HAVING AN IMPACT SERIES

There's an App for that

A job aid for community-based PMTCT care

PHOTO BY MEG LANGLEY FOR CRS

Health Surveillance Assistants make regular home visits to HIV-positive mother-infant pairs to provide much-needed guidance.

"My job is easier now with the use of the phone. Apart from reminding me what to do, the phone also ensures uniformity of services that I render to my clients. There are no shortcuts."

—Charles Kadulira, HSA, Chikwawa District Hospital

Pregnant, HIV-positive and in need of guidance

Being diagnosed with HIV infection during an otherwise healthy, celebrated pregnancy is possibly one of the most frightening, overwhelming situations a mother can face. In Malawi, with opt-out HIV testing now fully integrated into antenatal care (ANC), many new infections are revealed in just this manner. Malawi's Option B+ protocol dictates that pregnant HIV-positive women should initiate antiretroviral therapy (ART) as quickly as possible to protect their health and to prevent transmission of the virus to their babies. Thus, many HIV-positive mothers start ART without absorbing the life-changing information of her HIV status or disclosing to their partners and families.

This situation is equally challenging for health service providers. With limited time to provide counseling and education, they struggle to accurately guide mothers through each step of the demanding PMTCT protocol. Although guidelines exist, the lack of a user-friendly job aid leads to confusion and frustration for both health providers and mothers.

HIV-positive mothers underserved, exposed infants at risk

In 2011, only 53% of mothers received ART (excluding single dose nevirapine) and only 22% of mother-infant pairs (MIPs) received ART to reduce transmission during breastfeeding[1]. This puts infants at risk of contracting HIV through breastfeeding and by the age of two, many children are infected. Without reliable uptake of early infant diagnosis services, infants

1 Joint United Nations Programme on HIV/AIDS (2012). Together We Will End AIDS, p. 123

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are denied early initiation of ART and miss a crucial opportunity to avoid illness, disability and death.

Especially in rural Malawi, the Ministry of Health (MoH) relies heavily on health surveillance assistants (HSAs) to provide information and counselling to HIV-positive mothers during a series of home visits. To guide HSAs through these visits, MoH developed the MIP manual to assist them in providing correct, timely clinical information and psychosocial support from the earliest contact during pregnancy until exposed infants are 24 months old. The paper-based MIP manual was, however, poorly understood and cumbersome to apply in the field. Without a job aid to structure their interactions with mothers, HSAs were unable to provide the specific, individualized guidance required at the prescribed intervals.

The MIP mobile application: A much-needed job aid

Mothers are assisted by the trained HSAs to ensure that they:

- **Adhere to their ART regimen**
- **Present for clinical appointments as scheduled**
- **Practice positive living to protect their health**
- **Bring their partners and their other children for HIV testing and counselling**
- **Develop a plan for a facility-based delivery**
- **Exclusively breastfeed for the first six months**
- **Adhere to the best possible complementary feeding practices**
- **Bring their infants for early infant diagnosis testing on time, according to the policy**

"My baby is healthy and HIV-negative because the HSA has given me all of the necessary information and is there to help me whenever there is a problem. The HSA is now a part of my family."

—Pilirane Harrison,
mother and MIP client,
Ntcheu district

The USAID and PEPFAR-funded IMPACT program, with technical support from D-tree International, developed a pilot mobile application to streamline and individualize the complicated MIP protocol. First, the technical content of the manual was converted to an algorithm to clarify which MIP services mothers should access and at what intervals. Key tasks within the algorithm were identified and specific counseling messages were attached to respond to each MIP situation. Software reflecting this pathway was then developed as an application for mobile phone use[2].

