

**UNICEF Learning Collaborative**  
**Summary of Selected Research Articles**  
**October to December 2018**

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

[Pintye, Jillian, et al., 'Integration of PrEP services into routine antenatal and postnatal care: Experiences from an implementation program in Western Kenya', \*Journal of Acquired Immune Deficiency Syndromes\*, Epub Ahead of Print, 12 October 2018.](#)

- PrEP Implementation for Young Women and Adolescents (PrIYA) is a two-year implementation project under the DREAMS Innovation Challenge that delivers pre-exposure prophylaxis (PrEP) in maternal and child health clinics. It currently operates in 16 facilities in Kisumu County, Kenya.
- The project trained 40 nurses on clinical PrEP delivery and one-on-one counselling, who then led integration of PrEP within the antenatal care (ANC) and post-natal care (PNC) clinic flow.
- In this evaluation, two clinic flow approaches were found to have been developed organically based on patient volume, space and staffing in the individual facility: co-delivery (in which ANC/PNC and PrEP services are delivered concurrently by same nurse) and sequential delivery (in which PrEP services are delivered after ANC/PNC services by a PrEP-specialized nurse).
- Both approaches were successful in integrating PrEP delivery within ANC and PNC with a moderate amount of additional time per client. PrEP-specific activities took less than 20 minutes per client. Additionally, the authors hypothesize that as community-level awareness of PrEP increases, the burden on one-on-one counselling to be all-encompassing will decrease; thus, one-on-one counselling is an area of opportunity to reduce the time burden of integrated PrEP delivery in the future.

[Fayorsey, Ruby N., et al., 'Effectiveness of a lay counsellor-led combination intervention for retention of mothers and infants in HIV care: A randomized trial in Kenya', \*Journal of Acquired Immune Deficiency Syndromes\*, Epub Ahead of Print, 5 November 2018.](#)

- The Mother-Infant Retention for Health (MIR4Health) study assessed the effectiveness of a lay counsellor-administered combination intervention in decreasing attrition from ANC and PMTCT services among pregnant women living with HIV who enrolled in PMTCT services.
- The study randomized 340 pregnant women living with HIV who were starting antenatal care in western Kenya. The lay counsellors administered individualized health education, retention and adherence support, appointment reminders and missed-visit tracking to the intervention group. The primary endpoint was attrition of mother-infant pairs at 6 months post-partum.
- Attrition was significantly lower in the group that received the intervention compared to the standard of care (18.8 per cent vs. 28.2 per cent). The authors concluded that intervention administered by lay counsellors is promising in decreasing attrition along the PMTCT cascade and especially useful in low-resource settings with health worker shortages.

[Tippett Barr, Beth A., et al., 'National estimates and risk factors associated with early mother-to-child transmission of HIV after implementation of option B+: A cross-sectional analysis', \*The Lancet HIV\*, Epub Ahead of Print, 19 November 2018.](#)

- This cluster design survey with a nationally representative sample presents early transmission data for HIV-exposed infants aged 4–12 weeks in Malawi. Participants were mothers living with HIV who brought their infants for vaccination or attended a sick-child clinic.
- Weighted rates of early mother-to-child transmission (4–12 weeks post-partum) were calculated at screening in order to capture transmission rates from three possible transmission periods: early pregnancy, pregnancy to delivery, and early breastfeeding. MTCT rates were analysed with demographic characteristics, self-reported use of HIV services, antiretroviral therapy (ART) access and use of antenatal care clinics.
- The MTCT rate was 3.7 per cent overall, ranging from 1.4 per cent among mothers who initiated ART before pregnancy to 19.9 per cent among mothers not on ART. The likelihood of early MTCT was much higher in mothers starting ART post-partum and mothers not on ART than in mothers who began ART in pregnancy. Notably, only half of infants were enrolled in an exposed infant HIV care clinic at the time of screening.
- This analysis suggests that while ART coverage among pregnant women is increasing over time in Malawi and early MTCT rates continue to decrease, there remains suboptimal uptake of services for HIV-exposed infants, which highlights a gap for future interventions.

