2012-2013
SAPMTCTE Report

Early (4-8 weeks postpartum) Population-level Effectiveness of WHO PMTCT Option A, South Africa

SAPMTCT Evaluation Funded by
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FOREWORD BY THE MINISTER OF HEALTH

2012-2013 SAPMTCTE Report

Early (4-8 weeks postpartum) Population-level Effectiveness of WHO PMTCT Option A, South Africa

Preventing mother-to-child transmission of HIV (MTCT) is a critical intervention to eliminate paediatric HIV infections. We started implementing a national programme to prevent mother-to-child transmission of HIV in 2002. This programme has expanded and improved in quality (improved coverage and more effective PMTCT regimens) over the past ten years. Our programme to prevent MTCT is located within our maternal and child health programme and this aims to: prevent new HIV infections in women; prevent morbidity and mortality amongst HIV-positive mothers and their families; prevent unwanted pregnancies and prevent vertical HIV transmission.

We have been one of the first high HIV prevalence countries to conduct national surveys, in addition to PMTCT surveillance using routine laboratory and district-health-information data, to measure the effectiveness of the PMTCT programme. Our surveys were led by the South African Medical Research Council and funded by the National Department of Health, Centers for Disease Control and Prevention, University of the Western Cape, United Nations Children's Fund (UNICEF), the South African National AIDS Council (SANAC), European Union (through National Department of Health), Global Fund (through National Department of Health) and National Institute of Communicable Diseases, National Health Laboratory Services.

Three national surveys have been conducted to measure national PMTCT effectiveness (2010, 2011-12 and 2012-13). The surveys show several population-level successes:

1. As a country, we reduced early MTCT from the estimated 20%-30% (in the absence of any PMTCT intervention) to 3.5% by 8 weeks postpartum (using the South African 2008 PMTCT guidelines), and further reduced early MTCT to 2.7% and 2.6%, in 2011-2012 and 2012-2013 respectively using South African 2010 PMTCT guidelines (PMTCT Option A). The latter represents a reduction in MTCT from 117 319 to 10 168 HIV infected infants by 8 weeks postpartum , if we assume 1 214 485 million live births per year, 32.2% infant HIV exposure and 30% MTCT by 8 weeks postpartum in the absence of any PMTCT intervention. This represents a 91% reduction in MTCT by 8 weeks postpartum.
2. Almost all women, 95.5% [95% CI 95.0-96.0%], received an HIV test during pregnancy and of these almost all, 99.8% [95% CI 96.7-99.9%], obtained their HIV test results.
3. Access to maternal triple antiretroviral therapy increased between 2010 and 2012.

4. More than 90% HIV-positive women received infant feeding counselling and the results of the three years show that exclusive breastfeeding is increasing and mixed feeding is decreasing.
5. Early infant HIV testing uptake is high (98.7%), if offered to all infants at the six-week immunisation visits, indicating that all child health services should offer HIV testing to mothers and their babies.

However, the following 2012-13 survey results are extremely sobering:

- There are large inter-provincial differences in MTCT.
- Among self-reported HIV negative mothers, only 22% had their last test at or after 32 weeks pregnancy and 2.6% [95% CI: 2.1-3.0%] of women who thought they were HIV negative gave birth to HIV-exposed infants, necessitating urgent implementation of re-testing strategies amongst HIV negative women.
- Only 65.9% [95% CI 62.9-68.2%] of self-reported HIV-positive mothers had a CD4 cell count done during pregnancy.

To maintain maternal health and eliminate vertical HIV transmission we need to urgently:

1. intensify implementation of repeat testing of HIV negative women, at least 3 monthly, especially during pregnancy and lactation and
2. intensify implementation of PMTCT Option B plus, whereby all HIV-positive pregnant and lactating women receive antiretroviral therapy, regardless of their CD4 cell count.

It is only with intensified effort that MTCT risk by eight weeks and beyond can be reduced.

I ask all health care personnel to work collaboratively so that paediatric HIV infection can be even further reduced to achieve our target for paediatric HIV elimination and improved maternal health by 2015 and beyond.

Dr Aaron Motsoaledi, MP
Minister of Health

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
ART	Triple Antiretroviral Therapy
ARV	Antiretroviral
AZT	Zidovudine (Azidothymidine/Retrovir)
CD4	Cluster of differentiation 4 T-cell lymphocyte
CDC	Centers for Disease Control and Prevention
CI	95% Confidence interval
DBS	Dried Blood Spot
DHIS	District Health Information System
DHS	Demographic and Health Survey
DNA	Deoxyribonucleic acid
EBF	Exclusive Breast-Feeding
EC	Eastern Cape
EID	Early Infant HIV Diagnosis
ELISA	Enzyme-linked Immunosorbent Assay
FTC	Emtracitabine
FDC	Fixed-dose combination ARV tablet containing 300 mg Tenofovir (TDF), 200 mg Emtricitabine (FTC) and 600 mg Efavirenz (EFV).
FS	Free State Province
GP	Gauteng Province
HAART	Highly active antiretroviral therapy
HIV	Human Immunodeficiency Virus
HSRC	Human Sciences Research Council
HSRU	Health Systems Research Unit of the Medical Research Council
iDBS	Infant Dried Blood Spot
IMCI	Integrated Management of Childhood Illnesses
KZN	KwaZulu-Natal
LP	Limpopo Province
LIMS	Laboratory Information Management System
MCH	Maternal and Child Health
MDG	Millennium Development Goals
MPH	Masters in Public Health
MP	Mpumalanga Province
MTCT	Mother-to-child transmission of HIV
NDOH	National Department of Health
NHLS	National Health Laboratory Service
NC	Northern Cape Province
NICD	National Institute for Communicable Diseases
NRF	National Research Foundation

NSP	National Strategic Plan, South Africa
NW	North West Province
PEPFAR	President's Emergency Plan For AIDS Relief
PHC	Primary health care
CHC	Community health centres
PCR	Polymerase Chain Reaction
PITC	Provider-Initiated Testing and Counseling
PSU	Primary Sampling Unit
PMTCT	Prevention of mother-to-child transmission of HIV
RCT	Randomised Controlled Trial
RtHC	Road to Health Chart
SA	South African
SAMRC	South African Medical Research Council
SAPMTCT	South African programme to prevent HIV transmission from mother to child
SAPMTCTE	South African Prevention of Mother-to-Child Transmission Evaluation
sdNVP	Single-dose Nevirapine
SoPH	School of Public Health, University of the Western Cape
TDF	Tenofovir
UNICEF	United Nations Children's Fund
UWC	University of the Western Cape
WC	Western Cape Province
WHO	World Health Organisation
ZA	South Africa

EXECUTIVE SUMMARY

Introduction

The first national evaluation of the South African (SA) programme to prevent HIV transmission from mother to child (PMTCT programme) was conducted between June and December 2010, during a period of transition between the 2008 and 2010 PMTCT guidelines. The second national SAPMTCT evaluation was conducted between August 2011 and March 2012, when 2010 PMTCT guidelines were being implemented. The third national PMTCT evaluation was conducted between October 2012 and May 2013. SAPMTCT guidelines changed to World Health Organisation (WHO) PMTCT Option B in April 2013, and to WHO PMTCT Option B+ in January 2015.

