Integrating HIV testing with EPI: a second chance to protect infants

HIV testing of exposed infants by 6–8 weeks of age is critical for preventing early morbidity and mortality among those who are HIV positive. When HIV-positive infants remain undiagnosed, they lose the opportunity to access antiretroviral therapy (ART) immediately. Zimbabwe's paediatric HIV treatment guidelines recommend testing HIV-exposed infants at or before 6 weeks of age, yet practical implementation of these guidelines varies. Many demand and supply gaps in service delivery lead to infants either not receiving the HIV test at all or receiving it well beyond the recommended 6 weeks of age.
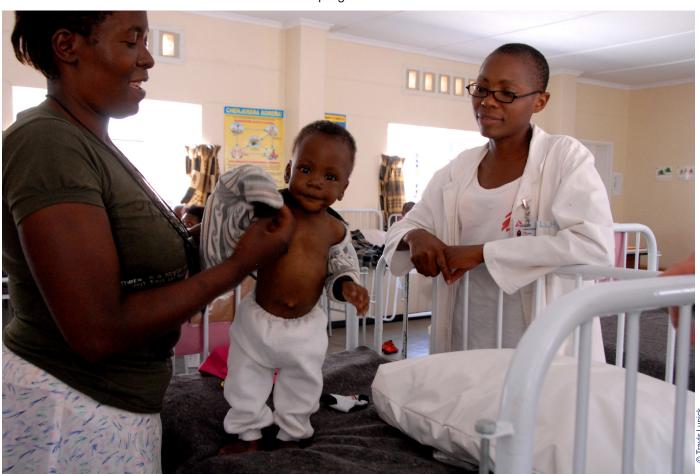
Main findings

- No significant difference was observed between the intervention arm and the control arm in HIV testing by 16 weeks, receipt of results by 20 weeks or treatment initiation by 20 weeks.

- Most caregivers appeared to be satisfied with the care they received. Key issues noted by some caregivers included long wait times and inadequate human resource capacity.

- Healthcare staff reported two main challenges: staffing shortages that made it difficult for nurses to integrate services and delays in the turnaround of HIV test results.

- Despite the challenges of integrating EID and EPI services, healthcare workers were overwhelmingly positive towards the integration, provided staffing would be increased.

- The cost of the programme was high, roughly US$43,000, with few HIV-positive infants identified in either group and no difference between study arms.

- Future interventions would benefit from: (1) incorporating more intensive training to gain buy-in from health facility staff; (2) focusing on facilities with adequate staffing; (3) solving the laboratory challenges that result in delays; and (4) targeting areas with a high prevalence of HIV-positive infants.

Early infant diagnosis programme

Zimbabwe's Expanded Programme on Immunisation (EPI) consistently demonstrates high coverage rates of childhood vaccinations. The Clinton Health Access Initiative (CHAI) designed an intervention, in collaboration with Zimbabwe's Ministry of Health and Child Care, that integrated referral for early infant diagnosis (EID) into health facility-based EPI services. Standard EPI visits at 6 and 10 weeks of age were used as entry points for referral for testing and receipt of results. In addition to implementing an entry point referral system, the intervention included support to the HIV testing service and the paediatric treatment programme.

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Summary of the impact evaluation

The International Initiative for Impact Evaluation (3ie) funded an impact evaluation to assess whether integrating EID into health facility-based EPI services improved coverage of HIV testing among exposed infants and ART initiation among HIV-positive children.

The evaluation looked at whether reaching infants who were already receiving immunisation services at 6 weeks of age would lead to more HIV-exposed infants being identified and tested for HIV. It also assessed whether more children received their HIV results and initiated treatment and whether the health workers reached out when infants returned for 10-week immunisation services.

CHAI undertook a cluster-randomised controlled trial across seven provinces from October 2015 to April 2016. Health facilities were the unit of randomisation, with 14 facilities in the control arm and 15 facilities in the treatment arm. All public health facilities across Zimbabwe that provided ART and EPI services were eligible for the study, provided that they met three criteria: (1) they did not have active, relevant research ongoing at the site; (2) the site was reasonably accessible for study staff to visit; and (3) the site was not within 10 kilometres of

another selected site. There were 1,176 known exposed infants in the control facilities and 1,099 in the intervention facilities.

EPI workers were trained to identify HIV-exposed infants and refer them to the EID stations. At the EID stations, workers were trained to support the turnaround of results, such that they would be ready by the next EPI visit. CHAI and the Ministry of Health and Child Care also worked with health facility staff to consider service station layouts between EPI and HIV testing services. They also helped troubleshoot patient issues, workflow issues and system-level challenges.

The treatment and control groups were similar. In the pre-intervention period, the proportion of known HIV-exposed infants tested for HIV by 16 weeks of age was only slightly higher in the control facilities (95%) than in the intervention facilities (92%), which was marginally significant. Although not significant, a higher proportion of infants received an HIV test by 20 weeks in the control arm, but there was a faster turnaround time to receive HIV test results in the intervention arm.

