

UNICEF Learning Collaborative
Summary of Selected Research Articles
April to June 2019

Topic I: Prevention of mother-to-child transmission of HIV (PMTCT)

[Drake, Alison, et al., 'Retest and treat: a review of national HIV retesting guidelines to inform elimination of mother-to-child HIV transmission \(EMTCT\) efforts', *Journal of the International AIDS Society*, vol. 22 \(4\), 8 April 2019.](#)

- This study reviewed national guidelines on maternal HIV retesting in 49 countries across WHO geographic regions. This included 4 high prevalence (≥ 15 per cent), 7 intermediate prevalence (>5 to <15 per cent), 16 low prevalence (1 per cent to 5 per cent) and 22 very low prevalence (<1 per cent) countries. Previous research signalled the importance of retesting pregnant and post-partum women as part of PMTCT programming due to high maternal HIV incidence; however, many countries lack clarity on how this is implemented. The review classified guidelines published between 2007 and 2017 based on the timing and frequency of the retesting that is recommended, according to HIV prevalence and MTCT rates in the country.
- Most national policies identified were from Africa (25 of 49 countries), and 51 per cent were from 2015 or later. Guidelines generally included a universal opt-out of HIV testing at the first antenatal care (ANC) visit (31 of 49). Retesting was included in the guidance from 38 countries, with 22 recommending retesting all women with unknown or negative status at the first ANC visit, 5 recommending testing only if women's HIV status was unknown, 3 recommending testing only if women had specific risk factors (i.e., in a serodiscordant partnership) and 8 recommending a combination of these approaches. Retesting was universally recommended during pregnancy, delivery and post-partum in the guidance from all four high-prevalence countries and four of the seven intermediate-prevalence countries reviewed. Notably, five countries with low HIV prevalence but intermediate or high rates of MTCT and on the UNAIDS list of priority countries for EMTCT had no guidance on retesting.
- The relationship between HIV prevalence and retesting guidance was clear in this review; as country prevalence increased, more frequent testing through each stage of the pregnancy and post-partum period was recommended. To note, retesting guidelines were largely absent in low-prevalence countries with high rates of MTCT.
- Since maternal retesting remains a key component for EMTCT, the researchers recommend that countries with high and intermediate MTCT rates despite low or very low HIV prevalence must be supported in optimizing maternal HIV testing and prioritizing efforts for retesting.

[Le Roux, Stanzi M., et al., 'Growth trajectories of breastfed HIV-exposed uninfected and HIV-unexposed children under conditions of universal maternal antiretroviral therapy: a prospective study', *The Lancet Child & Adolescent Health*, vol. 3 \(4\), 1 April 2019.](#)

- This prospective cohort study in South Africa compared growth in two groups of breastfed children to understand the effects of universal maternal ART during breastfeeding. The first group comprised breastfed HIV-exposed uninfected (HEU) children whose mothers were on ART during pregnancy, and the second group comprised breastfed HIV-uninfected unexposed (HUU) children.
- Between 2013 and 2016, around 880 breastfeeding mother-child pairs were recruited for follow-up from pregnancy until approximately 12 months post-partum. The study included 461

HEU and 411 HUU infants and collected weight-for-age, length-for-age, weight-for-length, head circumference-for-age and body mass index-for-age Z scores at six weeks and every three months.

- Birth characteristics were similar across both groups of infants. The median duration of breastfeeding was shorter among the HEU group (3.9 months) compared to the HUU group (9 months). Although weight-for-age scores gradually increased in both groups, HEU children had consistently lower growth scores than HUU children throughout the follow-up period. By 12 months, HEU children had significantly lower mean length-for-age scores than HUU children and were twice as likely to be stunted. The authors did not address any association between breastfeeding and stunting.
- At the same time, early onset overweight, measured by weight-for-length scores, was common in both groups of children by 12 months (16 per cent of HEU children and 18 per cent of HUU children). The authors highlighted these results to suggest that childhood obesity is increasingly becoming a priority issue for South African children regardless of ART exposure and the long-term metabolic effects of ART exposure in the context of childhood obesity warrants further research.