The 2008 SAPMTCT guidelines recommended (for all HIV positive pregnant women) maternal Zidovudine (AZT) prophylaxis from 28 weeks gestation with single-dose maternal nevirapine (sdNVP) in labour or ART (if CD4 ≤250 cells/µl or Stage IV disease). All infants received sdNVP and seven (or 28) days AZT (NDOH, 2008).
The 2010 SAPMTCT guidelines followed the WHO PMTCT Option A and recommended (for all HIV positive pregnant women) maternal AZT prophylaxis from 14 weeks gestation with sdNVP in labour and a stat dose Truvada® (Tenofovir and Emtracitabine) immediately post-delivery or ART (if CD4 ≤350 cells/µl or Stage III/IV disease) (NDOH, 2010). All infants received NVP for six weeks if not breastfeeding or until one week following cessation of breastfeeding.
The 2013 SAPMTCT guidelines (WHO PMTCT Option B) recommended immediate initiation of fixed-dose combination (FDC) antiretroviral (ARV) therapy for all newly diagnosed HIV positive pregnant women regardless of their cluster differentiation 4 (CD4) cell count. Life-long treatment continued if CD4≤350 cells/µl or stage 3-4 disease. If CD4>350 cells/µl FDC is stopped 1 week after breastfeeding stops. All infants received six weeks NVP.

The detailed **2010** report is available from: http://www.mrc.ac.za/healthsystems/reports.htm
In summary:

- 10 820 eligible infants were enrolled; 10 735 interviews were conducted and 10 178 (94.0%) infant dried blood spots (iDBS) were drawn and analysed.
- The national weighted infant HIV-exposure prevalence was 32.0% [95% CI 30.7-33.3%].
- The national weighted risk of mother-to-child transmission of HIV (MTCT) measured at 4-8 weeks of infant age was 3.5% [95% CI 2.9-4.1%].
- Provincial MTCT ranged between 1.4% and 5.9%.
- Among mothers who reported being HIV negative; 4.1% delivered HIV-exposed infants.
- Of all participating mothers, 98.8% [95% CI 98.5-99.0%] received an HIV test during pregnancy and of these, 98.6% [95% CI 98.4-98.9%] received their HIV test results.
- Of the self-reported HIV-positive mothers, 78.3% had a CD4 cell count done during pregnancy and 91.8% received either maternal highly active antiretroviral therapy (HAART/ART) or mother/baby antiretroviral (ARV) prophylaxis.

- Amongst known (self-reported) HIV exposed infants, 89.0% of mothers had received infant feeding counselling; only 35.1% mothers intended to access early infant diagnosis services at the six weeks immunisation visit.
- Among known HIV exposed infants, 20.0% were exclusively breastfeeding, 62.0% formula feeding and 18.0% mixed feeding in the 8 days prior to the interview.

The detailed **2011** report is available from: http://www.mrc.ac.za/healthsystems/publications.htm.
In summary:

- 11 317 infants were screened from 580 facilities; 10 473 interviews were conducted; 10 342 iDBS were drawn and 10 106 interviews and iDBS were analysed.
- The national weighted infant HIV-exposure prevalence was 32.0% [95% CI 30.7-33.3%].
- The national weighted MTCT risk measured at 4-8 weeks of infant age was 2.7% [95% CI 2.1-3.2%].
- Provincial MTCT ranged between 1.9% and 6.1%.
- Among mothers who reported being HIV negative, 3.9% had HIV-exposed infants.
- Of all participating mothers, 98.3% [95% CI 98.0-98.6%] received an HIV test during pregnancy and of these, 99.4% [95% CI 97.7-99.2%] got their HIV test results.
- Amongst self-reported HIV-positive mothers, 77.4% had a CD4 cell count done during pregnancy; 93.9% received either maternal highly ART or mother/baby ARV prophylaxis.
- Only 38.5% self-reported HIV positive mothers intended to access early infant diagnosis services at the six week immunisation visit and 93.3% reported receiving infant feeding counselling.
- Amongst self-reported HIV-positive women, 35.5% [95% CI 33.1-38.0%] were exclusively breastfeeding, 47.1% [95% CI 44.8-49.3%] avoided breastmilk and 17.4% [95% CI 15.6-19.1%] were mixed feeding in the 8 days prior to the interview.
- Amongst self-reported HIV negative women, 43.6% [95% CI 41.6-45.7%] were exclusively breastfeeding, 10.1% [95% CI 9.3-11.0%] avoided breastmilk and 46.2% [95% CI 44.2-48.3%] were mixed feeding in the 8 days prior to the interview.

In this report we present the detailed findings from the **2012-2013** survey which was the third national PMTCT evaluation to determine population-level PMTCT effectiveness, and the **second** national evaluation of **WHO PMTCT Option A**.

Aims and Objectives

We aimed to conduct a national facility-based survey to monitor the effectiveness of the South African PMTCT programme. Our primary objective was to measure risks of early MTCT of HIV at six weeks postpartum. Our secondary objective was to estimate coverage of key PMTCT interventions and services [e.g., HIV testing, CD4 cell count testing, infant ARV prophylaxis, infant feeding counseling].

Methods

The method for the 2012-2013 cross-sectional survey was the same as in 2010 and 2011 (Goga *et al*, 2012). The sampling frame and selected facilities were identical between 2011 and 2012-13, except for clinic replacements due to shifting of services or clinic closure for maintenance (Appendix 2).

A cross-sectional facility-based survey was conducted at public primary health care clinics (PHC) and community health centres (CHC) offering immunisation services in all nine provinces. This methodology was chosen as uptake of six-week immunisation in South Africa was >99%, according to the 2007 District Health Information System (DHIS). The survey aimed to capture known and unknown HIV-exposed infants, as well as PMTCT participants and non-participants. A biomedical marker [HIV Enzyme-Linked Immunosorbent Assay (ELISA) tests to identify HIV antibodies] was used to identify HIV-exposed infants from infant dried blood spot (iDBS) specimens. All DBS specimens reactive on ELISA testing were sent for DNA-based polymerase chain reaction tests (DNA PCR) to determine infant HIV infection status.

Infants aged 4-8 weeks attending PHC/CHC facilities for their six week immunisation were included. Hospitals and mobile clinics, and very sick infants (needing emergency care or hospitalisation) or infants aged <4 weeks or >8 weeks were excluded. The immunisation data from the 2007 DHIS were used to quantify the number of children expected within facilities, over a defined period of time (3-4 weeks) and then stratified by size. Sample size (Appendix 1) was calculated to measured valid national and provincial level estimates of MTCT. This resulted in 34-79 facilities per province, 580 in total. Facilities were randomly selected within 3 strata with probability proportional to size sampling. Caregiver/infant pairs were consecutively or randomly selected from facilities (depending on facility size). Interviews were conducted and iDBS were drawn after receiving consent from caregivers for study participation. Mothers and infants were referred into HIV care, as appropriate. Data were collected using low cost cellular telephones and interview data were uploaded into a web-based database console, in real-time. Analysis was weighted for sample realisation and population live births.

Results

In 2012-2013, a total of 10533 infants were screened from 580 facilities. Of these, 652 (6.2%) did not meet eligibility criteria, 201 refused to participate and 184 had incomplete consent. Of the total number, 9880 (93.8%) infants were deemed eligible and enrolled into the survey. Forty-seven caregivers refused iDBS and 21 had insufficient iDBS that could not be analysed. Thus 9120 (74.8%) iDBS were analysed.

- The national weighted infant HIV-exposure prevalence at 4-8 weeks postpartum was 33.1% [95% CI 31.8-34.4%].
- The national weighted risk of early MTCT measured at 4-8 weeks of infant age was 2.6% (95% CI 2.0-3.2%).
- Early MTCT across provinces ranged from 1.5% to 5.4%.

