



MALAWI: DISTRICT HEALTH SYSTEM STRENGTHENING AND QUALITY IMPROVEMENT FOR SERVICE DELIVERY



TIMELY TESTING IMPROVES EARLY INFANT DIAGNOSIS OF HIV INFECTION

TECHNICAL BRIEF
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Photo by Henry Nyaka

Background

Since adopting Option B+ in 2011, Malawi has made significant progress in identifying and treating pregnant women living with HIV, thereby reducing vertical transmission.¹ During the same time period, follow-up, diagnosis, and care of babies born to HIV-infected mothers also improved. Nevertheless, as in many other parts of Africa, Malawi continues to face challenges in ensuring that HIV-exposed infants (HEIs) are tested early and that infected babies start life-saving treatment immediately.^{2,3}

Many HEIs are not registered at an HIV clinic, even when born at the health facility that hosts the clinic. Among registered HEIs, delays in collecting blood samples for DNA/PCR testing are common, and the turn-around time (TAT) of test results is often prolonged because of weak logistics and poor communications systems. Furthermore, as recently as in 2014, the loss to follow-up of HEIs and HIV-infected infants was as high as 26%, and antiretroviral therapy (ART) coverage of HIV-infected infants remained low at 18%.⁴

Recognizing this gap, the Government of Malawi included in its national strategic plan for HIV (2015-2020) an accelerated focus on early identification and treatment initiation of HIV-infected infants as critical to achieving the national goal of eliminating HIV by 2020.^{5,6} To improve early infant diagnosis (EID) and early infant treatment (EIT), the plan emphasizes the following steps, which have not been implemented widely in many facilities:

- 1) Finding exposed infants, especially those who have fallen through the prevention of mother-to-child transmission cascade;
- 2) Continuing provider-initiated testing and counseling (PITC) for pregnant women;
- 3) Providing PITC for infants at first points of care;
- 4) Strengthening EID and EIT through infant testing at six weeks (DNA/PCR), 12 months, and 24 months (rapid test), increasing access to HIV testing and counseling, and improving sample transportation and TAT;
- 5) Scaling up the mother-infant pair model;
- 6) Conducting campaigns to improve community awareness, linkage to services, and retention in care through community structures.

THE DISTRICT HEALTH SYSTEM STRENGTHENING AND QUALITY IMPROVEMENT FOR SERVICE DELIVERY (DHSS) PROJECT (2012-2018)

supported the Government of Malawi in implementing the National Strategic Plan for HIV and AIDS in line with the Country Operational Plan and supported implementation of the Health Sector Strategic Plan through the project's work in seven districts of Malawi: Nkhata Bay, Likoma, Blantyre, Chiradzulu, Thyolo, Mwanza, and Neno.

Funded by the President's Emergency Plan for AIDS Relief (PEPFAR) through the US Centers for Disease Control and Prevention (CDC) and implemented by Management Sciences for Health (MSH), DHSS contributed to Malawi's goal to become a healthy and prosperous nation free from HIV and AIDS. The project focused on district strengthening and key populations, using targeted evaluation, and providing technical support to the Ministry of Health. The main objective of DHSS was to improve quality, access, and coverage of priority HIV-related health services at priority sites in the seven districts by: identifying 90% of people living with HIV (PLHIV); initiating and retaining on antiretroviral therapy (ART) 90% of PLHIV identified; and achieving 90% viral suppression for ART patients.

In support of Malawi's strategic plan and objectives, the District Health System Strengthening and Quality Improvement for Service Delivery (DHSS) Project designed and began implementing a series of interventions to strengthen EID and EIT in the seven project-supported districts in April 2016. This brief describes the project's interventions and results around EID and EIT in the seven supported districts.