[Boivin, Michael J., et al., 'Neurodevelopmental effects of ante-partum and post-partum antiretroviral exposure in HIV-exposed and uninfected children versus HIV-unexposed and uninfected children in Uganda and Malawi: a prospective cohort study', *The Lancet HIV*, Epub ahead of print, 20 May 2019.](#)

- In this prospective cohort study within a randomized controlled trial, the authors compared neurodevelopmental outcomes in HEU children whose mothers were on ART and the same outcomes in HUU children.
- The cohort included 861 mother-infant pairs from Malawi and Uganda. The primary neurodevelopmental outcomes included a composite score using the Mullen Scales of Early Learning to assess visual reception, gross motor skills, fine motor skills, receptive language and expressive language, as well as a mental processing index score from the Kaufman Assessment Battery for Children (second edition). These outcomes were compared between infants in the HEU group and those in the HUU group at age 12, 24, 48 and 60 months.
- There were no differences in outcomes by exposure status at age 12 and 24 months. At 48 months, outcomes were worse among children whose mothers did not remain on ART throughout pregnancy and post-partum compared to those whose mothers remained on treatment. Results were similar among HEU children whose mothers remained on ART and HUU children.
- The study provides reassuring results on the use of ART during pregnancy and the post-partum period for PMTCT without adverse neurodevelopmental outcomes for children under five years old. A [commentary](#) by Peter Kazembe notes that there is opportunity for further research to understand why the prolonged exposure to ART does not seem to have neurodevelopmental effects at least in the first five years of life and to track long-term cognitive outcomes in children whose mothers were on ART.

[Carbone, Nicole, et al., "I would love if there was a young woman to encourage us, to ease our anxiety which we would have if we were alone": Adapting the mothers2mothers mentor mother model for adolescent mothers living with HIV in Malawi", *PloS One*, vol. 14 \(6\): e0217693, 7 June 2019.](#)

- This qualitative implementation study gathered perspectives from young mothers (aged 15–19 years) on their PMTCT service delivery needs and experiences with the aim of developing more adolescent-sensitive programming.

- Sixteen focus group discussions were conducted with 72 participants in four districts of Malawi. Half of the groups included participants of mothers2mothers programming.
- Most participants cited poverty and economic disempowerment as major barriers to care. Food insecurity, lack of transport, stigma and the absence of psychosocial support were also mentioned as barriers to PMTCT engagement. Participants described that despite the stigma of taking medications and other barriers to remaining in care, a personal motivation to stay healthy and keep their infants HIV-free was the main facilitator for remaining in care. Other facilitators that emerged in focus group discussions were self-motivation, determination and resilience along with external factors such as peer support. Participants said that support programming like mothers2mothers helped them feel more empowered to access PMTCT services.
- This study adds to the repository of evidence on the importance of peer-led PMTCT support services with socioeconomic interventions that address adolescent-specific needs by providing direct perspectives from adolescent beneficiaries. The authors note that additional global attention is needed within adolescent research and programming for targeted PMTCT services.

Topic II: HIV Testing Strategies

[Bianchi, Flavia, et al., 'Evaluation of a routine point-of-care intervention for early infant diagnosis of HIV', *The Lancet HIV*, 12 April 2019.](#)

- This observational study by the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) compared service delivery and clinical outcomes before and after the implementation of point-of-care (POC) technologies for early infant diagnosis (EID) in eight countries: Cameroon, Côte d'Ivoire, Eswatini, Kenya, Lesotho, Mozambique, Rwanda and Zimbabwe.
- Five primary outcomes were measured: the proportion of EID results reaching caregivers within 30 days of sample collection; the median turnaround time between sample collection and return of results to caregivers; the proportion of infants with HIV initiated on ART within 60 days of sample collection; the median turnaround times between sample collection and ART initiation in infants with HIV; and the median age at ART initiation among infants with HIV who were tested at 6 to 8 weeks. The cost per test result returned within 30 days was estimated.
- Over 2,800 infants were tested with conventional EID tests and over 18,000 infants were tested with POC EID tests between December 2016 and December 2017. Across all countries, POC testing was highly effective: the time to diagnosis and to initiating ART were reduced from 55 days and 49 days, respectively, to 1–2 days for both on average. POC EID significantly increased the proportion of infants with HIV who were initiated on ART within 60 days of sample collection compared with conventional EID (92.3 per cent under POC versus 43.3 per cent under conventional testing) at a lower cost per test (US\$27.24 vs. US\$ 131.02).
- The researchers noted that this improved performance was despite substantial activities in strengthening laboratories and conventional EID by EGPAF, Ministries of Health and other partners before and during the study period. Clinics participating in the study were located in both rural and urban settings and experienced a range of patient volumes.
- A [commentary](#) discussing the implications of these results as well as an earlier cost effectiveness modelling paper by EGPAF and partners underlined the benefits of POC EID and the critical need to sustain support for this innovation.

