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HelloMama—Using Digital Health Platforms to Improve Health Outcomes for Pregnant Women and New Mothers in Nigeria

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Key Messages

- As a result of USAID's investment in Nigeria's HelloMama program, for the first time, a nationally recognized toll-free number (1444) dedicated to receiving maternal and newborn health messages was approved by the Nigerian Communications Commission on behalf of the Federal Ministry of Health (FMOH). This toll-free number has been integrated on the platform of four of Nigeria's major mobile networks operators (MNOs), increasing the opportunities for HelloMama health messages to reach a larger segment of the population. By reaching more areas nationwide, access to maternal and newborn care messages has been greatly expanded.
- In Nigeria, the Maternal and Child Survival Program (MCSP) reached 44,812 pregnant women and 18,203 spouses/family members of these pregnant women with health information on pregnancy care through the HelloMama messages delivered via voice calls and short messaging service (SMS) messages. These women receive cellphone-based health information encouraging attendance at antenatal care (ANC) clinics and giving birth at one of 142 MCSP and Saving Mothers Giving Life-supported facilities in Ebonyi and Cross River states.
- The Cross River state government leveraged \$110,000 from its Saving One Million Lives initiative to sustain and scale up HelloMama messages. As a result, health messages will be sent to an additional 10,000 pregnant women and their influencers with further commitment from the government for full-scale inclusion of a digital health budget line in the 2019 budget.

The Mobile Alliance for Maternal Action, a global consortium founded by Johnson & Johnson, the US Agency for International Development (USAID), BabyCenter, and the United Nations Foundation, delivers vital health information to pregnant women, new mothers, and their influencers by leveraging SMS messages and voice calls on mobile phones. It sends a global set of age- and stage-based messages that can be adapted

to local context via a mobile messaging platform called HelloMama. The HelloMama work began in 2014–2015 with support from Johnson & Johnson and USAID.

In 2015–2016, the HelloMama partnership was restructured. MCSP¹ coordinated the efforts of Pathfinder International and the Praekelt Foundation, in collaboration with FMOH and state ministry of health officials, to develop a locally led and planned-for-scale mobile messaging platform aligned with national health priorities, policies, and systems for pregnant women, newborns, children under 1 year, and their families that complements the efforts of frontline health workers.

The MCSP Nigeria HelloMama program had two broad objectives:

1. Establish an operational, nationally scalable platform with adequate coverage that makes age- and stage-based mobile messages available to the target population and links to existing health information systems.
2. Complement supply-side maternal, newborn, and child health (MNCH) interventions by improving knowledge and adoption of healthy and safe MNCH practices.

HelloMama was piloted in 47 selected facilities from October 2016 to May 2017 across Ebonyi and Cross River states.²

It then expanded the pilot to 142 facilities in March 2018. The platform reached 66% of all public facilities across both states and over 63,000 pregnant women, new mothers, and influencers. 13,320 pregnant women successfully graduated from pregnancy through 1 year of child life.

Program Approaches and Interventions

Pregnant women and new mothers were enrolled by HelloMama at the health facility level during routine ANC visits and deliveries. Before enrollment, health care workers obtained consent from the woman. Women were asked a series of questions to determine gestational age. Each health worker used a mobile phone with a unique code for facility identification to register the woman's preference for timing of messages, days for receiving messages, and language. The woman could also enroll a person that she finds influential to her pregnancy outcome, such as a spouse or mother-in-law.

After enrollment, the pregnant or recently delivered woman receives three short text messages or two voice messages weekly, depending on her stated preferences, which will continue for 1 year after childbirth. Under an “age and stage” model,³ the messages are tailored to the local setting and correspond to what a woman is experiencing in her pregnancy (stage) or in her child's development (age). This personalization creates a trusting relationship between the end user and the HelloMama service, and can facilitate behavior change. The chosen influential person also receives one weekly call or message with corresponding information to encourage better appreciation and support for pregnant women or new mothers to engage in health care behaviors.



A new mother listens as her husband reads out her HelloMama message outlining postnatal care for her newborn.

Photo: Karen Kasmauski/MCSP

¹ MCSP is a global, \$560 million, 5-year cooperative agreement funded by USAID to introduce and support scale-up of high-impact health interventions among USAID's 25 MNCH priority countries and other countries.