- 95.5% [95% CI 95.0-96.0%] of maternal participants received an HIV test during pregnancy and of these, 99.8% [95% CI 96.7-99.9%] obtained their HIV test results.
- Among self-reported HIV negative mothers:
    - 2.6% [95% CI: 2.1-3.0%] had HIV-exposed infants, a significant reduction in discordant HIV status compared with the 2011 figure of 3.9% [95% CI 3.5-4.4%].
    - 22.0% [95% CI: 20.1-24.0%] had their last HIV test at or after 32 weeks.
- Amongst self-reported HIV-positive mothers:
    - 65.9% [95% CI 62.9-68.2%] had a CD4 cell count performed during pregnancy.
    - 54.8% [95% CI: 52.6-57.0%] received maternal ART during or before pregnancy, whilst 35.5% [95% CI: 33.3-37.6%] received ARV prophylaxis for mother and baby (i.e. both); thus antiretroviral coverage as ART or prophylaxis for mother and baby was 90.3%.
    - 8.4% (95% CI 7.4-9.5%) received antiretroviral coverage for mother or baby (not both) whilst 1.2% (95% CI 0.8-1.6%) did not receive any antiretroviral prophylaxis.
    - Amongst mothers on ART, most were initiated during pregnancy [55.7%; 95% CI 41.8-55.4%] versus before pregnancy [42.2%, 95% CI 42.6-56.7%] or after pregnancy [1.9%, 95% CI 0-3.9%].
    - Only 47.0% [95% CI 42.8-51.3%] of women intended to access early infant diagnosis services at the six week immunisation visit.
    - 94.4% [95% CI 93.6-95.3%] reported receiving infant feeding counselling.
    - Amongst HIV exposed infants, 54.1% [95% CI 51.9-56.2%] were exclusively breastfeeding, 27.7% [95% CI: 25.6-29.7%] avoided breastmilk and 20.5% [95% CI 18.8-22.1%] were mixed feeding in the 8 days prior to the interview. Compared with 2011, mixed feeding significantly increased in all provinces except GP, LP and NW.
    - Amongst HIV unexposed infants: 59.2% [95% CI 57.3-60.0%] were exclusively breastfed, 4.3% [95% CI 3.8-4.9%] avoided breastmilk and 37.2% [95% CI 35.3-39.1%] were mixed fed in the 8 days prior to the interview (self-reported maternal data). Mixed feeding was significantly reduced compared with 2011.

Conclusions and Public Health Recommendations

Conclusions:

1. Maternal access to HIV testing was lower compared with 2010 and 2011; overall uptake of HIV testing and receipt of results was 95% compared with >98% in 2010 and 2011.
2. Amongst self-reported HIV positive mothers, access to antiretroviral treatment (triple drugs – ART) increased from 33% in 2010 to 54.8% (any ART access) in 2012-13. Data collected during 2012-2013, showed that amongst mothers on ART more were initiated during pregnancy (55.7%) [95% CI 41.8-55.4] vs. before pregnancy (42.2%) [95% CI 42.6-56.7] or after pregnancy (1.9%) [95% CI 0-3.9]. This was observed in all provinces except for Northern Cape, Western Cape and the North West province.
3. Uptake of maternal ART or maternal and infant ARV prophylaxis amongst self-reported HIV positive women was 90.3%. This means that despite knowing their HIV positive status 9.7%

of mothers did not receive either ART or prophylaxis for mother and infant. This excludes the 2.6% of self-reported HIV negative women who received no ARVs but whose infants tested ELISA positive.

4. The risk of perinatal MTCT was 2.6% in 2012-2013: 107 000 infants were saved from early HIV infection in 2012-13. (Assumptions: 391 000 infants - 32.2% of 1 214 485 live births - and early MTCT is 30% without PMTCT interventions).
5. Reported infant feeding counseling improved nationally between 2010 (89.2%; 87.8-90.6) and 2012-2013 (94.4%, 93.6-95.3%). The prevalence of exclusive breastfeeding (EBF) among HIV exposed infants also increased from 20.4% (18.5-22.3%) in 2010 to 54.1% (51.9-56.2%) in 2012-2013 (8-day recall data).

Implications for Policy and Programmes:

- Bottlenecks to reducing MTCT to <2% by 6 weeks postpartum include
  - Only 95% uptake of maternal HIV testing and receipt of HIV test results
  - Only 22%% coverage of late testing amongst HIV negative women
  - Only 90%% coverage of adequate antiretroviral interventions (ART or maternal and infant ARV prophylaxis)
  - Only 47% intention to seek early infant HIV testing at routine 6 weeks immunisation visits
  - 94% coverage of infant feeding counselling, despite the fact that breastfeeding is a significant contributor to postnatal MTCT and
  - 54.1% prevalence of EBF during the 8 days prior to the six week interview
- All health care personnel should inquire about HIV-status and treatment for every pregnant or lactating woman and woman of reproductive age. This should occur at every contact with the health services to avoid missed PMTCT opportunities.
- As per recent national policy HIV negative mothers should continue to be re-tested at every opportunity during pregnancy and lactation, and at least every 3 months.
- Efforts to provide effective infant feeding counseling need to be scaled up to ensure continued improvements in infant feeding practices (i.e. to further reduce mixed feeding and increase EBF).

DEFINITIONS

Caregiver	The person who feeds and looks after the child most of the week. This includes parents, legal guardians, family members, nannies or friends who routinely feed, bath, change nappies, or in particular reference to this study, bring the child for routine health services.
Early (4-8 weeks) HIV transmission risk among HIV-exposed infants	Number of DNA PCR positive and ELISA positive infants divided by the number of ELISA positive infants at 4-8 weeks.
Health care personnel	Health care providers and health care workers.
Health care provider	Any person providing health services in terms of any law, including in terms of the: • Allied Health Professions Act, 1982 (Act No.63 of 1982), • Health Professions Act, 1974 (Act No. 56 of 1974), • Nursing Act, 2005 (Act No. 33 of 2005), • Pharmacy Act, 1974 (Act No. 53 of 1974), and • Dental Technicians Act, 1978 (Act No. 19 of 1979).
Health care worker	Any person who is involved in the provision of health services to a user, but is not a health care provider. This includes lay counselors and community caregivers.
HIV-exposed infant	An infant born to a known HIV-positive mother and/or having a positive HIV antibody test result using DBS ELISA. Infant HIV exposure prevalence serves as an indirect marker of maternal HIV prevalence.
Infant feeding practices	Exclusive breastfeeding: breastmilk only with or without prescribed medicines in the 8 days prior to the interview Mixed feeding: breastmilk with other nutritive or non-nutritive liquids and solids on any of the 8 days prior to the interview Exclusive formula feeding: Commercial infant formula milk without any breastmilk in the 8 days prior to the interview
Mother-to-child transmission (MTCT)	Transmission of HIV from an HIV-positive woman to her infant during pregnancy, delivery or breastfeeding. The term is used because the immediate source of the infection is the mother, and does not imply blame on the mother.
MTCT	Defined for this survey as a numerator of HIV-positive infants (HIV PCR positive and ELISA positive) and denominator of HIV-exposed infants (infant HIV ELISA positive).

1. INTRODUCTION

The South African National Strategic Plan (NSP) on HIV, AIDS and STI's [2011-2016] aims to reduce the risk of MTCT of HIV to less than 2% at six weeks after birth and to less than 5% at 18 months postpartum by 2016 (NDOH, 2011a). The NSP acknowledges that strengthening the management, leadership and coordination of the PMTCT programme and ensuring its integration with maternal and child health services are critical.

