resulted in training interruptions.
- The limited storage capacity of some basic phones prevented HEWs from receiving new messages to complete their training unless they deleted older messages.
- The training completion rate in urban areas such as Addis Ababa, Diredawa and Harar was notably low, which may be attributed to high staff turnover there.
- Given the Leap platform was limited to training 120 learners at a time, the lack of a scheduled approach to registering and enrolling made it difficult for HEWs to access and complete their training.
- Experts from Amref Health Africa supported the programme with module development and data management until August 2021. The absence of this expertise once the project was fully handed over to the Ministry of Health presented critical challenges.

Lessons learned from the implementation of digital health interventions

The Ministry of Health partnership with Amref Health Africa and Ethio Telecom was essential. Amref supported the intervention with technical expertise, and Ethio Telecom facilitated wide reach through its mobile network. This strategic partnership, and engagement of stakeholders at different levels of the health system, increased interest in the platform and was instrumental in achieving high coverage (36,345 out of 39,878 HEWs successfully registered) of Leap.

A system-level framework and incentive regime for using digital health tools, clearly communicated to participants, can improve participation and training completion. While this is a promising digital health intervention, the completion rate of the training between March and September 2021 was just 9.1% which, according to the Ministry of Health, could be attributed to factors such as lack of supervision and orientation on the benefits of completing the training. Users of the platform require orientation prior to launching the training. To ensure users are familiar with the training, sessions for HEWs on how to use the platform are needed.

Investing in access to digital devices with adequate capacity for training is essential for HEWs. Many HEWs were not able to fully benefit from Leap because of the limitations of their devices. Ensuring that HEWs have phones with adequate capacity for the tasks at hand will not only enable them to access the full benefits of capacity-building initiatives such as Leap, but also to access other digital and innovative health platforms to support health service delivery at the community level.

Workforce training and skills transfer are important to ensure sustainability, but continued support from external experts may be needed when the Ministry of Health takes over management of a digital health intervention. Handing over the project from Amref Health Africa to the Ministry of Health revealed gaps in technical skills and expertise. Digital health interventions are a relatively novel approach in health service delivery, and ensuring the needed skills and expertise are available to manage the digital technical requirements is important.
Moving forward

In collaboration with partners, the Government of Ethiopia continues to work on developing digital health through policy, infrastructure, standards and regulation, to ensure that digital health tools can be successfully rolled out and achieve their intended goals. Engaging with health workers at all levels and strengthening mentorship and supportive supervision is essential to encourage uptake of digital health and promote sustainability. The Leap platform can help enhance the delivery and use of RMNCAYH services both during and beyond the COVID-19 pandemic. Addressing identified challenges such as ensuring adequate orientation of HEWs, incentivizing the HEWs and their supervisors (including certification and credit for continuous professional development), filling human resource gaps and upgrading the capacity of devices used would be a step forward. Additionally, conducting a post-training evaluation/assessment with users of the training platform to develop actionable recommendations could improve training uptake, quality, completion and staff retention.

Acknowledgements

This report was developed using information from existing documents as well as that captured through discussions with representatives of the Ministry of Health of Ethiopia, the Maternal and Child Health Directorate, Health Extension Program unit and Amref Health Africa.

A desk review of background information on mobile health platforms in Ethiopia was conducted by Tewolde Wubayehu, national consultant for the World Health Organization (WHO) Country Office for Ethiopia, guided by a template prepared by the WHO Department of Maternal, Newborn, Child and Adolescent Health and Ageing (WHO/MCA) team.

The Health Extension Program unit of the Ministry of Health and the Maternal Child Health unit of the WHO Country Office for Ethiopia held a virtual meeting in January 2022 to discuss the implementation of the Leap platform, including performance in the different regions, the lessons learned, challenges encountered and the way forward.

The report was prepared by Tewolde Wubayehu, with support from Haimanot Ambelu Workineh, Kurabachew Abera Alemu, Chomba Zenengeya and Anayda Portela. The team is grateful to the inputs of representatives of the Health Extension Program unit of the Ministry of Health, the Maternal Child Health unit of the WHO Country Office for Ethiopia, the WHO Regional Office for Africa and WHO/MCA. The Ministry of Health approved the final version.

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The views in this brief do not necessarily represent the decisions, policy or views of the World Health Organization.

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Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>HEW</td>
<td>Health extension worker</td>
</tr>
<tr>
<td>mHealth</td>
<td>Mobile health</td>
</tr>
<tr>
<td>RMNCAYH</td>
<td>Reproductive, maternal, newborn, child, adolescent and youth health</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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</table>
References