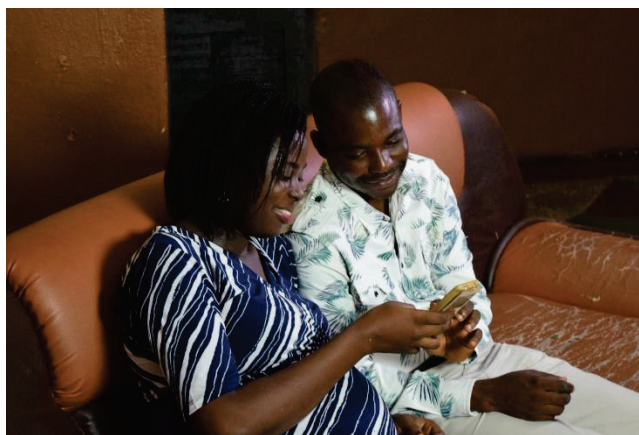
² Ebonyi and Cross River were selected because they are USAID priority states, have state buy-in, and have a high level of deliveries with maternal and newborn mortality and morbidity.

³ The major stages of the human life cycle include pregnancy, infancy, toddler years, childhood, puberty, older adolescence, adulthood, middle age, and senior years.

HelloMama introduced a callback feature in 2018 that allows registered users to trigger a callback with their last scheduled message in the event that they miss their call or the call is interrupted. This has resulted in mothers, spouses, and families receiving more HelloMama messages vital to improving the health outcomes for pregnant women, newborns, and families in Nigeria.

Program Interventions

- **Baseline Assessment:** A landscaping and formative assessment was conducted in early 2015 to assess the needs; inform the design and development of the content, branding (HelloMama), and technological features; understand the clinics and infrastructure landscape; and better understand the experiences of rural women and families in accessing services, including gaps in knowledge and understanding mobile phone access and use. About 60% of women stated that they only made calls, while the other 40% only sent and received text messages. Only 30% of women claim they use mobile phones to browse the Internet, use Facebook, and send each other pictures. HelloMama also aimed to understand barriers to and facilitators of key behaviors (ANC seeking, facility delivery, and home-based behaviors). Lack of transport, fear of biking while pregnant, costs, and permission from their husband were some of the barriers elucidated. Interest in child well-being, knowledge seeking, free ANC/delivery kits, receiving encouragement or money, service providers (SPs) reaching out to them in the community, and educating family members were reported as facilitators. The project further conducted a baseline assessment post-pilot in October 2017, with 1,166 respondents from intervention facilities participating.
- **Government Engagement:** MCSP strategically engaged both federal and state government toward state ownership of the intervention. MCSP influenced policies and resource mobilization through the adoption of the eHealth policy and co-creation of a strategy for each state. The program continued to involve state actors in the transition plans to reinforce the principles behind the interventions so that state stakeholders will have management and technical knowledge and capacity to implement, advocate for, and sustain digital health interventions in Nigeria.
- **Engagement with MNOs:** This function was conducted regularly through the aggregator. This platform was used to address bandwidth requirements, discrepancies in call deliveries, platform downtime, and timely message delivery, and to foster stronger relationships with telecommunications companies with MCSP's key government partners.
- **Network Mapping and Survey Assessment:** MCSP completed network mapping and survey assessment in 192 facilities across both states. The objective was to test the network strength within and around the designated facilities, and review the performance of the mobile operators at the facilities for full optimization of the deployed HelloMama services. This helped with facility selection for the HelloMama interventions and guided the MNO partnerships for the program.
- **Content Development:** MCSP, in coordination with a content review committee and the FMOH, developed content and adapted the HelloMama messages in English, Pidgin, and Igbo. HelloMama messages raised awareness among women on danger signs in pregnancy, newborn, and infant care, as and reinforced positive health-seeking behaviors, leading to increased ANC, skilled birth attendance, and general well-being of pregnant women.



A new mother shares her HelloMama message: "Visit the health center at least 4 times during your pregnancy. The nurse will make sure all is well and pick up any problem. Take some water."