In 2001, South Africa began implementing a programme to prevent MTCT at 18-pilot sites. The first interventions included single-dose nevirapine (sdNVP) during labour for the mother and to the baby within 72 hours of delivery; modified obstetric practices; infant feeding counselling and the provision of free commercial infant formula to HIV-positive mothers who avoided breastfeeding (NDOH, 2001). PMTCT interventions were scaled up in 2002 and **in 2008**, the national antiretroviral regimens for pregnant women were improved to dual therapy (AZT from 28 weeks with sdNVP at the outset of labour for pregnant women) or triple antiretroviral therapy (ART) if CD4 ≤250 cells/µl or Stage IV disease and infant sdNVP with 7-28 days infant AZT and sdNVP with AZT for baby). **In 2010,** PMTCT interventions were further modified (NDOH, 2010). The 2010 modifications included WHO PMTCT Option A i.e. routine HIV testing and counseling for pregnant women, dual therapy to prevent MTCT of HIV, ART for pregnant women with CD4 cell count ≤350 cells/µl, earlier initiation of ARV prophylaxis at 14 weeks of pregnancy, postnatal infant prophylaxis until one week after cessation of breastfeeding and intensified efforts to integrate PMTCT services into routine maternal and child health (MCH) services. **In 2013** WHO PMTCT Option B was adopted and recommended immediate initiation of fixed-dose combination (FDC) antiretroviral (ARV) therapy for all newly diagnosed HIV positive pregnant women regardless of their CD4 cell count. Life-long treatment continued if CD4≤350 cells/µl or stage 3-4 disease. If CD4>350 cells/µl FDC is stopped 1 week after breastfeeding stops. All infants received six weeks NVP. **In 2015** South Africa moved to lifelong ART for all HIV positive pregnant and lactating women. These efforts were to meet the NSP targets of reducing MTCT to less than 5% by 2011 and to meet the 4th and 6th Millennium Development Goals (MDGs) (i.e., "reduce by two thirds, between 1990 and 2015, the under-five mortality rate" and "have halted by 2015 and begun to reverse the spread of HIV/AIDS" (UN, 2011a). The 2011 SAPMTCTE study was the first evaluation of PMTCT Option A and commenced 16 months following the adoption of the 2010 PMTCT guidelines (PMTCT Option A) and during the month when South Africa's infant feeding policy was changed to exclusive breastfeeding for six months and continued breastfeeding thereafter, regardless of HIV status (NDOH, 2011b). However, the provision of free commercial infant formula milk was only phased out between August 2011 and April 2012; thus during the 2011 survey, free commercial infant formula milk was still provided as part of the PMTCT programme.

The 2012-2013 SAPMTCTE aimed to:

(i) measure early effectiveness of PMTCT Option A nationally and provincially and

(ii) measure coverage of key PMTCT interventions.

Field work commenced 30 months after WHO PMTCT Option A implementation and ended one month after SAPMTCT policy changed to PMTCT Option B .

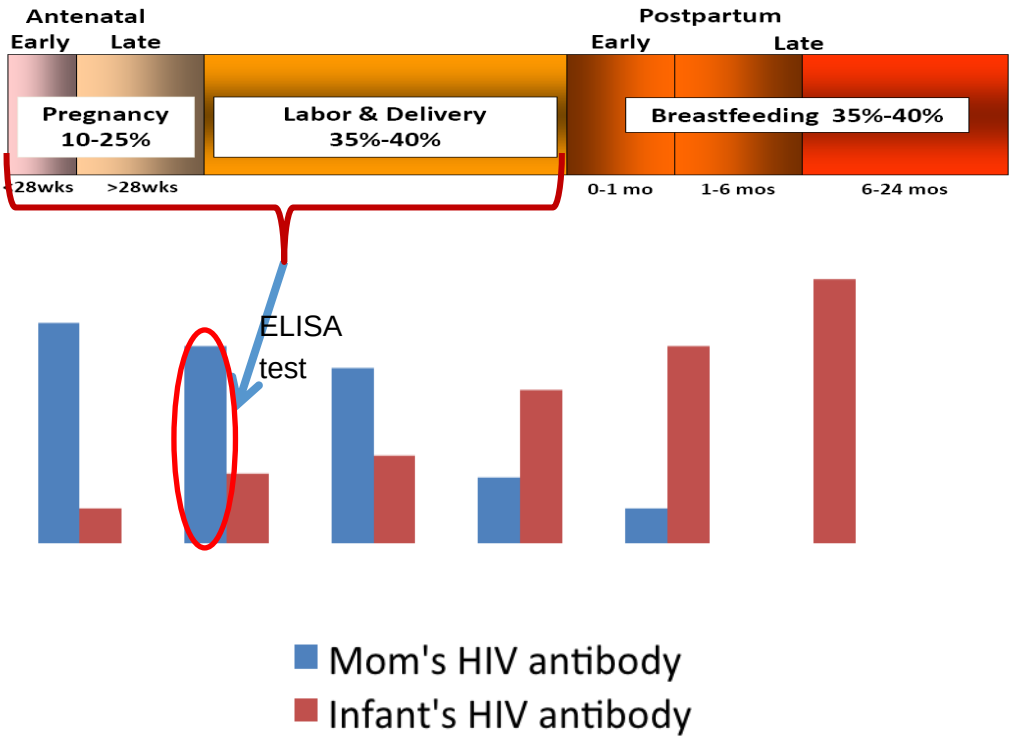
2. METHODOLOGY

2.1 Survey Design and Justification

A cross-sectional facility-based survey, using a biomedical marker to determine infant HIV exposure, was conducted. The survey was conducted among caregiver-infant pairs who presented at their local PHC/CHC facility for their infant's six-week immunisation (1st DTP dose). In 2011, South Africa reported >95% coverage of six week immunisation (1ST DTP dose, Fadnes *et al*, 2011), making these clinics the ideal catchment point for young infants of known or unknown HIV exposure status. This provided a convenient sample to ascertain overall PMTCT effectiveness with relatively limited selection bias.

This methodology has been proven effective in a South African context. Based on the approach recommended by Rollins *et al*, 2007; 2009a we used a biomedical marker to identify infants exposed to HIV. Chantry *et al*, 1995 found that sero-reversion in HIV-exposed infants was not seen prior to 17 weeks of age. Furthermore HIV ELISA tests performed on small volumes of whole blood, rarely demonstrate sero-reversion before 2 months of age (Sherman *et al*, 2014). These data suggested that most, if not all, infants aged 4-8 weeks retain maternal antibodies in their bloodstream. Therefore, DBS HIV ELISA would detect the vast majority of HIV-exposed infants.

Figure 1 Using ELISA as a biomedical marker to identify HIV-exposed infants using HIV antibodies



This evaluation thus aimed to provide:

1) A valid estimate of MTCT and HIV infection prevalence in children aged 4-8 weeks, and
2) A reasonable estimate of coverage of key PMTCT programme indicators through 6 weeks postpartum.

2.2 Study Population and Inclusion/Exclusion Criteria

The study population comprised infants aged 4-8 weeks and their caregivers visiting public health facilities for the infant's 1st DTP dose during the study period.

Inclusion Criteria

Study participants included 4-8 week old infants attending clinic for their 1st DTP immunisation. Caregivers had to consent to participation (consent for maternal or caregiver interview and/or infant DBS).

Exclusion Criteria

Severely ill infants needing emergency medical care or urgent referral to the next level of care (e.g., infants who are vomiting everything or have convulsions; are lethargic or unconscious; or have severe pneumonia or severe dehydration), infants aged less than 4 weeks or more than 8 completed weeks or infants not receiving DTP1 on the day of the data collection were excluded from the study.

2.3 Sampling

Sampling Frame

The public health facilities were stratified as: < 130, 130-300 and >300 immunisations delivered per year, based on data extracted from the 2007 South African DHIS (Hedberg, 2009). A strategic decision was made to exclude the small facilities (<130 immunisations per year) from the formal sampling frame. The 2008 national antenatal maternal HIV prevalence estimate of 29.0% (NDOH, 2009) was used as the cut-off point for classifying facilities as above or below national average for antenatal HIV prevalence. This stratification was only applied to facilities in the large stratum (>300 immunisations per year). A total of 23 strata were utilised in the survey-sampling frame and were sorted by province, size and maternal HIV prevalence.

