POLICY BRIEF
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EARLY (4-8 WEEKS POST-DELIVERY) POPULATION-LEVEL EFFECTIVENESS OF WHO PMTCT OPTION A, SOUTH AFRICA

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Primary Study Objective

- To evaluate early (perinatal) effectiveness of the national PMTCT programme on vertical HIV transmission at 4 to 8 weeks postpartum

Context

- 2010 survey (June-Dec 2010) conducted when PMTCT policy was dual therapy (2008 guidelines)
- 2011-12 survey (August 2011-March 2012) conducted when PMTCT policy was PMTCT Option A
- 2012-2013 survey (October 2012-May 2013) conducted when PMTCT policy was PMTCT Option A until 31st March 2013, and PMTCT Option B from 1st April 2013

Summary of National Findings

Infant HIV-Exposure Prevalence:

– 2010: 32.0% (95% CI 30.7-33.3%)

– 2011-2012: 32.2% (95% CI 30.7-33.6%)

2012-2013: 33.1% (95% CI 31.8-34.4%)

National Perinatal MTCT (4-8 weeks postpartum):

– 2010: 3.5% (95% CI 2.9-4.1%)

– 2011-12: 2.7% (95% CI 2.1-3.2%)

2012-13: 2.6% (95% CI 2.0-3.2%)

Methods - Sampling

1st stage: selection of facilities:

- Multi stage, probability proportional to size (PPS) sampling methods
- Facilities were stratified by province and size (immunisation load) & HIV prevalence
- Very small (<130 DTP1 coverage per annum) facilities are excluded
- 580 facilities across all nine provinces were selected
- Spent 3-4 weeks in each facility

2nd stage: sampling of mother & infant pairs

- 12, 200 Dry Blood Spots from consecutive/systematic enrolment of all infants (aged 4-8 weeks) attending for their 1st DTP dose, and whose caregivers consent to participate and for HIV testing to be done.

Methods - Data Collection

October 2012 – May 2013

Biologic Marker for exposure and transmission:

All infants tested for HIV exposure using ELISA to detect maternal antibody – those with positive ELISA then tested for HIV PCR to detect HIV transmission

Questionnaire to measure socio-demographics, antenatal, PMTCT and infant care, knowledge of PMTCT and infant feeding. Questionnaire data collected using cell phone technology which also allowed reminder SMS for caregivers to return for 10 week infant visit to receive results

Methods - Data Analysis

Results weighted for sample realisation (Table 1) and distribution of live births across provinces in 2012. Analysis takes survey design into account.

Table 1: Sample realisation

Prov	Desired Sample Size (ss)	Actual ss 2010 June-Dec 2010	Actual ss 2011-12 Aug'11-Mar'12	Actual ss 2012-13 Oct'12-May'13
EC	1400	776 (55%)	1192 (85%)	1035 (73.9)
FS	1300	1143 (88%)	1056 (81%)	868 (66.8)
GP	1800	1735 (96%)	1607 (89%)	1637 (90.9)
KZN	1400	1224 (87%)	1052 (75%)	1060 (75.7)
LP	1400	1022 (73%)	1068 (76%)	1225 (87.5)
MP	1600	1286 (80%)	1216 (76%)	898 (56.1)
NC	700	444 (63%)	508 (73%)	426 (60.9)
NW	1200	1171 (98%)	1039(87%)	781 (65.1)
WC	1400	1381 (99%)	1375 (83%)	1190 (85.0)
ZA	**12 200**	**10 182 (83%)**	**10113 (83%)**	**9120 (75%)**

Abbreviations: ARV – antiretroviral drug ART – triple ARV treatment CI – confidence interval DTP – Diphtheria, Tetanus and Pertussis Immunisation PMTCT – prevent mother to child transmission of HIV SAPMTCT – South African PMTCT

Table 2: Weighted PMTCT Cascade

All mothers	2010	2011-12	2012-13
Tested for HIV	98.8% (98.5-99.0)	98.3 (98.0-98.6)	95.5 (95.0-96.0)
Received test results	98.6% (98.4-98.9)	99.4% (99.3-99.6)	99.8%(99.7-99.9)
Reported HIV positive	29.4% (28.1-30.7)	29.5% (28.0-32.2)	32.1 (30.8-33.4)
Amongst self reported HIV positive mothers			
Received CD4 cell count	78.3% (76.4-80.4)	77.4% (74.9-80.0)	65.9% (63.2-68.6)
Mum and baby received ARV prophylaxis (no ART)	58.7% (56.3-61.1)	52.0% (49.7-54.2)	35.5% (33.3-37.6)
Mum on ART (no prophylaxis)	33.1% (30.8-44.2)	41.9% (39.7-44.2)	54.8 (52.6-57.0)
Mum brought infant for EPI and HIV test	35.1% (30.6-39.6)	38.5% (34.3-42.7)	47.03 (42.8-51.3)