[Davey, Dvora, et al., 'HIV positivity and referral to treatment following index testing of partners and children of HIV-infected patients in public sector facilities in South Africa', *Journal of Acquired Immune Deficiency Syndromes*, Epub ahead of print, 4 April 2019.](#)

- This study evaluated the impact of an index partner/child HIV testing strategy on case finding and referrals to ART in South Africa. The researchers trained more than 80 nurses and counsellors in over 50 public health facilities in six high-burden districts on index case finding and testing and collected programmatic data on yield and referrals by age, gender and geographical location.
- The researchers found that index testing provided a high yield and that the integration of tracing and testing partners and children is feasible in public health facilities given training and job aids. Providers who received training tested 16,033 partners and children of index patients. About 60 per cent of those tested were female and about 40 per cent of those tested were positive. Highest positivity rates were found in females aged 30–34 years, followed by those aged 25–29 years. Almost all participants who received a positive diagnosis were referred to ART (97 per cent).
- The study adds further evidence that index testing is an important strategy to find partners and children who may otherwise be missed. The most successful approach in this setting was the index patient inviting his or her partner or child to return for testing, compared to approaches that depend on provider-initiated outreach, which suggests a need for more counselling-focused job aids.

Topic III: Paediatric Treatment

[Blanche, Stéphane, et al., 'Growth in HIV-1-exposed but uninfected infants treated with lopinavir–ritonavir versus lamivudine: a secondary analysis of the ANRS 12174 trial', *The Lancet HIV*, vol. 6 \(5\), May 2019.](#)

- Blanche and colleagues conducted a secondary analysis of data from a large multinational randomized controlled trial on the prophylactic efficacy of twice daily lopinavir–ritonavir versus lamivudine during breastfeeding. The analysis compared the growth of HEU infants who were randomly assigned to initiate treatment with either lopinavir–ritonavir or lamivudine 7 days after birth and continuing until 1 week after cessation of breastfeeding or at 50 weeks.
- The sample included 1,273 HEU and their mothers enrolled between 2009 and 2013. Overall, less weight gain was seen among infants on a regimen of lopinavir–ritonavir; at 26 weeks and 50 weeks of age, HEU children who were given lopinavir–ritonavir had lower scores for weight-for-age and weight-for-length than HEU children who were given lamivudine. There were no differences in length-for-age scores between the two groups at either points in time.
- The researchers note that the mechanisms associated with differential growth is unknown. Given that infants with HIV are now more likely to initiate lopinavir–ritonavir regimens, these results may signal a need to reconsider the recommendations for treating infants with HIV and fully understand potential deleterious effects of each regimen. Additional research is needed to ensure optimal ART regimens for paediatric treatment that are effective for viral load suppression while having the least negative effects on the growth and development of infants.