Sample Size

ANC maternal HIV prevalence (NDOH, 2009) and estimated MTCT risk from a KwaZulu-Natal survey using similar methodology (Rollins, 2009b) were used to determine the sample size for each province. Specifying relative precisions of 30% to 50% for the expected MTCT risk across provinces plus a design effect of 2 indicated that a total sample size of 12 200 infant DBS specimens were needed. The sample size across provinces ranged from 700 (Northern Cape) to 1 800 (Gauteng).

Sampling

Stratified two-stage sampling was used. In the first stage, facilities (Primary sampling units - PSUs) were randomly sampled proportional to size (PPS) within each stratum. The method operated under

the with-replacement-type selection (Lehtonen and Pakhinen, 2004). At the second stage, a fixed number of infants per facility was sampled. The fixed number was the median number of infants expected within the sampling window (three weeks) across the population of facilities within the stratum as determined from the detailed information of the sampling frame above. The fixed number of infants sampled in each facility within a stratum ensured a self-weighting sample. A sampling window of three weeks was used to realize the required sample. (Appendix 2)

2.4 Data Collection Tools

Data were gathered using a questionnaire adapted from several validated tools (Rollins *et.al*, 2007; 2009a; Jackson *et al*, 2007; HSRC, 2002; Nyblade and MacQuarrie, 2006; Tlebere *et.al*, 2007). The questionnaire included information on maternal age, parity, socio-economic status, antenatal care, HIV testing, maternal HIV status, PMTCT care during pregnancy and delivery, infant feeding counseling, birth information, infant feeding practices, infant weight; immunisations, postnatal visits and illness since birth. Fathers/legal guardians/non-maternal caregivers were administered a shorter version of the questionnaire that excluded ANC and PMTCT information.

The study tool was piloted in the Western Cape and KwaZulu-Natal provinces in 2010 to test it in English and at least one other official/local languages. As part of the pilot, approximately 5-10 participants were administered the study tool in each language. The primary objective was to test the flow of questions and basic understanding by the participants. The cell phone technology used for data collection, including skips and field data entry, was also examined and tested. Adjustments to the tool and/or cell phone data entry platform were made after the pilot, as necessary.

2.5 Ethical Considerations

Written (signed) informed consent for all procedures in the study was obtained from each eligible caregiver for the interview and DBS sampling (separately). Informed consent was in the preferred language of the participants. The information sheet was written in plain lay words that could be easily understood by participants. A confidential unique Study ID was allocated to each participant and stuck onto the consent forms, laboratory forms and questionnaires for the purpose of data-linking and auditing, and to provide the infants' blood test results to mothers or legal guardians. Care was taken to ensure that HIV-infected mothers who did not consent for the study understood that their infants could be tested (as per standard of care) without participating in the study.

Ethical approval was obtained from the Medical Research Council and from each of the nine provincial research ethics committees. Ethical approval was also granted from the United States Centers for Disease Control and Prevention, Atlanta.

2.6 Data Collection Methods

Data collection commenced at different times in each province (Table 1). All data collection was completed by 31 May 2013.

Table 1 Data collection start and end dates in each province

Province	Start and end dates of fieldwork		
	2010	2011-2012	2012-2013
Eastern Cape	14 June - 12 Nov	22 Aug - 15 Dec 2011	29 Oct - 25 May 2013
Free State	23 June - 12 Nov	15 Aug - 15 Dec 2011	29 Oct - 31 May 2013
Gauteng	28 June - 29 Oct	15 Aug - 24 Feb 2012	5 Nov - 3 May 2013
KwaZulu-Natal	1 June - 22 Oct	15 Aug - 16 Mar 2012	29 Oct - 18 May 2013
Limpopo	29 June - 12 Nov	15 Aug - 15 Dec 2011	5 Nov - 31 May 2013
Mpumalanga	30 June - 29 Oct	15 Aug - 10 Mar 2011	29 Oct - 31 May 2013
Northern Cape	29 June - 01 Dec	15 Aug - 15 Dec 2011	29 Oct - 25 May 2013
North West	23 June - 21 Oct	15 Aug - 15 Dec 2011	29 Oct - 24 May 2013
Western Cape	14 June - 22 Oct	15 Aug - 15 Dec 2011	29 Oct - 18 May 2013

Enrolment

Mother/Infant pairs attending the sampled facilities to receive the infants' DTP first dose vaccination were approached to enroll in the study. Trained nurse data collectors recruited mothers/caregivers from the PHC/CHC waiting room during immunisation days. Data collectors introduced themselves and the study verbally and in written form using a standardised information sheet. A screening questionnaire was administered to determine eligibility and full informed consent forms were completed. If an eligible mother-infant pair agreed to be interviewed, the interview was conducted in a private location.

Cell Phone Technology for Data Collection

Electronic questionnaires were loaded on low-cost mobile phones using the Mobile Researcher software management solution. The Mobile Researcher system consists of three components: the handset, the web interface (data transport system) and web-based research console (Figure 2). The handset is the device on which the questionnaires are entered. Minimum handset functionality is ensured since the phone is WAP (Wireless Application Protocol) enabled. The data were transferred via the GPRS (General Packet Radio Services) network using the WAP platform on the mobile phone. The web-based management console is a secure data capture centre that has controlled access.

As they were completed, questionnaires were uploaded onto the central web management console and then removed from the cell phone, while data collectors were in an area of mobile reception. In areas where there was no mobile network reception, the questionnaire was stored on the phone until reaching an area with adequate mobile network coverage, when data would be automatically uploaded. The questionnaire responses were available on the web-based console as soon as they were uploaded, allowing real-time monitoring of data collection progress and analysis (Figure 3).

Figure 2 Design phase and data collection flow diagram for the cell-phone data collection system