## **Topic II: Early Infant Diagnosis**

[Tagarro, Alfredo, et al., 'Early and highly suppressive antiretroviral therapy are main factors associated with low viral reservoir in European perinatally HIV-infected children', \*Journal of Acquired Immune Deficiency Syndromes\*, vol. 79 \(2\), 1 October 2018.](#)

- This retrospective observational survey examined optimal timing for early ART initiation and the factors associated with HIV DNA levels in perinatally infected children using data from five European cohorts in three countries.
- Eligible participants started ART in the first 6 months of life. The median age at which children were initiated on ART was 2.3 months old, and the median time to viral suppression was 7.98 months.
- The primary outcome was total HIV-1 DNA copies, which served as a marker for the latent HIV reservoir. The analysis included age at ART initiation, duration of ART, AIDS diagnosis, initial ART regimen, location of the cohort, age at HIV DNA measurement, baseline viral load and immunological data, post-suppression viral load features, time to initial viral suppression and proportion of time virally suppressed, which was used as a marker for effective ART.
- Younger age at initiation of ART was associated with lower HIV DNA; significantly, an increase of just one month in age at ART initiation was associated with a 13 per cent increase in HIV DNA. Similarly, a higher proportion of time spent virally suppressed, the absence of viral failure and a suboptimal response were associated with lower HIV DNA.

- The authors note the importance of early ART initiation and long-term maintenance of stable viral suppression as key factors in limiting the size of viral reservoirs among perinatally infected children.

[Lester, Richard, 'Digital health to support early infant diagnosis of HIV', \*The Lancet HIV\*, Epub Ahead of Print, 8 October 2018.](#)

- This commentary is about the promise of digital health interventions in supporting early infant diagnosis (EID) of HIV. eHealth and mHealth innovations, such as online services and text messaging, can improve how infants are tested and linked to care in resource-limited settings where maternal and child health services need support and EID programmes are challenging. The cascade of care required from testing to follow-up can take up to 18 months in many countries.
- The author, Richard Lester, Associate Professor in Global Health at the University of British Columbia, notes that it is not enough to have these promising digital health innovations limited to study findings and pilot programmes; they need to be integrated into health systems, funded and brought to scale.
- In particular, he argues that digital interventions need a decentralized implementation approach to better support health facilities in rural and hard-to-reach areas; this will improve the maternal and child health services and thereby ensure more infants receive their HIV diagnosis and are connected to care earlier.

[Finocchario-Kessler, Sarah, et al., 'Evaluation of the HIV Infant Tracking System \(HITSsystem\) to optimise quality and efficiency of early infant diagnosis: a cluster-randomised trial in Kenya', \*The Lancet HIV\*, Epub Ahead of Print, 8 October 2018.](#)

- This cluster-randomized trial from Kenya assessed the efficacy of a comprehensive eHealth intervention called the HIV Infant Tracking System (HITSsystem), which links providers of early infant diagnosis (EID), laboratories and mothers through online services and text messaging.
- Six health facilities were randomly allocated to either the HITSsystem or the standard of care. Participants were mothers aged 18 years or older with infants under the age of 24 weeks presenting for their first EID appointments.
- The primary outcome was EID retention, which was defined as receiving all indicated age-specific interventions until 18 months post-partum for infants who were diagnosed HIV-negative and ART initiation for infants diagnosed HIV-positive. Retention was significantly improved at intervention facilities; 85 per cent of infant-mother pairs in intervention facilities were retained compared with 60 per cent in the control group. Notably, greater improvements were seen at hospitals with low and medium patient volumes while no effect was seen in hospitals with high patient volumes.
- The authors highlight the opportunities provided by the HITSsystem intervention to improve uptake and outcomes, particularly in low-resource settings with high patient volumes.