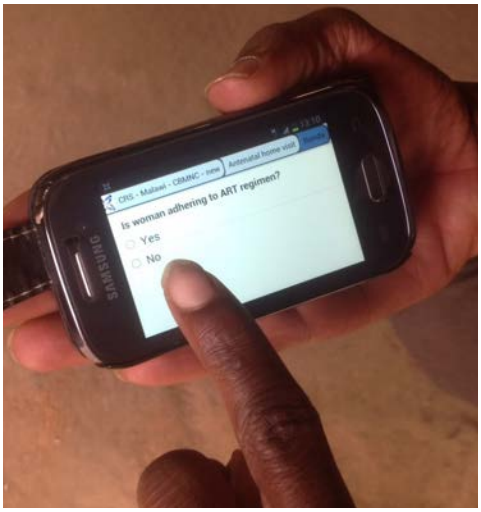

PHOTO BY MARIJE GELDOF/D-TREE INTERNATIONAL

Step-by-step guidance makes the complex MIP protocol easier to follow.

The mobile application, shown in Figure 1 on the following page, gives HSAs step-by-step guidance as they provide follow-up to individual mothers and their exposed infants during antenatal, postpartum and postnatal home visits.

Once the application was finalized, IMPACT supported the training of 256 HSAs serving the hardest to reach communities across the IMPACT program's nine districts. The

2 The MIP application was developed on the CommCare platform. It was first implemented on Nokia feature phones and subsequently migrated to Android phones for greater flexibility.

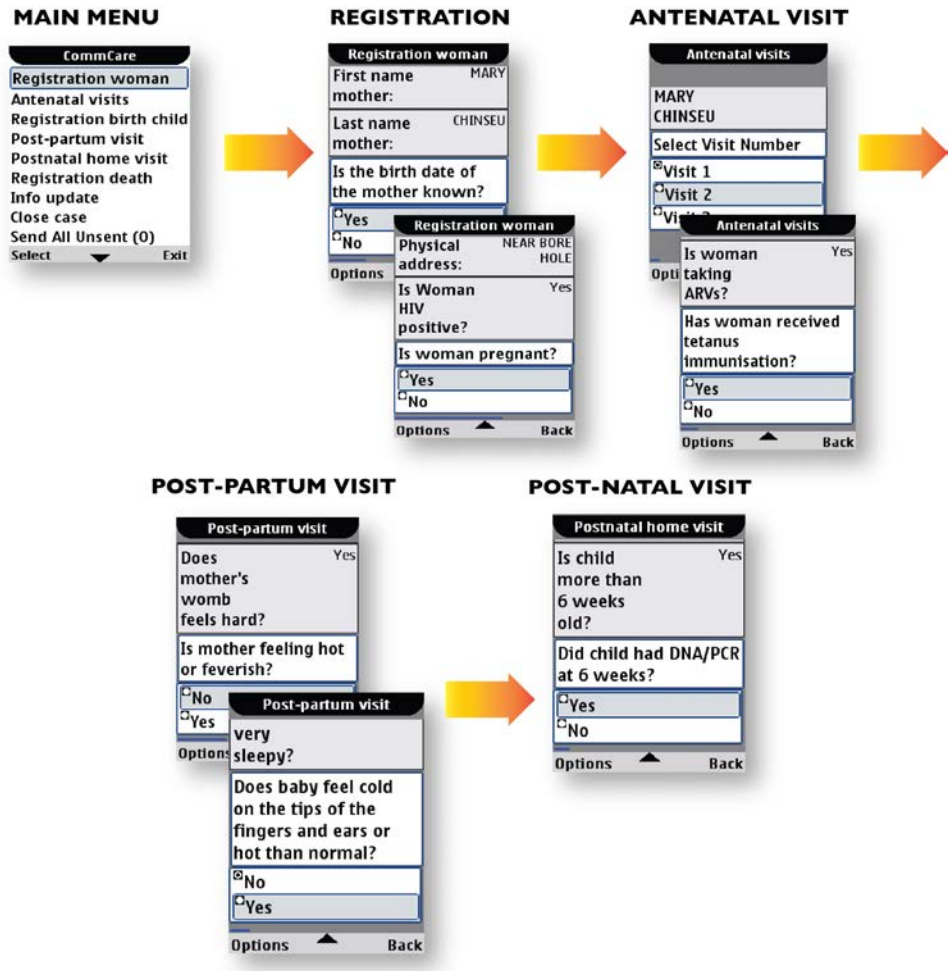

Figure 1: Simple guidance allows the HSA to track and guide each MIP on an individual basis.