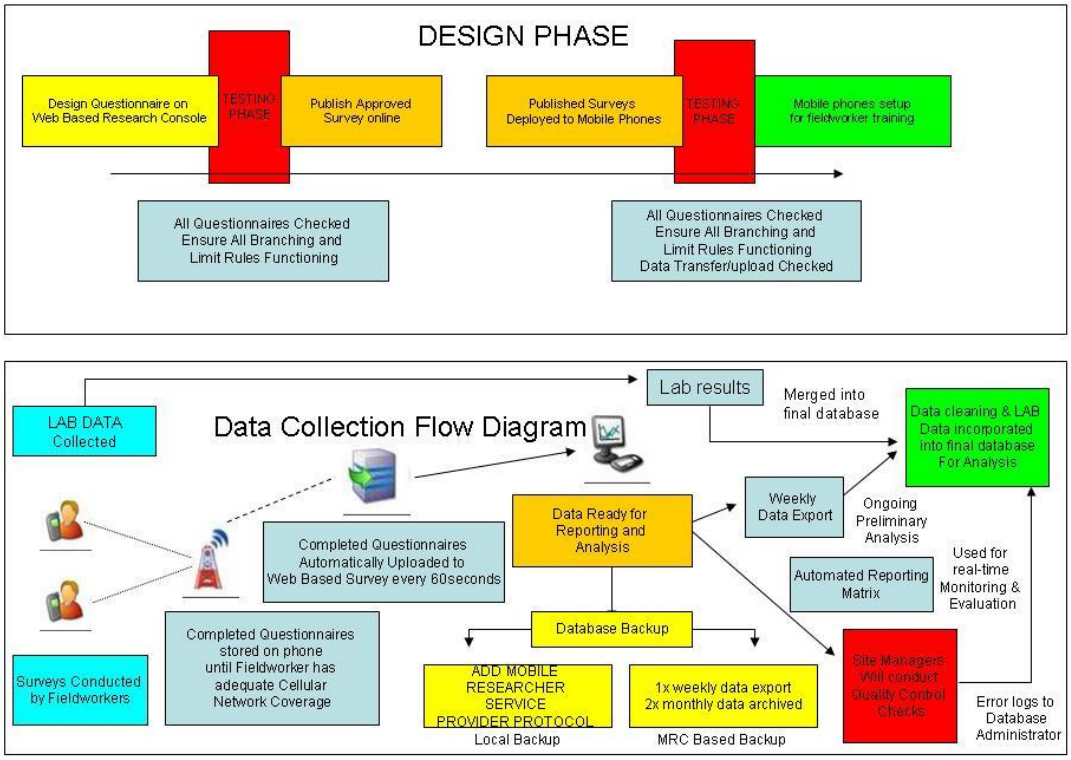
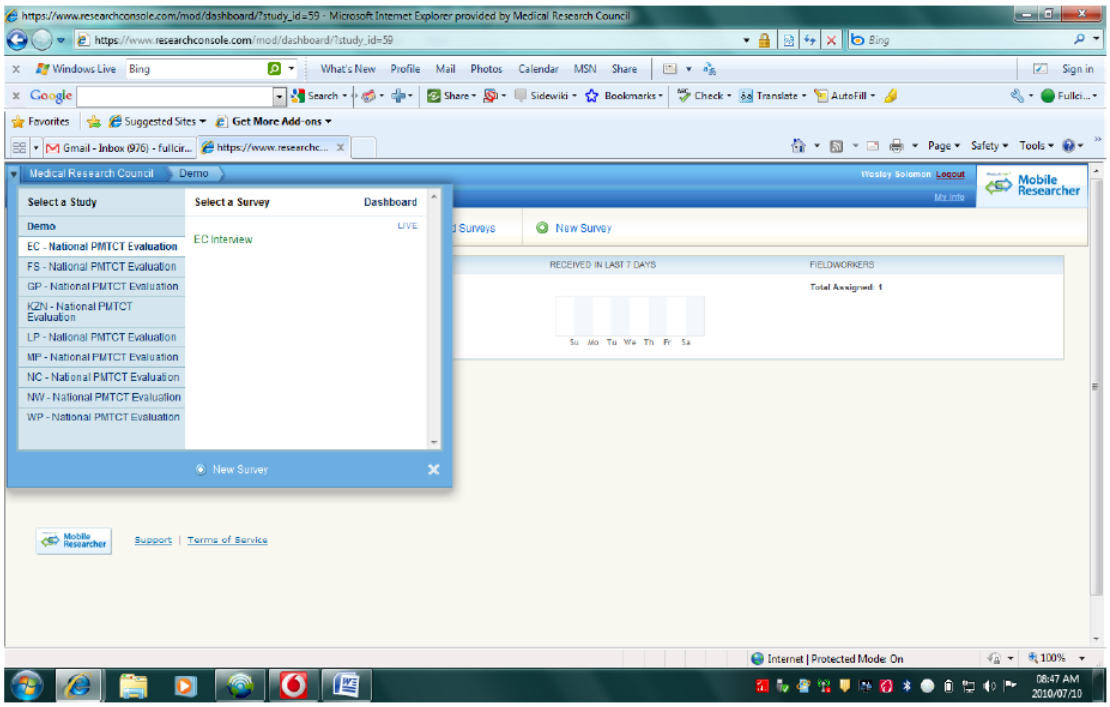


Figure 3 Example of SAPMTCTE Mobile Researcher web-based interface



2.7 Laboratory Methods

The National Institute for Communicable Diseases, a division of the South African National Health Laboratory Service (NHLS), performed DBS testing. Questionnaires and DBS specimens were linked using unique study identification numbers and laboratory tracking numbers. All testing was conducted according to strict standard operating procedures (SOPs). All assays used for surveillance were validated and/or verified prior to use, accredited and the performance monitored by proficiency testing. Specimens received in the laboratory were reviewed against the tracking lists/request forms for correctness and adequacy of specimens. Each specimen received unique bar-coded identifiers for tracking and data extraction. Rejected specimens were accompanied by a rejection form with specified reasons and referred to field staff for correction. A tracking list of rejected specimens was held by the laboratory in electronic format. Specimens were tested and results entered into a LIMS system.

The algorithm for testing was decided based on the outcome of initial dual ELISA testing. A total of 690 specimens were included in the analysis. The agreement between the two tests was 99.4% and the sensitivity and specificity of the Genscreen assay was 99.7% and 99.2% respectively. Based on these results, it was decided that all specimens be tested initially with the Genscreen assay; every reactive specimens and every 10th non-reactive specimen were tested using a second ELISA, Vironostika (bioMérieux, France). Discordant specimens (discordance between the 1st positive ELISA and 2nd ELISA or discordance between maternal self-reported results and the 1st ELISA) were re-

tested using a second dried blood spot and additional ELISA tests and Western blot assays. PCR was performed on the DBS to exclude laboratory error or false positive laboratory results.

DBS specimens collected from enrolled and consented infants were tested for HIV using a laboratory HIV ELISA test (Genscreen HIV antibody assay). Reactive DBS (i.e. infant identified as being HIV antibody positive), the test was repeated using a different ELISA test (VIRONOSTIKA).

Confirmed positive ELISA tests were then tested using a qualitative HIV PCR test (Cobas AmpliPrep/Cobas TaqMan HIV-1 Qual test version 1.0, Roche Diagnostics, Branchburg, NJ) to determine whether the infant was currently HIV positive. In the case of a known HIV-positive mother, the study DBS specimens and testing replaced the expected routine early infant HIV diagnosis (EID). The procedure for qualitative PCR testing was by automated Ampliprep/Taqman v1.0 technology (Roche). Evaluation of HIV PCR performance on DBS has demonstrated a sensitivity and specificity of 99.7% and 100% respectively (Stevens *et al*, 2008).
The data extraction of ALL ELISA reactive results were by location code and individual reports were generated by "name of infant" for return to the facility where the infant was tested. The report forms were standardised and contained all the required information, based on the original request form. Infants received their test results at the next immunisation visit (14 weeks).
For research use the data were extracted to exclude personal patient identifiers and emailed to the researchers. The extracted data were in Excel format. Databases were validated and confirmed at two levels before release. The Excel spreadsheet was then merged fortnightly with the questionnaire database. Laboratory data were sent electronically from the laboratory. Tracking logs (study IDs) were used to link questionnaire data and blood test results. The tracking log was managed by the logistics manager.

2.8 Quality Control of Field Work

Quality control (QC) was maintained by adhering and monitoring adherence to standardised operational procedures (SOPs) (e.g. how to conduct interviews, obtaining informed consent, pre-test counseling, DBS collection, recording data, reporting data etc.) Data collectors (nurses) were trained over 5 days using a standardized manual and operating procedures. Training included practical sessions on how to gather data and take infant blood. Data collectors were mainly the same group recruited for the 2010 and 2011 surveys. QC activities aimed to improve the quality and validity of the collected data by:

- Identifying factors that may affect the accuracy and reliability of the data and addressing the identified factors;
- Preventing and correcting errors in the collection of data; and
- Ensuring that field activities align with the study SOPs.

2.9 Data Management

Data captured on the phones were protected with a write-only security model. Data collectors could modify and review data while the interview was in progress. Captured data was encoded and stored on the device in the Record Management system, which ensured that only the Mobile Researcher application could access the data.
The data were transferred securely to the web console, which uses 128-bit strength encryption. Data storage and back up protocols are compliant to enterprise standards and database servers run RAID to ensure redundancy in case of disk failure.