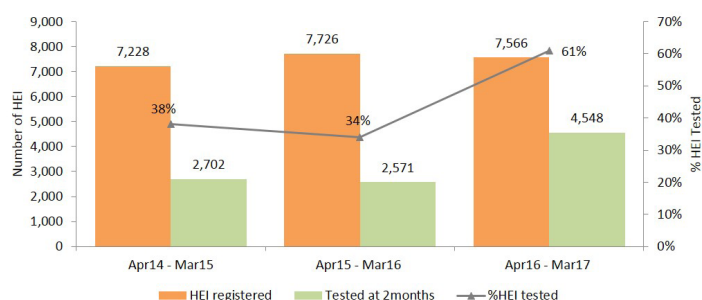
Interventions

To improve EID and EIT, and particularly reduce loss to follow-up of HEIs, the project re-organized the clinic flow and follow-up of HEIs and adopted a mother-infant pair (MIP) approach through the following interventions:

- **Identification of an EID focal person at each facility.** The focal person participates in weekly patient data reviews with health facility providers and managers, tracks progress, identifies gaps, and makes improvement plans. The focal person also follows up on EID-related issues at the facility and participates in monthly and quarterly district review meetings to discuss EID and EIT with EID focal persons from other facilities.
- **Development of standard operating procedures for MIP management.** Introduced at the antenatal care clinic, labor and delivery (L&D), and the ART clinic, the standard operating procedures provide step-by-step instructions for the providers and are displayed in each clinic.

- **Registration of HEIs at birth in the L&D ward.** This is done before discharge from the postnatal recovery room. By introducing an HEI registry system using HEI patient cards in the L&D, the provider who assists with the delivery registers the baby immediately upon birth instead of in the pre-ART register at the ART clinic later in the day or week, as was done previously.
- **Same-day follow-up appointment for mother and baby at the ART clinic given by the nurse at the postnatal recovery room at six weeks after birth.** Noted on the pink card on which the HEI is registered, the mother's next ART appointment is synchronized with the HEI's first appointment at the ART clinic. Subsequent appointments are made for mother and baby simultaneously, thus minimizing the number of times the mother needs to return to the health facility.
- **Marking patient charts for MIPs at the ART clinic with a pink sticker.** This prompts the provider to enquire about the HEI if the mother comes to the appointment without her baby.
- **Collection of dry blood sample (DBS) at first follow-up appointment.** When MIPs return to the ART clinic at six weeks, the HEI no longer receives Nevirapine syrup, is started on Cotrimoxazole, and a DBS sample for DNA/PCR testing is collected while the mother refills her ART supply.
- **Linking MIPs to a mother-to-mother defaulter tracing system.** Each health facility employs "expert clients"—HIV-infected mothers with demonstrated adherence to ART. When MIPs miss an appointment, the expert client reaches out to the mother and works through other peer mothers in the community to trace her and her baby before they become defaulters.
- **On-site orientation, training, and performance improvement of health providers to implement MIP services.** To minimize disruption in services, DHSS did not offer off-site training but instead sent mentors to visit the health facilities once a week. Mentorship visits included reviews of HEI registers, MIP cards, MIP patient charts, DBS/PCR logbooks, and ART registers with the providers; identification of gaps and challenges; joint problem-solving; didactic sessions on how to optimize the use of the health system, and organize services and patient flow within the facility; and timely ordering and management of DBS tests, antiretrovirals, and other commodities and supplies. Mentors also delivered standard operating procedures and Ministry of Health tools and guidelines and oriented providers on them.
- **Giving health talks to pregnant women and mothers.** The project engaged expert clients to give information to HIV-infected mothers about HEI services and empower them to obtain the services. Before meeting the clinician, expert clients give talks to a group of mothers at the waiting area on topics related to HEI care. They are informed on the need to give Nevirapine

Figure 1: HEI testing at two months across DHSS-supported facilities



syrup to the infant after birth and about the follow-up plan; testing at six weeks, 12 months, and 24 months; Cotrimoxazole preventive therapy; nutrition; and the importance of keeping appointments.

