

b Prevention of HIV mother to child transmission: a South African success story

Prevention of mother to child transmission (PMTCT) includes prevention of transmission of HIV from mother to infant and linkage of HIV-infected infants to appropriate treatment and care. Both require early infant diagnosis (EID) of HIV to monitor mother to child transmission (MTCT) and diagnose HIV infection early in life. Prior to the 2004 national rollout of antiretroviral treatment in the public sector, HIV PCR testing was reserved for a small minority of infants who were enrolled in clinical trials or abandoned in children's homes, and less than 1000 HIV PCR tests were performed per annum in three National Health Laboratory Service (NHLS) laboratories in the country.

HIV PCR testing for 6-week-old infants born to HIV infected mothers was made available in the public sector in 2004. In 2005, the introduction of HIV PCR testing on dried blood spots (DBS), obtained predominantly by heel-prick, increased accessibility to HIV PCR testing by shifting 6-week testing from hospitals to primary health care clinics. This shift required simultaneous development of training materials, training of health care workers, design and procurement of DBS sampling packs, research and development for high throughput processing of DBS in a routine diagnostic laboratory, and set up of a further seven NHLS laboratories capable of performing HIV PCR testing. The massive scale-up of clinical and laboratory capacity over the past decade has enabled a national EID program in which $\pm 400\ 000$ HIV PCR tests are currently processed per annum, amounting to a >80% testing coverage of HIV exposed infants (data not shown).

HIV PCR data extracted from the NHLS Corporate Data Warehouse (CDW) has allowed monitoring of EID by distributing monthly reports at facility, district, provincial and national level.¹ Together with the District Health Information System, this data has been used by the Department of Health to monitor the efficacy of the PMTCT program. Figure 4 demonstrates the increase in HIV PCR testing that occurred between 2004 and 2014 in <2-month-old infants, the number of HIV PCR-positive tests and the decreasing percentage positivity, as calculated from NHLS CDW data. The South African PMTCT Evaluation surveys conducted between 2010 and 2012 to assess the early MTCT at 6 weeks of age, measured very similar rates to those obtained by the NHLS CDW data for all three years. In 2014, data extracted from the NHLS CDW demonstrated that there has been a further decrease in early MTCT with a total of 4 078 HIV PCR-positive results

for infants <2 months of age despite an increase in HIV PCR tests performed within this age group. These results suggest an early MTCT rate of 1.8% and successful achievement of the South African National Strategic Plan target of <2% by 2015.

Whereas early MTCT has dramatically reduced from >20% in 2004 to <2% in 2015, challenges remain. The introduction of birth-testing in the new national consolidated guidelines of June 2015, although proving successful in assisting the earlier detection of in-utero infection, requires new operational and monitoring tools to enhance the timely identification, tracing and linkage into care of infected newborn infants. Furthermore, the high rate of HIV infection in young sexually active women and teenage pregnancies poses a continued challenge for the elimination of mother to child transmission. Indeed, the success of South Africa's PMTCT program is all the more remarkable considering the consistently high maternal HIV seroprevalence, which has remained >29% for the decade following the national rollout of antiretroviral treatment.³ This underscores the need for novel PMTCT strategies to address primary HIV prevention effectively, especially among women of childbearing age, and the prevention of unintended pregnancies among women living with HIV.

References:

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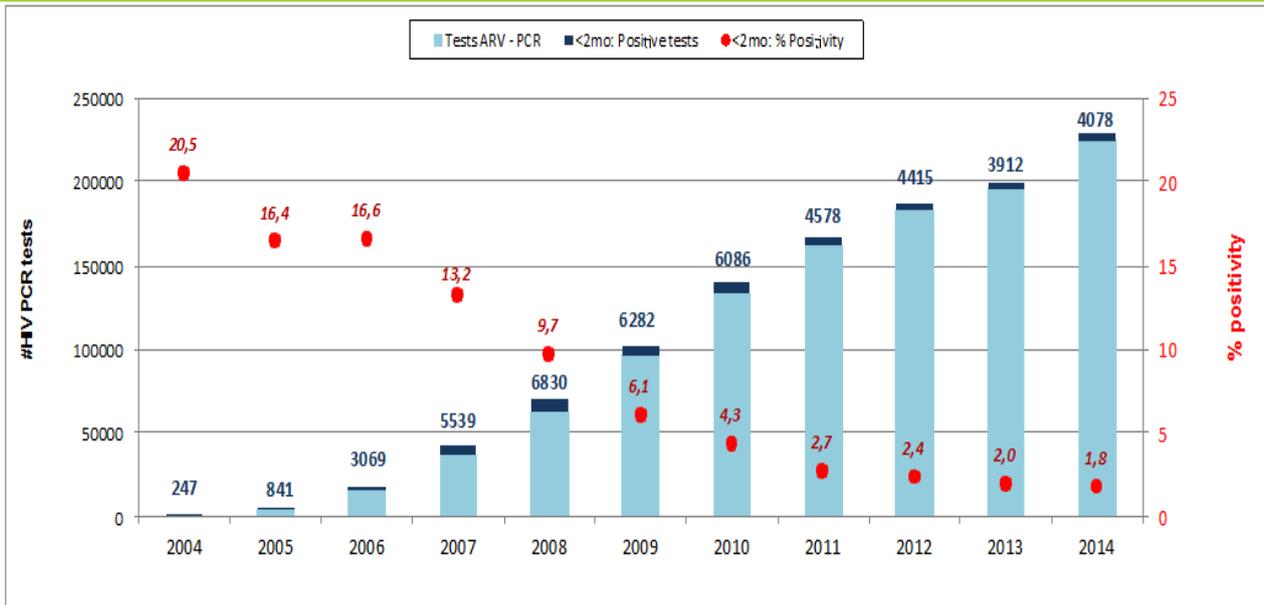


Figure 4. HIV-exposed infants accessing HIV PCR tests at <2 months of age 2004 - 2014

Source: Centre for HIV and STI, NICD-NHLS