Population-level Declines in Vertical HIV Transmission with Changing PMTCT Guidelines

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Background

Despite major shifts in policies for prevention of mother-to-child transmission of HIV (PMTCT) there are few population-level data on the changing epidemiology of perinatal HIV in South Africa (SA).

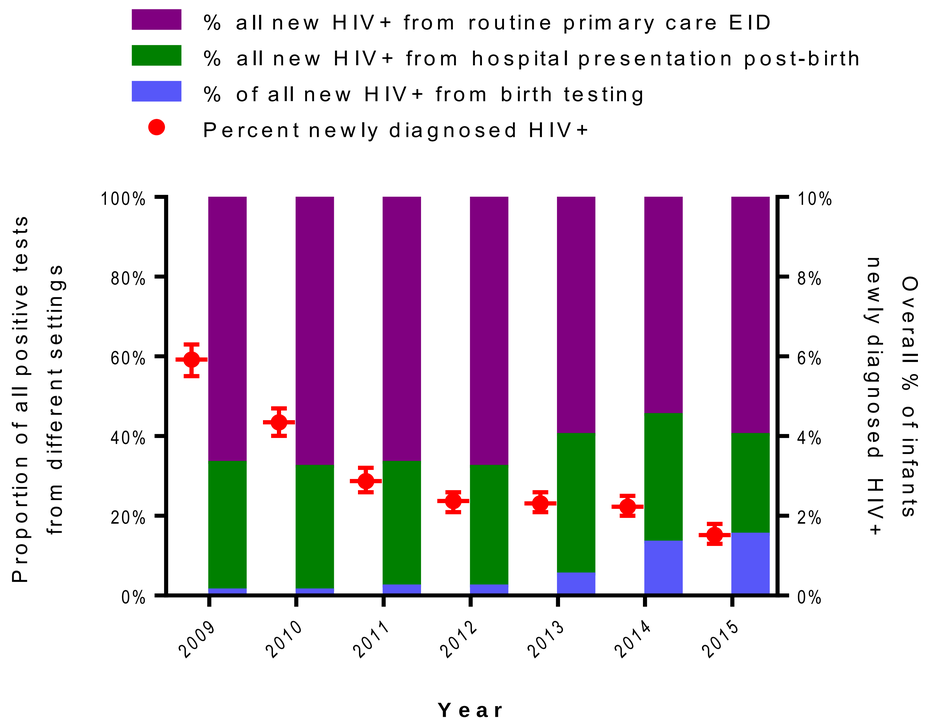
Methods

- Data on all HIV PCR tests conducted by the SA National Health Laboratory Service in children ≤6 months of age in the Western Cape province between January 2009 and August 2015 were examined
- PMTCT policies were as follows:
  - zidovudine monotherapy with antiretroviral therapy (ART) for pregnant women based on CD4+ thresholds of ≤200 cells/µL by June 2010
  - ART initiation for all patients with CD4+ ≤350 cells/µL from July 2010 to June 2013
  - ART for all HIV+ pregnant women (WHO "Option B+") from July 2013.
- Breastfeeding guidance shifted to support exclusive breastfeeding with nevirapine prophylaxis for the first 6 months of life from 2011.
- Analyses examined changes in HIV PCR testing:
  - annually as well as
  - by PMTCT policy period
  - time lags were introduced to allow for delivery and postpartum testing
- Analyses further distinguished positive tests from birth testing (conducted at ≤7 days of age) from routine early infant diagnostic (EID) testing at primary care clinics, from hospital-based testing associated with symptomatic clinical presentations.
- Provincial recommendations to test high risk infants at birth were instituted in 2014

Results

- Overall 99,684 children underwent HIV PCR testing
- Among all children tested at ≤6 months of age, the PCR positivity rate dropped from 5.9% in 2009 to 1.5% in 2015 (Figure)
- The rate of positive tests after implementation of "Option B+" (2.0%) was significantly lower than the period when ART thresholds were based on ≤350 cells/µL (2.5%; p<0.001)
- The mean age at first HIV PCR test decreased from 59.1 days in 2009 to 44.7 days in 2015 (p<0.001); approximately half of this change was explained by increasing numbers of HIV PCR tests conducted at birth during this period, which grew from <1% to 14% of all tests conducted (Figure).
- Among tests conducted beyond 7 days of age, a growing proportion took place as part of routine EID testing over time rather than hospital-based testing (p<0.001).
- Despite increases in birth testing, during 2014-2015 only 13% of all newly diagnosed HIV+ infants were identified through birth testing; the new infections were identified either through routine EID (56%) or hospital-based testing (31%).

Proportion of all positive HIV PCR tests from different clinical settings and decreasing HIV positivity rate in the Western Cape province, South Africa, 2009 – 2015



Conclusions

- There have been major reductions in perinatal HIV infections with changing PMTCT policies in this setting
- A significant reduction in PCR positivity was observed with WHO Option B+ implementation
- Despite the rise of birth testing, the majority of HIV+ infants are still identified through routine EID programmes

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