Adolescents at Increased Risk of Mother-to-Child Transmission of HIV in South Africa

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Background

- South Africa has the highest burden of childhood HIV infection globally, and the greatest number of pregnant women requiring ARVs to prevent vertical HIV transmission (280,000 pa).
- High teenage pregnancy rates (30%), especially in rural areas and impoverished communities.
- Adolescent girls have the highest HIV incidence rates (2% pa) – 4 times that of males of the same age cohort.
- Maternal and child health outcomes are poor particularly amongst women who are HIV infected, young or from rural areas.
- Although health of adolescent girls & pregnant women is a global public health priority, scant empirical cohort data exists on MTCT and pregnancy outcomes among HIV-infected Adolescents in Africa.
- Purpose: To compare maternal and infant health outcomes, and vertical HIV transmission between HIV positive adolescents and non–adolescent pregnant women in a high HIV prevalence district in South Africa.
Setting: Three PMTCT sentinel surveillance sites in the Nelson Mandela Bay Metropolitan district of South Africa.

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Methods

Cohort study – Jan 2009–March 2012

Inclusion criteria:
All HIV pregnant women and their infants who attended facilities. Infants followed-up (where possible) until 6 week HIV DNA PCR test.

Data collection
Enhanced routine individual clinical data captured electronically. Adolescents defined as ≤19 years of age at the first antenatal visit.

Validation: Roving Quality Nurse Mentors applying a data-driven approach

Outcomes: ART uptake during pregnancy; maternal mortality; still-birth; infant PCR uptake; vertical HIV transmission at 6 weeks

Analyses: Multivariable log-binomial and Cox regression analysis to compare outcomes between adolescents and women >19 years of age.
Methods

Triple ART initiation Criteria during pregnancy:

Before 2010: CD4 cell count < 200 cells/µL or WHO stage 4.

- ART ineligible—received ZDV at 28wks, single dose NVP during labor.
- Infants received sd NVP at birth and 7 day course of ZDV.


- ART ineligible—ZDV from 14 weeks, sdNVP intra-partum, and sd Tenofovir/emtricitabine after delivery to cover the NVP tail.
- Infants received sd NVP, extended NVP course depended on breastfeeding.
956 mother–infant pairs were included, of whom 65 (6.8%) were adolescents.

**Median ages:**
- Adolescents: 18 years (IQR: 17–19 years; Range: 13–19 years).
- Older women: 28 years (IQR: 25–33 years; Range: 20–44 years)

**Median baseline CD4 cell count:**
- 350 cells/µL (IQR: 233–489).
- Higher but not significantly different (P=0.16)

**Median Gestational Age at Booking:**
- 22 weeks (IQR: 17–27); equivalent between groups (P=0.64)
Baseline Differences

HIV +ve status unknown at booking
Not on triple ART at booking

75.4%
48.3%

100.0%
82.8%

Adolescents
Women > 19 yrs
ART Uptake After First Antenatal Visit

Median time starting ART after first antenatal visit:
- Adolescents: 64 days (IQR: 28–92)
- Women > 19 years: 36 days (IQR: 20–62)

% started ART 60 days after the first antenatal visit:
- Adolescents: 45%
- Women > 19 years: 73%
Outcomes

- Received ART for < 14 weeks prior to delivery: 50.0%
- Unbooked: 33.9%
- Maternal mortality: 4.6%, 1.9%
- Stillbirth: 9.4%, 4.5%
- Proportion with recorded 6 week PCR: 36.9%
- MTCT at 6 weeks: 49.8%
- Adolescents: Red
- Women > 19 yrs: Gray

Stillbirth Proportion with recorded 6 week PCR

Received ART for < 14 weeks prior to delivery
Adjusted Effect Measures
Adolescents compared with Women >19 yrs

- unaware of HIV status at booking: Decrease 1.56
- risk of not being on ART at delivery: Decrease 1.32
- unbooked: Decrease 3.24
- maternal mortality: Decrease 35.1
- stillbirth: Decrease 3.4
- no PCR uptake: Decrease 1.1
- vertical HIV transmission at 6 weeks: Decrease 2.94
Conclusions

- **Adolescents**: Less aware of their HIV status; less likely to be on ART at booking; increased maternal mortality and stillbirth and reduced ART uptake during pregnancy.

- **Children**: Reduced 6 week PCR uptake and a two-fold increased vertical HIV transmission.

  ▸ This data reflects the vulnerability of this group and the consequences on the mother and child, if prevention, treatment, care and support services are not appropriate or accessible.

  ▸ Interventions targeting adolescents are increasingly needed to reduce pregnancy, HIV acquisition, MTCT, improve maternal and infant outcomes if South Africa is to attain its MDG goals.
Way Forward

- Since 2013, SA has adopted a policy that all pregnant women start lifetime Triple ARV therapy from the time of HIV diagnosis.

- For this to be successfully implemented, providing appropriate & accessible adolescent friendly services during the antenatal & postnatal period is critical, if young women and their babies are to benefit from it.

- ISHP has to be more pro-active in increasing access to HCT, FP and barrier methods.
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