Turnaround times between testing and receiving HIV results were quite long, approximately 60 days in both intervention and control facilities. The proportion of HIV-positive infants who initiated ART by 20 weeks of age was below 50 per cent in both arms.

Overall, the randomised evaluation of the integration of EPI and EID services in Zimbabwe facilities did not show a statistically significant effect on the early diagnosis of HIV, nor any discernible impact on early initiation on ART. The lack of effect could be attributed to implementation challenges, such as laboratory delays, limited human resources to keep up with service demands, high staff turnover or infrastructure limitations that affected the study. Additionally, the data were incomplete, due to challenges with record-keeping at health facilities, which created limitations for the study. Identifying the total population of infants exposed to HIV was a particular challenge,

given the many entry points to the healthcare system (e.g. antenatal care, EPI, post-partum care, child health services and HIV testing services).

The cost of implementing the intervention was roughly US$43,000. This figure excludes US$19,000 spent on personnel costs and US$17,500 spent on administrative costs. With a relatively low HIV prevalence in the population, and given that additional HIV-positive infants were not identified in the intervention arm compared with the control arm, the cost per HIV-identified infant and per HIV-positive infant treated was relatively high, even if the study underestimated the impact of the intervention.

Implications for programming and practice

Until multiple challenges with integration and laboratory systems are addressed, integration, as implemented in the evaluated intervention, is not scalable in Zimbabwe. Although the study did not observe an impact from EID and EPI integration, the results do not imply that EID and EPI integration is not helpful in any setting. A greater impact might be seen in areas with a higher prevalence of HIV in infants or places where traditional EID services are not as successful.

Addressing the limitations and challenges identified in this study should be assessed to determine whether these measures would make an integrated programme more effective. Specifically, future programming would benefit from these changes: incorporate more intensive training; focus on facilities that have adequate staffing; target facilities in areas with a high infant HIV prevalence; and solve the laboratory challenges that result in delays. In addition, provision of point-of-care HIV testing for EID

could remove many challenges associated with EID laboratory testing and transporting of samples.

Integrating HIV testing and immunisation services could still be an effective way to improve health outcomes among HIV-exposed infants and increase the number of mothers who know their HIV status. Targeting higher-prevalence areas and addressing challenges in Zimbabwe's conventional laboratory testing system improve the impact of an EID–EPI integration on paediatric HIV testing and ART initiation.

At first, we were afraid that this would increase our workload, as time went on we found that it was actually lessening our burden, as all the under-fives were seen … and offered … services in one room.
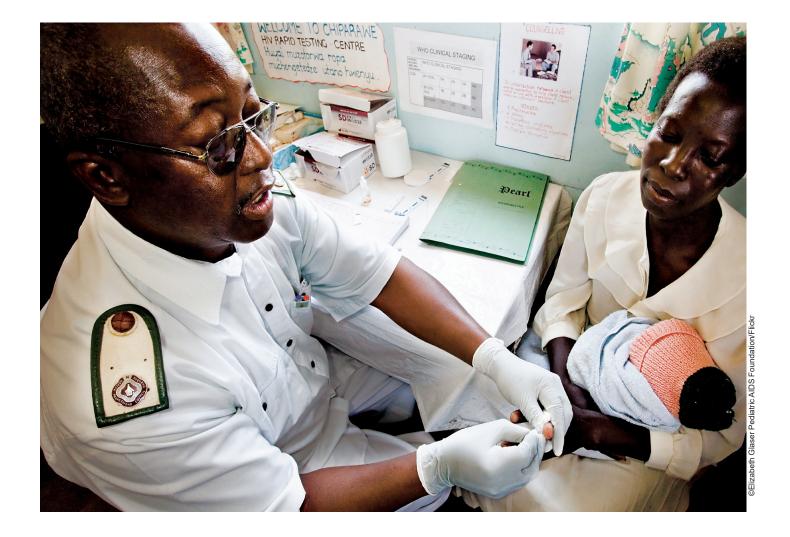
EPI healthcare worker

About this impact evaluation

3ie funded this impact evaluation as part of its integration of HIV services with other health services evidence programme. In this initiative, we funded the implementation and rigorous evaluation of five pilot programmes in Sub-Saharan Africa to increase the evidence base on whether integrating HIV services with other health services can improve treatment outcomes. In addition to this one, other evaluations targeted Option B+ in the prevention of mother-to-child transmission of HIV, community health worker programmes, and a chronic care model. Three studies were implemented in Tanzania, one in Zimbabwe and one in Côte d'Ivoire. In addition to EID, the types of HIV services being integrated included appointments, home delivery of antiretrovirals, action birth cards and help with tracing patients who miss appointments, and general treatment services.

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