"Our health has tremendously improved. I now have a living child because of the HSA's efforts. My life has changed because of her advice."

—Patricia Ziliro, who lost three children in the last three years but currently has a healthy HIV-negative baby, Malili Health Center, Lilongwe district

phones were already in place because the HSAs had been introduced to mobile applications through the IMPACT/D-tree International supported Community Case Management application. Loading the MIP application was a relatively simple process. Training started in mid-2013 with the introduction to the MoH's MIP manual. Clinical instruction was provided to ensure that HSAs were comfortable with the theoretical components of MIP services. D-tree International and CRS Malawi then provided a two-day, hands-on training to ensure HSAs could easily find their way around the application and troubleshoot the most common problems. HSAs were requested to upload the client files held on their phones every month to a central server at D-tree, where performance could be monitored and results aggregated for manual distribution to District Health Officers (DHOs).

To avoid the appearance of providing exclusive, possibly stigmatizing services only to HIV-positive mothers, HIV-negative women were included in the pilot of the application. These women received the more general (non-HIV-related) guidance that was relevant to them. As of July 2014, 2,012 women were registered through the mobile application. Of these, the 956 HIV-positive mothers were visited regularly by HSAs. During these visits, they progressed through the steps of the MIP protocol. Anecdotal results from mothers and HSAs indicate high levels of acceptability.

As the novelty wears off, challenges emerge

Although HSAs were optimistic about their ability to use the app, the following challenges were noted:

- **Usage patterns and impact of the application are still not well understood.** Failure of HSAs to consistently upload MIP data to the central

server has been a significant constraint to understanding usage patterns and collecting impact data. Contribution of data was highest immediately after training and gradually waned over time. This was sometimes attributed to lack of airtime, although less than $0.50 per month is required to enable uploading. It is not clear whether non-contributing HSAs are continuing to use the app to guide their interactions with mothers and are declining to upload data, or are simply not using it at all.

- **Some HIV-positive women refused home follow-up**. Women reported being afraid that their spouse or neighbors would find out their HIV status.
- **Maintaining and securing the phones was somewhat problematic.** There were remarkably few reports of phones being lost or stolen, but investigation of these incidents and organizing replacement phones were not straightforward. Broken solar chargers and users deleting mobile applications were the most common maintenance issues.

Tips for implementation

- **Involve the DHO from the start.** Acknowledging the heavy workload and broad mandate of HSAs, DHOs need to stress with HSAs the importance of MIP follow-up and encourage the use of the app as a job aid. DHOs are in the best position to ensure active usage, promote regular submission of data and manage the maintenance of equipment.
- **Scale up from pilot to district-wide coverage as early as possible**. Engaging the DHO in active monitoring and maintenance is most likely when the app can provide district-level data on MIP coverage and reflect success in reducing vertical transmission. Piloting with only a few HSAs or focusing only in hard-to-reach areas does not provide the incentive of demonstrable results.
- **In the absence of MoH standards on mHealth, work with other mobile app implementers to harmonize phone selection and maintain flexibility.** Avoid creating situations that require HSAs to carry multiple phones, each for a single application. Procure durable phones with internal memory and processing capacity that exceed the immediate requirements to allow for incorporation of upcoming applications.
- **Provide solar chargers.** These are clearly needed, especially in hard-to-reach areas.
- **Provide intensive monitoring during implementation.** HSAs who delay using the mobile application are likely to forget the information provided during the training. Frequent supportive supervision visits help to identify and resolve problems quickly.

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This publication made possible by the generous support of the American people through USAID.

Integrated (HIV Effect) Mitigation and Positive Action for Community Transformation (IMPACT) is a four-year USAID-supported Global Development Alliance program that aims to improve the quality of life for orphans and vulnerable children (OVC) and people living with HIV (PLHIV). As lead agency of the IMPACT Program, Catholic Relief Services Malawi brings together twelve consortium partners to expand service access and relevance in partnership with the Government of Malawi.