Photo: Karen Kasmauski/MCSP

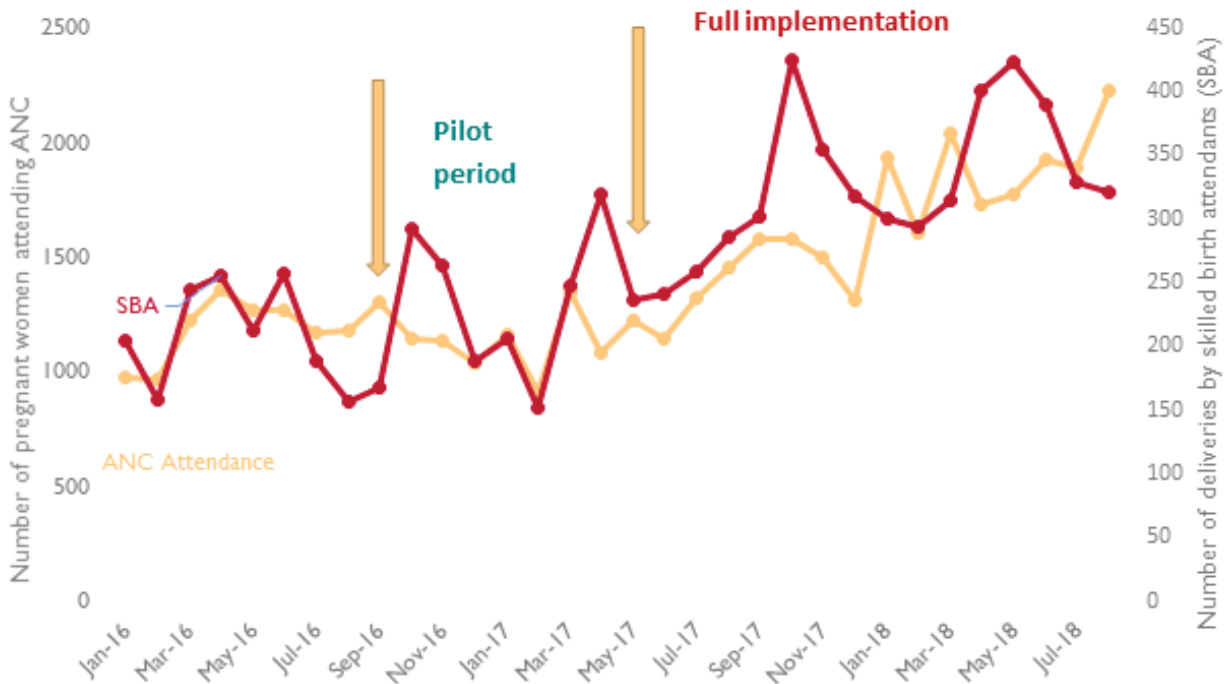
- **Formative Research:** Messages were tested on focus groups of women and men, and then adapted further based on the findings and the beneficiaries' preferences. Of the 1,166 respondents, 80% of the beneficiaries chose to review the HelloMama messages via text. Eighty-four percent chose to have the messages in English, 14% in Igbo, and 2% in Pidgin. The average age of the pregnant women interviewed was 27 (SD=5.3) years. Ninety-nine percent of the women interviewed were Christians, and 55% were Igbo. Ninety-three percent were either married or living with a male partner, and only 62% of respondents reported they worked. Although all respondents had access to a mobile phone, only 82% of the respondents owned one.
- **HelloMama Brand Development and Promotional Materials:** The partnership worked with the FMOH to develop a national brand that could be easily scaled nationally. MCSP produced and provided memorabilia and information, education, and communication materials (e.g., posters, leaflets, and job aids) to 142 facilities across Ebonyi and Cross River to sensitize beneficiaries to HelloMama services and aid health workers in the registration process. These materials boosted health worker morale and capacity, with some memorabilia incentivizing the health workers.
- **Capacity-Building of Health Care Workers:** MCSP trained 184 health workers in MCSP- and Saving Mothers Giving Life-supported facilities on registering women for HelloMama using a mobile device, collecting data, and reporting data. HelloMama also supported the trained health workers to further cascade the training to other health care workers through direct supportive supervision and mentoring. A monthly meeting fostered peer mentoring reviews and healthy competition among the health care workers, with memorabilia for performance as incentives.
- **Supportive Supervision:** MCSP empowered the government to understand its role in leading routine integrated supportive supervision to facilities, identifying and resolving issues affecting uptake and delivery of HelloMama messages.

