

## Birth HIV testing and paediatric treatment programmes

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In *The Lancet HIV*, Karl-Günter Technau and colleagues<sup>1</sup> report on 12-month outcomes of 88 HIV-infected neonates. The infants were identified through birth HIV testing at a well resourced, academic, public maternity hospital in South Africa, an upper-middle-income country with an HIV prevalence of about 32%. Their infant birth HIV testing approach included testing high-risk HIV-exposed infants in era 1 (September, 2013 to May, 2014), testing all HIV-exposed infants in era 2 (June, 2014 to September, 2014), and testing all HIV-exposed infants with added point-of-care (POC) diagnostic PCR testing in era 3 (October, 2014 to June, 2016). The main outcomes were time to antiretroviral therapy (ART) initiation, mortality, retention in care, and viral suppression. Although data are from a single academic site, they provide insight into the effect of early infant HIV testing and ART initiation, which might be generalisable to similar settings. The findings are both encouraging and sobering, raising additional questions on how to optimise WHO's survive, thrive, and transform agenda for HIV-exposed children.<sup>2</sup>

Encouragingly, this study shows that ART coverage among HIV-infected children aged 0–14 years in upper-middle-income countries with a high HIV prevalence like South Africa, can increase from 55% (2017 UNAIDS estimate)<sup>3</sup> to almost 98% for infants diagnosed at birth. No data were available for ART coverage among infants who were infected with HIV during or after delivery. In routine academic settings, identifying HIV-exposed children at birth is facilitated by documentation on easily accessible maternity and infant clinical records. Thus, the onus lies on health-care personnel to act on identification. Beyond delivery, however, the sad reality is that health-care personnel have difficulty identifying HIV-exposed children. Patient-held clinical records such as the Road to Health card do not contain dedicated space to document infant HIV exposure or, where provided, health-care personnel do not complete the page or mothers remove it because of continued stigma. Additionally, health services do not have the systems for cohort monitoring to link mother–baby pairs during follow-up.<sup>4–6</sup> Several solutions have been proposed, including community health worker tracing of all at-risk mother–baby pairs, HIV testing of all children younger than 5 years presenting for any health care or hospitalisation, and adding a unique identifier to the infant Road to Health card to assist with tracing of results.<sup>4,7</sup>

Technau and colleagues<sup>1</sup> report that 71% of the infants who were alive and in care had a viral load less than 400 copies per mL at 12 months. This prevalence of viral suppression is similar to findings from other operational sites within South Africa<sup>8,9</sup>, and is higher than the 58% viral suppression documented among adolescents.<sup>10</sup> 36% of the infants were lost to follow-up at 12 months (or 22% of those who had initiated ART on-site and were not known to have died), which was a stark improvement on the 20% loss to follow-up at 6 weeks postpartum measured in a previous study at the same site.<sup>11</sup>

However, the sobering reality is that even in this well resourced academic setting, children slipped through the diagnostic nets: at least five (6%) of the 88 HIV-positive children did not return for confirmatory testing and at least three (3%) infants still had an uncertain diagnosis. To achieve absolute control of paediatric HIV, all HIV-exposed children must be tested, and ART initiation and viral suppression must be achieved for all who are positive.

In this study, 30 infants were not retained in care: five of these initiated care at other clinics; three were transferred to another site after start of ART; nine died from prematurity-related or respiratory tract infections or sepsis; and 13 were lost to follow-up (not known to have died and not transferred). These findings emphasise the need to strengthen routine child health care, referral systems, and linkages between different health services across community, primary, secondary, and tertiary levels of care, and use unique identifiers to facilitate these transfers. The pivotal role that community health workers and family members can play needs to be recognised: evidence already exists that community health workers increase HIV case-finding, retention in care, medication pick-up, and adherence, and their crucial role must be integrated into the health system.<sup>12</sup>

The fact that only 51% of infants received POC testing reminds us that institutionalising POC testing will require training and support or supervision for routine staff, and possibly additional task shifting. POC testing tended to be associated with lower 12-month mortality and better viral load suppression, although these findings were not statistically significant. The effects of POC testing and concomitant very early initiation of paediatric ART on paediatric HIV cure, including viral reservoirs, ongoing inflammation, and morbidity such as chronic lung disease, neurodevelopmental disorders, and poor school performance need to be studied. Such studies will provide an opportunity to search for solutions that optimise the survival, thriving, and transformation of HIV-exposed (uninfected and infected) children so they achieve their full potential. Additionally, integrating community health workers into the health system and strengthening systems to track HIV-exposed infants as they move between different levels of care within the health system could contribute towards achieving these goals.

I declare no competing interests.

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