Table 3:Weighted Perinatal infant HIV-exposure and MTCT: % (95%CI)

PROVINCE	2010		2011-12		2012-13	
	Infant HIV-Exposed	MTCT % (95%CI)	Infant HIV-Exposed	MTCT % (95%CI)	Infant HIV-Exposed	MTCT % (95%CI)
EC	30.5 (26.9-34.2)	4.7 (2.4-7.0)*	32.0 (29.6-35.5)	3.8 (2.1-5.5)	29.0 (25.1-32.9)	2.4 (1.1-3.8)
FS	31.3 (29.1-33.5)	5.9 (3.8-8.0)	30.9 (28.6-33.3)	3.8 (2.3-5.3)	34.2 (30.6-37.7)	2.8 (1.5-4.1)*
GP	30.4 (27.9-33.0)	2.5 (1.5-3.6)	33.1 (29.8-36.4)	2.1 (0.9-3.4)	34.0 (30.6-37.4)	2.2 (1.3-3.1)
KZN	44.3 (40.2-48.4)	2.9 (1.7-4.0)	44.4 (39.8-48.9)	2.1 (0.9-3.3)	43.6 (39.5-47.8)	2.9 (1.3-4.6)
LP	23.9 (21.8-25.9)	3.6 (1.4-5.8)	23.0 (19.9-26.2)	3.1 (1.2-4.9)	25.2 (21.8-28.7)	2.1 (0.6-3.6)
MP	37.0 (34.3-39.7)	5.7 (4.1-7.3)	35.6 (33.3-37.8)	3.3 (2.2-4.5)	37.6 (33.6-41.7)	1.5 (0.6-2.3)*
NC	16.0 (13.7-18.3)	1.4 (0.1-3.4)*	15.1 (12.7-17.5)	6.1 (2.5-9.6)*	20.9 (15.6-26.2)	2.2 (0.4-4.1)*
NW	31.3 (29.0-33.5)	4.4 (2.9-5.9)	30.8 (28.5-33.1)	2.6 (1.1-4.0)	31.4 (27.8-35.0)	5.4 (3.4-7.4)*
WC	21.0 (17.0-25.0)	3.9 (1.9-5.8)	17.8 (14.8-20.8)	2.0 (0.6-3.3)	22.1 (17.8-26.6)	1.9 (0.4-3.3)
ZA	32.0 (30.7-33.3)	3.5 (2.9-4.1)	32.2 (30.7-33.6)	2.7 (2.1-3.2)	33.1 (31.8-34.4)	2.6 (2.0-3.2)

* sample realisation <70% .

- Only 22% (20.1-23.9%) of HIV negative women reported that their last HIV test was at or after 32 weeks gestation
- Amongst reportedly HIV negative mothers: 3.7% (3.2-4.2%) had infants who tested ELISA positive after repeated ELISA and Western Blot testing
- Amongst reportedly HIV positive mothers: 1.4% (0.9-1.9%) had infants who tested ELISA negative after repeat testing, as above
- Amongst mothers with known HIV positive status who received ANY PMTCT intervention(s) prior to or during delivery PERINATAL MTCT was 2.0% (95% CI 1.5-2.6%)
- Amongst mothers with assumed HIV acquisition during pregnancy (mothers who reported unknown or negative HIV status whose infants tested HIV ELISA positive) PERINATAL MTCT was 9.2% (95% CI 5.6-12.7%)

Conclusions

- Maternal access to HIV testing and receipt of results does not appear to be a bottleneck to paediatric HIV elimination
- Maternal access to antiretroviral treatment increased from 33% in 2010 to 55% in 2012-13
- In 2012-13 the perinatal MTCT was 2.6%, similar to 2011-12 estimates. Most mothers received PMTCT Option A during this time
- Between October 2012-September 2013 we estimate that 107 000 infants were saved from HIV infection by 8 weeks postpartum (assuming that 32.2% of 1 214 485 live births in South Africa are HIV exposed and early MTCT is 30% without any PMTCT interventions)

Policy Implications

- Health systems limitations to reducing MTCT to <2% by 6 weeks post-delivery include
  - <100% coverage of late testing amongst HIV negative women
  - undiagnosed HIV acquisition during pregnancy and
  - <100% coverage of interventions along the PMTCT cascade (antenatal, labour/delivery, postnatal through lactation)
- All health care providers should ask about HIV-status and treatment at every contact with the health services to avoid missed opportunities
- HIV negative mothers should continue to be re-tested every 3 months, as per national policy during pregnancy and lactation

Limitations

- Low sample ascertainment in four provinces (as a result of immunization stock-outs, immunisation services offered weekly rather than daily and low immunization numbers at fixed public health facilities) reduced the precision of the estimates
- Infants who died before 4-8 weeks or who attended private or mobile health facilities were excluded from the survey

Strength

- Includes mothers with known and unknown HIV status with variable access to PMTCT services.
- Includes mothers with recent HIV acquisition