Key Achievements

- HelloMama was fully integrated into the four major MNOs in Nigeria, which allowed the program and partners to deliver vital health information to more than 63,000 women and their influencers.
- HelloMama also achieved government adoption by influencing national and subnational budgets for digital health through building the confidence and capacity of state representatives on project management for a digital platform. This included establishing the messaging services at national and subnational levels, including strategic engagement of stakeholders to influence governments' 2019 budgets. In September 2018, the Cross River State Ministry of Health committed over NGN 40 million (USD 110,000) to sustain the cost of sending HelloMama SMS and voice messages once HelloMama funding ended and to ensure the sustainability of HelloMama technology and program implementation to their constituents.
- HelloMama sent over 5.9 million messages via SMS and voice calls to 63,015 pregnant women, new mothers, and influencers.
- Data from Nigeria's health information management system, DHIS2, show increased uptake of essential services, including ANC attendance and deliveries by skilled birth attendants (Figure 1), and number of children fully immunized (not shown) in selected HelloMama supported sites, with likely contribution to HelloMama messages⁴ and other interventions in these sites.

⁴ The noticeable declines over the period of implementation are attributable to periods of health worker strikes and communal crashes, during which enrollment decreased.

Figure I: Increasing trend in total ANC attendance and deliveries by skilled birth attendants in selected facilities in Cross River and Ebonyi states



Data source: Nigeria DHIS2, n=10 facilities

- HelloMama developed dashboards to foster program management for decision-making at project and state levels. The dashboards support government ownership of digital health programming through training and mentorship to help decision-makers implement informed, impactful programs.
- HelloMama is now popularly known as the “phone doctor” among health workers and beneficiaries as a result of the messaging, which complements counseling and services provided by health workers during ANC visits.

Lessons Learned

- The use of local hosting and aggregator SPs to integrate with all major MNOs took longer than expected due to inadequate technology infrastructure and incompatibility.⁵ It is important to undertake an assessment of local vendors and select the most appropriate for the technology. It is also important to acknowledge that it may take higher-level conversations, including the FMOH; Nigerian Communications Commission; Ministry of Information, Communication, and Technology; and/ or the donor, to develop relationships with vendors and MNOs.
- There were several downtimes, reconfigurations, and frequent service disruptions due to bugs and glitches, which affected messaging. Setting realistic expectations about the time and coordination required to get a program like HelloMama up and running will lead to smoother planning and implementation.

⁵ Adequate technology would be more consumer centered and reliable. Currently, telecoms infrastructure is centered on urban and periurban areas, and does not adequately cover the entire country.

- A lack of budgetary provision for digital health in state health budgets made it difficult for states to plan for digital health innovations such as HelloMama. This was addressed through capacity-building and stakeholder engagement at the local level, developing a state digital health strategy, and advocating with government on the need to effectively coordinate and provide resources for digital health initiatives for universal health coverage. Moving forward, programs should advocate early on for budgetary provisions at the state level, which can sustain initiatives.
- Digital health initiatives require onsite field support and continuous engagement of health workers, technology partners, and beneficiaries for adoption within the broader health systems and to facilitate positive user experience and desired outcomes.
- Multisector (health, technology) partnerships and collaboration, aligned under a government strategic digital health strategy, are critical to broaden the horizon for sustainable digital health and improve reproductive, maternal, newborn, and child health outcomes. Government buy-in and a national coordination mechanism to allocate and manage resource across partners are key to the sustainability of HelloMama and future digital health initiatives.
- Policies or legislation that incentivize information and communication technology SPs to provide discounted services for national public health message deployment can stimulate investment in digital health, including improving the scale-up for government public health initiatives.

Next Steps

- Ebonyi and Cross River state governments pledged, in their 2019 state budgets, to continue providing HelloMama health messages to pregnant and recently delivered women, and to support other digital health initiatives. This success will mean that women and their influencers can continue to opt in to receive the age- and stage-based SMS messages and, in the future, the Ebonyi and Cross River state governments will easily be able to allocate resources in the state budgets, as it is part of the health strategy.
- National- and state-level ministries of health are developing a detailed implementation road map to guide future programs on implementing interactive voice response and SMS messaging systems in Nigeria.
- The HelloMama team is developing a bot on a telegram messenger platform (like WhatsApp). Mothers with a smartphone and data will be able to subscribe through the bot to receive HelloMama text and audio messages free on their telegram app. The bot is a third-party application interacting with users while it runs inside the telegram mobile messaging app. As an over-the-top application delivering content over the Internet and bypassing traditional telecommunication channels, HelloMama bot user costs are lower than traditional platforms. Literate users will be able to use the service by following a simple, step-by-step command based in the menu. The bot will deliver both text and audio messages to recipients with 99.9% guarantee of message delivery. Subscribers will have the option to opt out of the message subscription or switch format and language. The platform is free to download and available on Android, iPhone, the Web, and desktop applications.

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