[Van de Wijer, Lisa, et al., 'Neuropsychiatric symptoms in Tanzanian HIV-infected children receiving long-term efavirenz treatment: a multicentre, cross-sectional, observational study', *The Lancet HIV*, vol. 6 \(4\), April 2019.](#)

- This cross-sectional study compared competence, psychopathology, cognitive performance and adherence in children on an efavirenz-based ART regimen with children on a non-efavirenz-based regimen in one district in the United Republic of Tanzania. Competence was assessed using indicators on social involvement, participation in activities and school performance while psychopathology was assessed using indicators on internalizing and externalizing problems. Cognitive performance was assessed with scores on intelligence and working memory.
- The analysis included 141 children (aged 6–12 years), of whom 51 per cent used efavirenz-based ART and 49 per cent used a non-efavirenz regimen. Groups were balanced for age, sex and nutritional status parameters. At baseline, children on efavirenz had a higher rate of HIV status disclosure than children on other regimens and a higher prevalence of parental loss. The difference in the prevalence of parental loss was not statistically significant.
- In the study, children on efavirenz treatment reported greater anxiety or depression and more difficulty concentrating in school than children on other ART regimens. They also had poorer school performance despite both groups of children having similar cognitive ability scores. To note, the differences in these neuropsychiatric indicators were less apparent in children receiving efavirenz doses that were lower than the WHO-recommended dosage.
- The researchers point out that while efavirenz remains a useful and important drug for children, more attention should be given to the impact on attention span, anxiety, school performance, sleep disturbances and other symptoms. A [commentary](#) discussing these results noted the importance of developing simple tools to support children on efavirenz and setting quality-of-life targets that include the well-being of all school children.

[Finnegan, Amy, et al., 'The prevalence and process of paediatric HIV disclosure: a population-based prospective cohort study in Zimbabwe', *PloS One*, vol. 14 \(5\): e0215659. 22 May 2019.](#)

- This study aimed to estimate the prevalence of paediatric HIV disclosure in rural Zimbabwe and track the process of disclosure over time through a combined cross-sectional and prospective cohort design.
- The researchers recruited a sample of 372 caregivers of children (aged 9–15 years) living with HIV in two rural districts. The children were either receiving ART or enrolled in pre-ART. The overall prevalence of disclosure in this sample was almost 67 per cent; older children were more likely to know their HIV status than younger children, and 46 per cent of children who received disclosure were given the information by their caregivers. Only 27 per cent of children received 'full disclosure', defined as knowing how they were infected and that they can transmit the virus to others. According to the initial interviews, disclosure was seen as a process that unfolded over time, which was supported by the survey demonstrating an accumulation of HIV knowledge with increasing age. Most children who already knew details about their condition were older.
- From this sample, a prospective cohort of 123 caregivers whose children did not know their HIV status were identified and followed for 12 months. During this period, nearly 60 per cent of the children in this cohort learned their HIV status; however, only 17 per cent received full disclosure. Reasons cited for non-disclosure by caregivers included concerns about stigma in the community and the child's reaction, including potential anger towards the caregiver.
- The researchers suggest that while the rates of paediatric HIV disclosure may be increasing as children get older, the scope of disclosure continues to vary and most children do not know many details about HIV, including how they were infected and how they can transmit the virus.

[Malati, Christine, et al., 'Pursuing use of optimal formulations for paediatric HIV epidemic control – a look at the use of LPV/r oral pellets and oral granules', *Journal of the International AIDS Society*, vol. 22 \(4\), 15 April 2019.](#)

- In 2017, only 52 per cent of children under 15 years of age living with HIV were estimated to be on ART. This discussion highlights barriers to uptake of new paediatric HIV formulations, particularly lopinavir/ritonavir in the form of oral pellets and oral granules, in low- and middle-income countries.
- The authors state that the slow uptake in countries with high paediatric HIV burdens is mostly due to three barriers: limited manufacturing capacity, current unit cost of the pellets and granules and delayed acceptance and uptake of these new formulations by policy makers and health care workers.
- In light of these challenges, the authors recommend appropriate forecasting to ensure there is an adequate supply of oral pellets and oral granules to ensure consistent access to treatment and to limit the use of potentially more expensive second- and third-line regimens. They point to the many considerations that drive the costs of pellets and granules, including shipping and supply chain costs, and recommend including these factors along with the unit costs in planning. Finally, they note the need to streamline the introduction of new paediatric ART regimens and formulations with full consideration of all programmatic and clinical factors across regimens and formulations.