The uploaded data were reviewed daily to ensure that all data collectors were submitting responses in accordance with scheduled work plans. The work plans were developed to achieve the required number of DBS per facility and key questions were identified in the database to estimate and track the collection of blood sample progress.

Questionnaire data were maintained by Mobile Researcher and exported to Excel for data analysis. Anonymised laboratory data (Study ID only) were exported to Excel for merging with questionnaire data. Consent verification from hard copy consent forms were entered into Excel and double-checked. Interim data analysis was completed during the course of the study. Data from the questionnaire, laboratory results and consent verification were all merged and cross-checked. Data without consent verification were not included for analysis. Duplicates and other inconsistencies across data sets were checked and cleaned according to data standards. Out-of-range and data consistency checks were completed as a component of the initial data analysis.

2.10 Data Analysis

Sample Realisation

A total of 572 sampled clinics were included in the final sample. This included four newly sampled clinics to replace four clinics included in the 2011 sample; reasons for replacement included clinic closure (temporary or permanent) or no longer administering immunisations. The overall sample realisation was 74.8% with four provinces having low realisation (Free State, Mpumalanga, Northern Cape and North West). More details on sample realization is contained in the Operational Report http://www.mrc.ac.za/healthsystems/publications.htm.

Sample Weights

Sample weights were calculated for the survey to adjust for sampling design across provinces and the sample realisation (as outlined above). The data from provinces were weighted by using the proportional distribution of number of live births observed in 2008 for South Africa over provinces. The realisation weights were done at the district or provincial level depending on the sampled size and realisation within strata. For Northern Cape and Mpumalanga the realisation weighting was done at the provincial level. The realisation weights pertain to the per protocol sample size.

A survey analysis was done which took into account the stratification, the different sampling stages and the finite number of PSUs involved. A weighted analysis was done to obtain national estimates as well as provincial estimates. The infant HIV infection prevalence was estimated at the national population level and in the HIV exposed sub-population. These estimates all have 95% confidence intervals. Design effects are also reported. The survey specification and analysis was done in SAS version 9.2. Descriptive statistics of the demographic profile of the participants was done by province and country-wide, accounting for the survey design and realisation.

3. RESULTS

3.1 Sample Realisation and Survey Profile

Table 2 indicates the desired and actual sample sizes for participants with interview data and DBS samples per province and nationally for the 2012-2013 survey period. All but four provinces successfully realised a sample size of >70% for the 2012-2013 survey.

Table 1 SAPMTCTE desired and actual sample size by province

Province	Desired Sample Size	Actual Sample Size		
		2010	2011-2012	2012-2013
Eastern Cape	1400	776 (55.0%)	1194 (85%)	1035 (73.9%)
Free State	1300	1143 (88.0%)	1056 (81%)	868 (66.8%)
Gauteng	1800	1735 (96.0%)	1607 (89%)	1637 (90.9%)
KwaZulu-Natal	1400	1224 (87.0%)	1052 (75%)	1060 (75.7%)
Limpopo	1400	1022 (73.0%)	1070 (76%)	1225 (87.5%)
Mpumalanga	1600	1286 (80.0%)	1210 (76%)	898 (56.1%)
Northern Cape	700	444 (63.0%)	506 (72%)	426 (60.9%)
North West	1200	1171 (98.0%)	1037 (86%)	781 (65.1%)
Western Cape	1400	1381 (99.0%)	1374 (98%)	1190 (85.0%)
South Africa	**12 200**	**10 154 (83.0%)**	**10106 83%)**	**9120 (74.8%)**

Weighting during analysis adjusted estimates in all provinces with lower than expected sample realisation.

Figure 4 details the final study profile for the survey. Of the 10533 approached at the selected sites 652 (6.2%) did not meet the inclusion criteria, 201 (2.0%) refused participation and 184 (1.8%) had incomplete consent forms. Thus 9679 (98.0%) were enrolled into the SAPMTCT Evaluation. Of these 47 (0.5%) refused infant DBS and 21 (0.2%) had insufficient DBS. Thus 9120 (92.3%) of infants eligible for participation in this study were included in the final analysis.

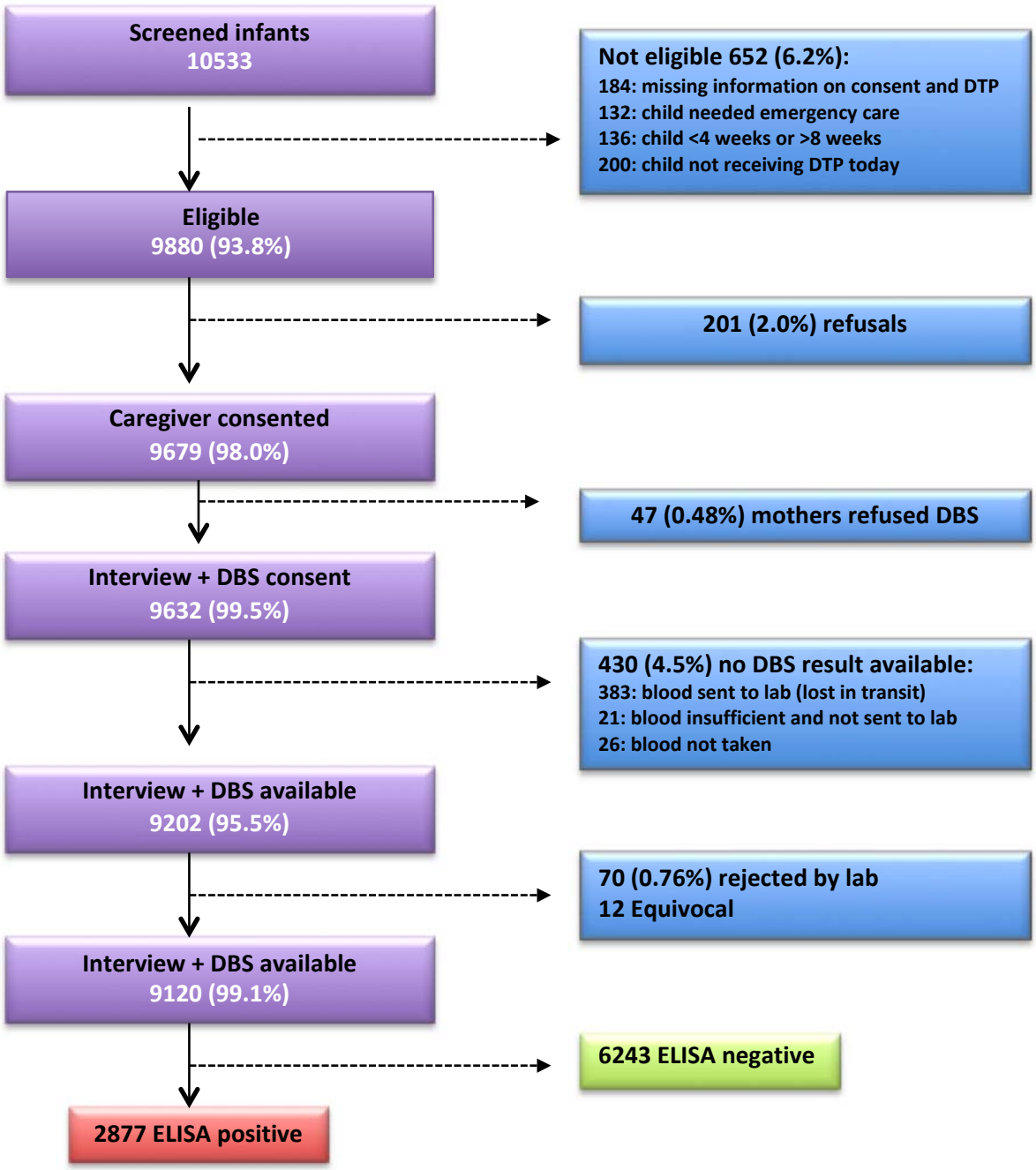


Figure 4 2012-13 SAPMTCTE study profile

3.2 Sample Description and Characteristics

Tables 3a and 3b provide a summary of selected characteristics of the SAPMTCTE survey sample.