### **Topic III: Adolescent Girls and Young Women (AGYW)**

[Mwinnya, George, et al., 'Brief report: Age-disparate relationships and HIV prevalence among never married women in Rakai, Uganda', \*Journal of Acquired Immune Deficiency Syndromes\*, vol. 79 \(4\), 1 December 2018.](#)

- This secondary analysis of data from the Rakai Community Cohort Study (RCCS) explored changes in the frequency of age-disparate relationships in never-married women over time and their association with HIV prevalence in Rakai District, Uganda.
- Among 10,061 never-married women (aged 15–49 years), 30 per cent had a male partner who was at least 5 years older; the proportion of women with age-disparate partners remained stable from 1997 to 2013.
- The association between age-disparate relationships and HIV prevalence was attenuated after controlling for women's age. Age-disparate relationships were associated with increased HIV prevalence among women aged 15–17 years but not among older women. Among never-married AGYW aged 15–17 years and 18–20 years, secondary education was associated with decreased HIV prevalence.

[Becker, Marissa L., et al., 'Vulnerabilities at first sex and their association with lifetime gender-based violence and HIV prevalence among adolescent girls and young women engaged in sex work, transactional sex, and casual sex in Kenya', \*Journal of Acquired Immune Deficiency Syndromes\*, vol. 79 \(3\), 1 November 2018.](#)

- This cross-sectional bio-behavioural survey in Kenya aimed to estimate the prevalence of HIV-associated vulnerabilities at first sex, and their association with lifetime gender-based violence and HIV among AGYW, aged 14–24 years.
- Based on previous research, the following were examined as potential HIV-associated vulnerabilities: age at first sex under 15, first sex before or within a year of menarche, anal or condomless behaviour at first sex, first sex partner 10 years older, receipt of gifts or money for first sex, first sex arranged by a third party and coercive or forced first sex event.
- Among 1,299 study participants, the median age at first sex was 16 years; for 3 out of 10 participants, age at first sex was below 15 years. Nearly half (43.6 per cent) reported receiving gifts or money and about 40 per cent reported coercion at the time of first sex. The younger age at first sex, receiving gifts or money and coercion were identified as the vulnerabilities most significantly associated with the prevalence of gender-based violence and HIV.
- The authors conclude that experiences at first sex are early markers of HIV risk and signal the need for early interventions. HIV prevention programmes should include structural intervention components, such as sexual health education, violence reduction and economic empowerment, as well as screenings on first sex experiences.

### **Topic IV: Adolescent-Friendly Services**

[Kose, Judith, et al., 'Impact of a comprehensive adolescent-focused case finding intervention on uptake of HIV testing and linkage to care among adolescents in Western Kenya', \*Journal of Acquired Immune Deficiency Syndromes\*, vol. 79 \(3\), 1 November 2018.](#)

- This quasi-experimental study assessed a service delivery package uniquely focused on adolescents at health care facilities to improve HIV testing uptake and linkage to care among adolescents aged 10–19 years in western Kenya.
- The package included capacity building of health workers that included adolescent-friendly trainings, new programme performance monitoring tools, a new HIV risk screening tool focused on adolescents and adolescent-friendly hours at the health care facility. Using pre-intervention and post-intervention data at 139 facilities, the researchers analysed the numbers of adolescents tested for HIV, those testing positive and those linked to care.
- During the pre-intervention period, 25,520 adolescents were tested and 198 tested HIV-positive. In the post-intervention period, 77,644 adolescents were tested and 534 tested HIV-positive. Linkage to care increased from 61.6 per cent of adolescents living with HIV pre-intervention to 94 per cent post-intervention.
- While the analysis did not evaluate the efficacy of the individual components of the intervention package, it showed a promising trajectory for the combination package in increasing testing uptake and linkage to care among adolescents. Notably, researchers found a greater increase in testing uptake and individuals testing positive in outpatient departments than in the inpatient settings during the post-intervention period; thus, the outpatient setting remains crucial for identifying adolescent cases and warrants further attention.