- **Strengthening of sample transportation system.** The project partnered with Riders for Health to ensure samples were collected on set schedules from the facilities and results returned the next sample collection day for each facility. In case of missing results, the riders were informed and given a list of results that were still pending.

The interventions were introduced in April 2016 and rolled out at the 95 health facilities supported by DHSS over a two-year period. To assess the effect of these interventions on timely testing of HEIs, the project compared data on the number of HEIs registered and DBS tested at six weeks, before and after the interventions. DHSS also analysed TAT. All data were obtained from the national AIDS program database. Percentages were calculated in MS-Excel software.

Results

A total of 7,228 HEIs were registered at the 95 project-supported health facilities between April 2014 and March 2015. During this period, 38% (2,702 of 7,228) of registered

Figure 3a: HEI test results, two months

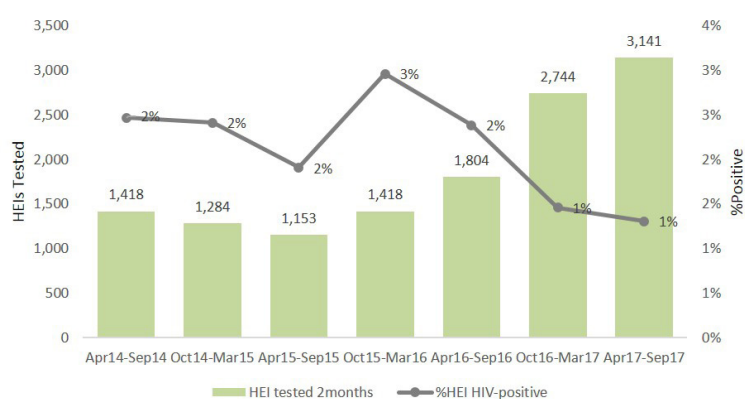
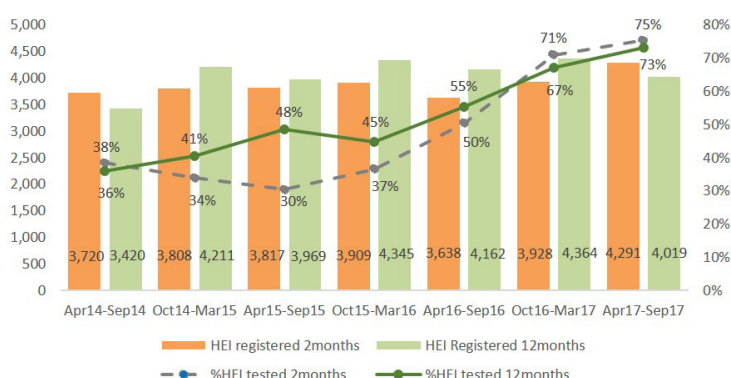


Figure 2: Virological testing of HEIs



HEIs had a virological test within two months of birth (Figure 1). During the following 12 months, from April 2015 to March 2016, 34% (2,571) of the 7,726 HEIs were virologically tested by two months of age. The number of HEIs registered between April 2016 and March 2017 was similar, as in previous years, totalling 7,566. The number of HEIs who were virologically tested within the first two months of birth was much higher, at 61%.

Figure 2 shows the evolution in percentage of HEIs tested by 2 months and by 12 months. Quarter-by-quarter performance showed that HEI testing by 2 months improved from 38% in April 2014 to 75% by September 2017; during the same period, HEI testing by 12 months improved from 36% to 73% (Figures 3a and 3b).

While these results cannot causally be attributed to the interventions, they suggest that the interventions helped prioritize EID and contributed to increasing early diagnosis of HIV in HEIs in the project-supported health facilities. Figures 3a and 3b show that the HIV positivity rates declined over time for both infants tested at 2 months and those tested at 12 months.

The average TAT of virological tests improved from 53 days in 2015 to 23 days in 2017 (Figure 4), ensuring availability of results and interventions by two months.

