

## How can we end paediatric AIDS?

In 2013, concerns about access to paediatric antiretroviral therapy (ART) prompted the programme-coordinating board of UNAIDS to request a gap analysis and time-bound targets for getting all children living with HIV on treatment—only 24% of children eligible for ART are on treatment compared with 38% of adults.<sup>1</sup>

After a year of intense discussion, the board took a significant step in December, 2014, by endorsing strategic actions to take forward new targets for children: 90% of HIV-positive children's statuses are known, 90% of children diagnosed HIV-positive are on ART, and 90% of children on treatment are virally suppressed by 2020.<sup>2,3</sup> The discussion must now turn to how these targets are operationalised and what changes are needed to meet the needs of HIV-exposed and HIV-infected children.

Over the past year, several new initiatives designed to increase the number of children on ART were introduced.<sup>4-6</sup> However, reaching the 90-90-90 paediatric treatment targets will also require a new way of thinking—treatment scale-up strategies that have worked for adults have not worked for children. At this crucial juncture, to shift the trajectory of paediatric HIV radically, the worldwide community must reconsider the way services are delivered and work in a coordinated manner to chart the way forward.

Identification and testing of HIV-exposed infants and children are the first challenges. Only 42% of HIV-exposed children are diagnosed.<sup>1</sup> In most countries, infants are only tested for HIV at 6 weeks,<sup>1</sup> despite evidence that mortality of HIV-positive infants peaks at 4-6 weeks<sup>7</sup> and that infection through breastfeeding is on the rise.<sup>8</sup> Because blood samples need to be sent to central laboratories to be analysed, results are received 4-6 weeks after tests are taken,<sup>9,10</sup> and 50% of these results are lost.<sup>10</sup> The recent introduction into the market of point-of-care technology for early infant diagnosis is a game changer for infant HIV testing.

Another problem relates to children who have never entered the prevention of mother-to-child transmission of HIV (PMTCT) cascade or have been lost to follow-up. In most countries, paediatric HIV testing is not routinely offered in non-HIV paediatric services, such as immunisation, nutrition, and tuberculosis clinics, and in-patient services.<sup>11</sup> Also child-centred national policies and legal frameworks to allow children to be tested are lacking.

To achieve 90% diagnosis of HIV-positive children, infants and children must be identified within and beyond the PMTCT cascade. The HIV testing algorithm must be expanded from birth to the end of breastfeeding to allow early identification of HIV and late infection. Point-of-care early-infant diagnosis technologies must be introduced that allow infants to be tested where they are born and provide results within 1 h. National policies should support provider-initiated testing and counselling and lower the age of consent. Programmes should intensify case-finding of HIV-exposed children in paediatric and general health facilities, and family-centered programmes must be implemented whereby HIV-positive adults and HIV-exposed and infected children are managed comprehensively.

Early initiation of ART in infants reduces child mortality by up to 76%.<sup>12</sup> Without ART, 15% of HIV-infected infants die by 6 weeks, 50% by age 2 years, and 80% by 5 years.<sup>7</sup> However, many issues prohibit initiation of treatment for children, including lack of training for health workers, suboptimum drug formulations, use of non-WHO recommended regimens,<sup>13</sup> and stigma and discrimination, among many others.

To achieve the 90% treatment target, training of several health worker cadres to initiate infants and children on ART is needed along with promotion of decentralised service delivery models, task shifting, and paediatric HIV treatment in the context of the family-centred approach. Research and development of optimum antiretrovirals to treat infants and children must be supported and rapidly introduced. Efforts to fast-track priority paediatric antiretroviral review by international and national regulatory authorities should also be advanced with potential use of patent pooling and public-health-oriented licensing to increase access to paediatric antiretrovirals. The paediatric drug market must also be protected through coordinated purchasing and pooled procurement.

Several factors lead to very low rates of retention of children in care, including late start of ART, regimens that are not potent enough, advanced disease, distance from facilities, and high user fees.<sup>14</sup> Monitoring of viral load is also a big challenge. Viral load testing is available to only 25% of people on ART,<sup>15</sup> and what proportion

of those are infants and children is unknown. New developments such as the recently negotiated price of less than US\$10 for a viral load test and the introduction of point-of-care viral-load technology will help combat barriers to access.<sup>10,15</sup>

To achieve 90% viral suppression, new systems to track infants and children on ART and to prevent loss to follow-up should be created or current systems strengthened. Point-of-care viral-load technologies must be introduced and laboratory routine viral-load testing must be optimised. More potent protease inhibitor based regimens should be used in young children and adapted formulations must be available. Prohibitive user fees and other system issues must be removed along with improvements in decentralised care and community-based services. Community support networks should be used to facilitate adherence and retention. And finally, the social and structural barriers to adherence and retention need to be addressed.

Adequately addressing paediatric HIV is complex. But if appropriately treated, monitored, and supported, HIV-positive children will not only survive, but thrive. The way paediatric HIV services are delivered must change. With sustained and increased political and financial commitment, forward thinking policies and programmes, innovations to improve diagnostic and treatment programmes, and coordination within the global community, paediatric AIDS can and will come to an end.

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