[Apondi, Edith, et al., 'Trends over time for adolescents enrolling in HIV care in Kenya, Tanzania, and Uganda from 2001-2014', \*Journal of Acquired Immune Deficiency Syndromes\*, vol. 79 \(2\), 1 October 2018.](#)

- This retrospective cohort study assessed trends among individuals enrolling in HIV care as younger adolescents (aged 10–14 years) and older adolescents (aged 15–19 years) from 2001–2014 in Kenya, Uganda and the United Republic of Tanzania. In this time period, the target countries saw a broad scale-up of HIV services including expansion of ART coverage and expansion of eligibility.
- The proportion of adolescents among all individuals enrolling in care increased from 2.5 per cent in 2001–2004 to 3.9 per cent in 2013–2014. The increase was particularly significant in older adolescents. Median CD4 counts at enrolment were higher in 2013–2014 than in 2001–2004, suggesting that adolescents are seeking care earlier. However, 12-month attrition also increased over time, both after enrolment but before ART initiation (4.7 per cent vs. 12.0 per cent) and after ART initiation (18.7 per cent vs. 31.2 per cent).
- These findings suggest that the expansion of HIV services and ART coverage has resulted in earlier adolescent enrolment and ART initiation in the three countries studied. However, additional interventions are needed to promote better retention in care, particularly among older adolescents.

[Bermudez, Laura G., et al., 'Does economic strengthening improve viral suppression among adolescents living with HIV? Results from a cluster randomized trial in Uganda', \*AIDS and Behavior\*, vol. 22 \(11\), 1 November 2018.](#)

- The authors used data from the Suubi+ Adherence trial, a longitudinal cluster randomized trial in southern Uganda, to assess the effect of a savings-led economic empowerment intervention on viral suppression among adolescents living with HIV.
- The primary outcome of the analysis was HIV RNA viral load, dichotomized between undetectable (fewer than 40 copies/ml) and detectable (at least 40 copies/ml). The control group received a bolstered standard of care, which included adolescent-specific information sessions on adherence to ART. Adolescents in the intervention group also attended the information sessions and in addition, received an economic package including a Child Savings Account, which was matched at a 1:1 rate by the researchers, and workshops on financial management and life skills.
- At 24 months after the intervention, the proportion of virally suppressed adolescents in the intervention group increased 10-fold relative to the control group. Adolescents in the intervention group also were less likely to have a detectable viral load at both 12 and 24 months of follow-up.
- The authors note that HIV RNA viral loads are associated with progression to AIDS and risk of HIV transmission. These results of the analysis suggest the potential for economic initiatives to support ART adherence and thereby increase viral suppression.

[Rosenberg, Nora E., et al., 'Comparing youth-friendly health services to the standard of care through "Girl Power-Malawi": A quasi-experimental cohort study', \*Journal of Acquired Immune Deficiency Syndromes\*, vol. 79 \(4\), 1 December 2018.](#)

- This prospective cohort study randomly assigned four public health centres in Malawi to one of the following service delivery models: (A) standard of care with HIV testing, family planning and sexually transmitted infection management by providers without extra training; (B) the same services as in model A provided in integrated, youth-dedicated spaces staffed by youth-friendly peers and trained providers; (C) in addition to the clinic interventions in model B, participants were offered a behavioural intervention that included a monthly small-group session, led by a facilitator, on HIV, sexual health, relationships, basic financial literacy and other life skills; (D) in addition to the interventions in models B and C, participants were given a monthly cash transfer conditional on their attendance at the small-group sessions.
- The use of HIV testing, condoms and hormonal contraception were analysed among 1,000 AGYW aged 15–24 years who participated in the study over 12 months. AGYW participants in the three youth-friendly models were 23 per cent more likely to receive HIV testing, 57 per cent more likely to receive access to condoms and 39 per cent more likely to receive hormonal contraception. All three outcomes showed progressive improvement as additional support was provided across the models.
- The significant changes seen in the three youth-friendly models suggest there are opportunities to improve service uptake with facility modifications and training of health care workers with a youth-friendly focus.

*The research in this issue was summarized by Carthi Mannikarottu, Dec. 2018.*