Topic IV: HIV Prevention and Treatment in Adolescent Girls and Young Women (AGYW)

[Petroni, Suzanne, et al., 'Understanding the Relationships Between HIV and Child Marriage: conclusions from an expert consultation', *Journal of Adolescent Health*, vol. 64 \(6\), June 2019.](#)

- In November 2018, UNICEF and Girls Not Brides convened experts from academia, civil society and bilateral and multilateral institutions for a technical consultation on the relationship between HIV and child marriage. This paper synthesizes the discussion and presents the conclusions of the consultation.
- The discussants, drawing on literature reviews by the World Health Organization and Girls Not Brides, noted that earlier research had been interpreted to claim that girls who married under the age of 18 faced a higher risk of acquiring HIV than girls and women who married later. However, the evidence now suggests a need for a more nuanced understanding of the factors that make some child brides more vulnerable to HIV; the relationship between child marriage and HIV is complex and shares many of the same structural drivers but is not necessarily causal.
- The participants at the consultation made five recommendations for the global community: (1) drive more subnational research and programme evaluations at the local level to understand the context of gender norms and inequalities in each setting; (2) invest in integrated, multi-component, multi-sectoral programmes that address structural factors affecting AGYW's risks of early marriage and HIV acquisition; (3) ensure programmes work not only with AGYW themselves but also with the diverse range of individuals, communities and systems that influence their vulnerabilities; (4) understand that there are different drivers of vulnerability and different needs by age that make AGYW a diverse group to design policies and programmes for; and (5) leverage existing data sets to focus on questions about adolescent girls and the drivers of HIV and child marriage, and to make AGYW a priority for more qualitative research and policy innovation.

[Nguyen, Nadia, et al., 'Sexual Partner Types and Incident HIV Infection among Rural South African Adolescent Girls and Young Women Enrolled in HPTN 068: a latent class analysis', *Journal of Acquired Immune Deficiency Syndromes*, Epub ahead of print, 1 May 2019.](#)

- This secondary analysis of a randomized controlled trial of AGYW (aged 13–23 years) on the effect of cash transfers on HIV prevention in South Africa aimed to understand the characteristics of sexual partners associated with higher risks of incident HIV infection.
- In the primary study, AGYW reported behavioural and demographic characteristics of their three most recent sexual partners. Using latent class analysis across over 2,000 AGYW visits, the researchers identified five partner types: (1) monogamous HIV-negative peer partner based on reports that the partner is similar in age, does not have an HIV infection and does not have other partners; (2) one-time protected in-school peer partner based on reports that the partner is similar in age, is enrolled in school, had protected sex and had sex only once; (3) out-of-school older partner based on reports that the partner is more than 5 years older and not enrolled in school; (4) anonymous out-of-school peer partner based on reports that the partner is of similar age and not enrolled in school, and such details as HIV status and number of concurrent relationships are unknown; and (5) cohabiting with children in-school peer partner based on reports that the partner is of similar age, is enrolled in school, lives with the reporting AGYW and has children.
- Among the five groups, AGYW with out-of-school older partners had the highest risk of acquiring HIV; this was 2.56 times the annual risk of HIV infection compared to AGYW with only monogamous peer partners. AGYW with anonymous out-of-school peer partners had the second highest risk, 1.72 times that of AGYW with monogamous peer partners.
- This study adds to the evidence base of factors influencing the risk of HIV acquisition among AGYW. The researchers note that it provides further credence to data-based descriptive approaches like the latent class analysis that identifies nuanced clusters rather than other commonly used partner labels that mask variation.

[Wang, Y., et al., 'Leveraging Geospatial Approaches to Characterize the HIV Prevention and Treatment Needs of Out-of-School Adolescent Girls and Young Women in Ethiopia', *AIDS and Behavior*, 27 May 2019.](#)