Figure 3b: HEI test results, 12 months

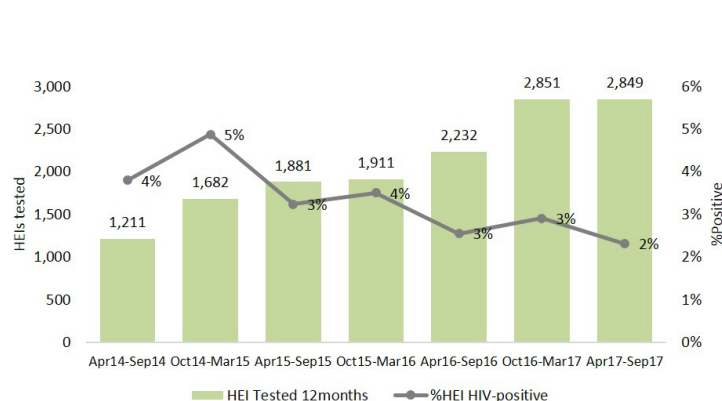
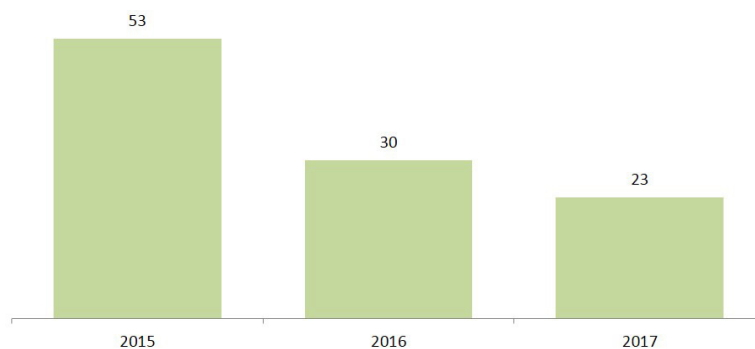


Figure 4: Average TAT of virological HEI test, in days



Lessons Learned

- Simple, low-cost interventions in the organization of HEI registration and follow-up services can greatly improve EID at health facilities in Malawi, both in terms of numbers tested and TAT.
- A MIP approach maximizes retention of HEIs in the health system and minimizes the time that HIV-infected mothers spend at health facilities.
- Identifying an EID focal person helps to prioritize HEI service improvements as a key focus area for achieving the first 90.
- Use of EID data for targeted mentorship and facility quality improvement is essential for improving early diagnosis of HIV in HEIs.

Conclusions

Timely testing remains key to attaining the EID goal of identifying HIV-infected infants before they develop clinical disease. Early testing facilitates prompt treatment and follow-up with ongoing support to reduce the risk of HIV infection. Registration of HEIs at birth and the MIP approach, combined with the other interventions, have demonstrated an increase in EID uptake from 30% to 61%. However, the results also mean that almost 40% of HEIs born to mothers at health facilities are not tested within the recommended period of six to eight weeks after birth and are at much increased risk of dying.

Therefore, more needs to be done to achieve epidemic control in Malawi by 2020. To continue to improve timely EID at health facilities, the package of simple, low-cost interventions provided by DHSS should be scaled up and further enhanced. A key intervention that needs to be strengthened and scaled up is to empower mothers and caregivers with information, knowledge, and skills to obtain HEI services. EID adherence counseling is an essential component and should be offered from the antenatal through postnatal periods until the child's final HIV status is confirmed at two years of age. Another key intervention will be to increase point-of-care EID services, especially at high-patient-load facilities.

These critical interventions will build on gains achieved under DHSS and accelerate continued progress in the early identification and treatment of HIV-infected infants in Malawi.

This summary brief was prepared by Irene Magongwa, Felicia Mairiga, Jacob Pidini, Licy Khongonyowa, Aziz Abdallah, Sarah Birse, and Elke Konings.

References

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