- This study assessed the potential to use venue-based mapping and time-location sampling to identify and recruit a diverse sample of AGYW at increased risk of acquiring HIV.
- The researchers used community-informed venue mapping and time-location sampling to recruit AGYW from three sub-cities of Addis Ababa from February to June 2018. The individuals reported on socio-demographic and behavioural characteristics. Measures of vulnerability were assessed geographically and described by venue type.
- A total of 2,468 unique venues were identified, of which 802 (32 per cent) were systematically selected for validation and 371 (46 per cent) were eligible. Many sites would traditionally not be included as venues in need of HIV prevention services. Overall, 800 AGYW were enrolled across 81 sampled venues. AGYW reached were largely out-of-school (75 per cent) with high proportions of AGYW reporting transactional sex (12.6 per cent), food insecurity (20.7 per cent) and migration (70.6 per cent).
- The results show that expanding to venue types beyond the traditionally identified hotspots (such as guest houses, hotels and bars) can help reach and represent additional vulnerable AGYW across a range of characteristics. Geospatial mapping can be used to refine HIV prevention programming to include a more diverse sample of AGYW. Notably, out-of-school

AGYW and migrants who are especially vulnerable to HIV were more likely to be reached with the expansion of venues that were sampled.

[Kilburn, Kelly, et al., 'Cash Transfers, Young Women's Economic Well-Being, and HIV Risk: Evidence from HPTN 068', *AIDS and Behavior*, vol. 23 \(5\): 1178–1194, May 2019.](#)

- The researchers conducted a secondary analysis of longitudinal data from a randomized controlled trial of a cash transfer programme for HIV prevention; the objective was to assess the impact of the cash transfer on the economic well-being of young women and the role of economic well-being on sexual risk behaviours. The primary trial provided monthly conditional cash transfers to AGYW attending high school and their parents in rural South Africa.
- AGYW and their parents participating in the intervention arm of the primary trial received monthly transfers if the AGYW attended at least 80 per cent of school days in the previous month, while participants in the control arm received no transfers.
- The conditional cash transfers increased savings, monetary expenditures, debt repayments and food security among AGYW. These increases were driven by improvements among AGYW from the poorest families at baseline. They had the highest psychosocial well-being benefits associated with the economic gains, especially in terms of sexual relationship power, depression and hope displayed.
- The researchers also hypothesized that the design of this cash transfer programme was particularly beneficial – the AGYW and the household received monthly cash payments separately. In other studies where the payments were made directly to the AGYW alone, recipients from poorer households may have felt obligated to contribute the cash to the household; separating the transfers allowed the intervention to have a greater impact on the individual.

[Wamoyi, Joyce, et al., 'Improving the Measurement of Transactional Sex in Sub-Saharan Africa: a critical review', *Journal of Acquired Immune Deficiency Syndromes*, vol. 80 \(4\): 367-374, 1 April 2019.](#)

- Stemming from the efforts of the [STRIVE](#) working group on transactional sex and HIV, this paper reviews how transactional sex has been defined and measured in sub-Saharan Africa and provides recommendations in the context of addressing a critical driver of HIV risk among AGYW in the region. The work included a systematic review of the literature, key informant interviews with researchers and cognitive interviews with sexually active AGYW (aged 14–24 years) and men (aged 18–35 years) in Uganda and the United Republic of Tanzania.
- The researchers found the current measures to be inconsistent and misleading. For example, they noted that a common question in large-scale surveys – 'Have you ever exchanged sex for gifts or money?' – can conflate transactional sex with sex work. Additionally, current measurement questions often overlook the gendered nature of the practice and may under-report male participation.
- The researchers tested and revised two measurement approaches: a 'relationship module' that asked about relationships with up to three sexual partners in the past 12 months with additional questions on partner characteristics and sexual behaviour with each partner; and a 'stand-alone' question, designed for short surveys that only included few questions on sexual behaviour. The researchers noted the importance of phrasing based on context and cultural norms to ensure the question accurately reflects the outcome of interest.

Topic V: Adherence and Retention in Care

[Vreeman, Rachel, et al., 'Validation of a self-report adherence measurement tool among a multinational cohort of children living with HIV in Kenya, South Africa and Thailand', *Journal of the International AIDS Society*, vol. 22 \(5\): e25304, 31 May 2019.](#)

- This study aimed to validate a short adherence questionnaire by prospectively describing adherence to ART and evaluating self-reported adherence using the questionnaire tool among children in Kenya, South Africa and Thailand.
- Between 2015 and 2016, 319 children (aged 0–16 years) were enrolled and followed up for six months of adherence monitoring. At the third and sixth month of the study, children or their caregivers were administered a 10-item adherence questionnaire. External adherence measurements used standard viral load monitoring and the Medication Event Monitoring Systems® (MEMS®), an electronic dose monitoring system that recorded the time and date of bottle opening.
- Overall, adherence remained suboptimal; only about half of children averaged adherence rates above the recommended threshold of 90 per cent of doses taken and more than a third of children experienced at least one treatment interruption of greater than 48 hours every three months. Prevalence of viral suppression (<1,000 copies/mL) was 97 per cent in Thailand, 81 per cent in South Africa and 69 per cent in Kenya.
- Across all sites, child-reported adherence using the questionnaire was significantly associated with all external adherence measurements while caregiver-reported adherence did not show significant associations. The researchers hypothesized that caregivers may feel more pressure to report higher adherence to providers or simply not know whether the child took the medicine. The questions of the questionnaire with the greatest predictive power were those related to missed doses.
- This study provided early evidence on the validity of a short-form questionnaire to be used as a screening tool to identify children requiring additional adherence support. The researchers suggest that simpler self-reported measurement tools must be validated and encouraged for use in paediatric settings, given the many implementation challenges involved in electronic dose monitoring and other strategies of measuring adherence, such as pill counts and pharmacy refills.

[Humphrey, John, et al., 'Viral suppression among children and their caregivers living with HIV in western Kenya', *Journal of the International AIDS Society*, vol. 22 \(4\): e25272, 15 April 2019.](#)

- This retrospective cohort study used electronic medical records from children (aged 0–15 years) living with HIV and their caregivers also living with HIV to understand the associations between child and caregiver viral suppression and the factors that influence non-suppression in children.
- Around 1,700 caregiver-children pairs were enrolled in the study; 94 per cent of the caregivers were mothers. Among caregivers, 23 per cent were not virally suppressed (defined as $\geq 1,000$ copies/mL), and among children, 38 per cent were not virally suppressed.
- In the analysis, children whose caregivers were not virally suppressed were found to be less likely to be virally suppressed than children whose caregivers had achieved viral suppression. Several characteristics were significantly associated with non-suppression among children, including younger child age at ART initiation, children on combined HIV and tuberculosis treatment, and ART regimen changes among caregivers.

- The findings suggest that a family-centred medication management approach might help promote adherence and viral suppression among children. The researchers also recommend a closer monitoring of children's viral load if the caregiver is not virally suppressed.

Topic VI: Global Governance and Financing for HIV

[Kempton, Joe, et al., 'Most new HIV infections, vertical transmissions and AIDS-related deaths occur in lower-prevalence countries.' *Journal of Virus Eradication*, vol. 5 \(2\), 1 April 2019.](#)

- This analysis of UNAIDS data aimed to answer whether there is a difference in ART provision in countries with lower HIV prevalence and higher HIV prevalence and whether that difference is reflected in HIV incidence and outcomes, in terms of the number of AIDS-related deaths and the number of new HIV infections. Rates of early infant diagnosis and MTCT were also examined.
- The study included data from 56 countries with an epidemic size above 40,000 cases in total using 2017 UNAIDS estimates. All 12 of the higher prevalence (≥ 4.5 per cent) countries were in sub-Saharan Africa.
- Most new HIV infections, MTCT and AIDS-related deaths occurred in countries with an HIV prevalence rate below 4.5 per cent. There were 4.1 new infections per 100 people living with HIV in higher prevalence countries and 5.8 new infections per 100 people living with HIV in lower prevalence countries. ART coverage for adults, pregnant women and children (aged 0–14 years) was lower in countries with a lower prevalence of HIV. The rate of MTCT was higher in lower prevalence countries, at 17 per cent on average compared to 8 per cent in the higher prevalence countries. Finally, early infant diagnosis coverage on average was only 30 per cent in lower prevalence countries compared to 71 per cent in the higher prevalence countries.
- The researchers noted that most lower prevalence countries are not targeted by programmes that deliver or increase access to ART access programmes despite the higher rates of HIV transmission, higher numbers of AIDS-related deaths and poorer outcomes highlighted above compared to higher prevalence settings. Many strategies currently used in higher prevalence countries could be successfully translated to the lower prevalence countries as well.

[Haakenstad, Annie, et al., 'Potential for additional government spending on HIV/AIDS in 137 low-income and middle-income countries: an economic modelling study', *The Lancet HIV*, vol. 6 \(6\), June 2019.](#)

- This analysis aimed to understand the potential for additional government spending on HIV and AIDS in the context of decreasing development assistance, in order to inform future resource needs. The researchers tracked spending on HIV/AIDS by domestic sources (government, prepaid private and out-of-pocket) and by spending category (prevention, and care and treatment) from 2000 to 2016 in 137 low- and middle-income countries (LMICs).
- Between 2000 and 2016, the total spending on HIV/AIDS in LMICs increased from US\$4.0 billion to US\$19.9 billion. The share of resources sourced from development assistance also increased from 33 per cent to 46 per cent during the same time period.
- The modelling exercise estimated that with the 2016 data, an additional US\$12.1 billion could be mobilized within LMICs for HIV/AIDS, conditional on the fixed government budget and total government health budget used in the model. This amount was mostly concentrated in 10 middle-income countries: Argentina, China, Colombia, India, Indonesia, Mexico, Nigeria, the Russian Federation, South Africa and Viet Nam. It also estimated that around 85 LMICs could generate enough funds to maintain total current spending on HIV care and treatment if development assistance funding is lost, and 54 could self-finance their entire current HIV/AIDS

response, including prevention. To note, nearly all of these 54 are middle-income countries with lower burdens of disease.

- The researchers noted that the analysis is meant to add to an understanding of the maximum potential resources available in countries for HIV/AIDS and begin a conversation on appropriate levels of future government spending. A large gap continues to exist between the resource needs to end AIDS by 2030 and the available financing, and sustained contributions from both international development partners and country governments are required.

[Cluver, Lucie, et al., 'Improving lives by accelerating progress towards the UN Sustainable Development Goals for adolescents living with HIV: a prospective cohort study', *The Lancet. Child & Adolescent Health*, vol. 3 \(4\): 245-254, April 2019.](#)

- Development accelerators are defined as interventions, provisions, services or specific programmatic areas that can lead to progress across multiple sustainable development goals (SDGs) and domains of development (social, economic and environmental). This study aimed to assess whether the United Nations approach of focusing on development accelerators and synergies between accelerators on achieving SDG-aligned targets is effective in a highly vulnerable group of adolescents in South Africa.
- Following consultation rounds with global partners, the researchers hypothesized six development accelerators: government cash transfers to households, safe schools (i.e., without teacher violence or student violence), free schooling, parenting support, free school meals and support groups. Through an 18-month follow-up period and using longitudinal clinic data, 11 targets aligned with various SDG goals were measured: ART adherence in the past week, good mental health, no substance abuse, retention in HIV care, active school enrolment, school progression, no sexual abuse, no high-risk sex, no violence perpetration, no community violence and no emotional or physical abuse. The sample included over 1,000 adolescents (aged 10–19 years) living with HIV in the Eastern Cape province of South Africa.
- Of the six development accelerators tested, three were found to improve targets related to multiple SDGs in this sample: (1) parenting support was associated with good mental health, no high-risk sex, no violence perpetration, no community violence and no emotional/physical abuse; (2) government cash transfers were associated with HIV care retention, school progression and no emotional/physical abuse; and (3) safe schools were associated with good mental health, school progression, no violence perpetration, no community violence and no emotional/physical abuse.
- For 5 of the 11 targets, a combination of two or more accelerators showed cumulative positive associations. For example, access to both parenting support and government cash transfers was positively associated with seven targets under four SDGs.
- These findings help validate that the accelerator approach to development, which is useful in policy and financing terms according to previous reports, can improve the lives of adolescents. Combination interventions that touch on multiple SDGs can help meet health targets while meeting other adolescents needs.

The research in this issue was summarized by Carthi Mannikarottu and Rikke Le Kirkegaard, June 2019.