Table 3a Selected socio-demographic characteristics: 2011 SAPMTCTE

Key: ZA: South Africa EC: Eastern Cape FS: Free State GP: Gauteng KZN: KwaZulu-Natal LP: Limpopo MP: Mpumalanga NC: Northern Cape NW: North West WC: Western Cape

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
Relationship of interviewee to the child	Mother	1156201 (97.02) (96.67-97.36)	94.05 (92.53-95.58)	96.50 (95.66-97.35)	98.44 (97.97-98.92)	96.52 (95.38-97.66)	96.54 (95.54-97.54)	97.65 (96.97-98.34)	98.62 (97.91-99.32)	97.35 96.64-98.07)	97.29 (96.58-98.01)
	Father	1671 (0.14) (0.07-0.21)	0.08 (0.0-0.23)	0.08 (0.0-19)	0.19 (0.0-0.37)	0.07 (0.0-0.18)	0.09 (0.0-0.26)	0.29 (0.02-0.57)	-	0.17 (0.0-0.36)	0.21 (0.01-0.40)
	Grandmother/ grandfather	19494 (1.64) (0.37-0.66)	3.85 (2.67-5.03)	2.09 (1.41-2.77)	0.93 (0.52-1.34)	1.66 (0.86-2.45)	1.96 (1.14-2.78)	0.96 (0.52-1.39)	0.59 (0.18-1.01)	1.76 (1.16-2.36)	1.01 (0.53-1.49)
	Guardian/ legal guardian	6171 (0.52) (0.57-0.66)	1.34 (0.72-1.96)	1.16 (0.69-1.63)	0.25 (0.0-0.51)	0.39 (0.082)	0.56 (0.18-0.94)	0.53 (0.16-0.90)	0.79 (0.32-1.26)	0.28 (0.05-0.52)	0.29 (0.06-0.51)
	Other caregiver	8209 (0.67) (0.51-0.87)	0.67 (0.29-1.06)	0.17 (0.0-0.35)	0.19 (0.0-0.37)	1.37 (0.63-2.10)	0.84 (0.34-1.35)	0.57 (0.24-0.91)	-	0.44 (0.14-0.74)	1.21 (0.67-1.75)
Age of mother	<15	14800 (1.24) (1.04-1.45)	3.27 (2.41-4.12)	1.23 (0.70-1.77)	0.44 (0.14-0.73)	1.23 (0.58-1.87)	1.02 (0.48-1.58)	1.78 (1.15-2.40)	0.59 (0.17-1.01)	0.66 (0.30-1.01)	1.54 (0.96-2.12)
	15-19	185919 (15.6) (14.82-16.38)	21.61 (19.55-23.67)	13.90 (12.08-15.72)	10.89 (9.42-12.36)	19.51 (16.96-22.06)	13.83 (11.81-15.86)	19.92 (17.83-22.00)	15.8 (13.82-17.80)	14.35 (12.34-16.36)	13.47 (11.86-15.08)
	20-24	359179 (30.14) (29.16-31.12)	30.90 (28.50-33.30)	31.65 (29.60-33.70)	29.25 (27.28-31.22)	31.3 (28.12-34.50)	31.78 (29.08-34.47)	30.37 (27.70-33.04)	29.05 (26.45-31.65)	31.35 (29.21-33.49)	25.51 (23.50-27.52)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
Age of mother cont.	25-29	304662 (25.56) (24.67-26.46)	21.61 19.89-23.32)	25.66 (23.55-27.76)	27.38 (25.53-29.23)	24.79 (21.92-27.65)	25.05 (22.52-27.57)	23.17 (21.12-25.19)	25.89 (23.49-28.28)	25.99 (23.56-28.42)	29.10 (27.01-31.12)
	30-34	181495 (15.23) (14.63-15.93)	12.48 (11.07-13.89)	17.14 (15.22-19.07)	17.30 (15.76-18.84)	13.31 (11.22-15.41)	15.51 (13.45-17.57)	13.91 (12.28-15.53)	17.59 (15.43-19.74)	13.01 (11.46-14.56)	17.77 (16.08-19.46)
	35-39	112037 (9.40) (8.80-10.00)	7.70 (6.38-9.03)	8.07 (6.75-9.40)	11.45 (10.04-12.86)	7.32 (5.73-8.90)	9.91 (7.87-11.94)	8.07 (6.79-9.35)	9.29 (8.01-10.57)	11.09 (9.48-12.69)	10.14 (8.94-11.35)
	40-44	31252 (2.62) (2.31-2.93)	1.76 (0.21-2.25)	2.13 (1.50-2.75)	3.11 (2.42-3.81)	2.24 (1.32-3.17)	2.90 (1.95-3.84)	2.79 (2.03-3.56)	1.78 (1.17-2.39)	3.56 (2.73-4.38)	2.37 (1.69-3.05)
	45-49	2404 (0.20) (0.11-0.29)	0.67 (0.34-0.10)	0.21 (0.00-0.42)	0.19 (0.01-0.37)	0.29 (0.00-0.59)	-	-	-	-	0.09 (0.00-0.24)
Education of mother	None	17416 (1.46) (1.23-1.69)	1.68 (1.09-2.26)	0.63 (0.21-1.05)	1.25 (0.81-1.68)	1.27 (0.57-1.97)	1.03 (0.55-1.51)	2.49 (1.58-3.39)	1.98 (1.21-2.75)	3.46 (2.45-4.47)	0.69 (0.24-1.15)
	Grade 1-7	158083 (13.27) (12.36-14.17)	19.93 (16.99-22.88)	11.75 (9.98-13.52)	8.09 (6.61-9.57)	13.77 (10.84-16.69)	11.59 (9.45-13.73)	18.64 (15.67-21.62)	14.03 (11.70-16.36)	21.05 (18.50-23.59)	11.00 (8.89-13.12)
	Grade 8-12	943980 (79.21) (78.02-80.40)	72.78 (69.82-75.73)	85.05 (82.92-87.17)	81.58 (78.69-84.47)	80.93 (77.49-84.37)	79.07 (76.85-81.28)	76.53 (73.46-79.60)	82.02 (79.70-84.33)	70.86 (67.82-73.90)	81.55 (78.98-84.12)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
Education of mother cont.	Completed tertiary /technical/ University	69924 (5.87) (5.15-6.58)	5.19 (3.90-6.49)	2.30 (1.62-2.98)	2.94 (6.80-11.12)	4.04 (2.63-5.45)	8.13 (6.47-9.79)	2.11 (1.43-2.80)	1.38 (0.61-2.16)	4.48 (3.19-5.78)	6.32 (4.42-8.23)
	Unknown	2344 (0.20) (0.12-0.28)	0.42 (0.12-0.72)	0.28 (0.0-0.55)	0.13 (0.0-0.34)	-	0.19 (0.0-0.42)	0.23 (0.01-0.46)	0.59 (0.20-0.99)	0.15 (0.0-0.32)	0.45 (0.16-0.74)
Marital status of mother	Single	8851176 (74.28) (72.68-75.87)	73.37 (71.06-75.67)	65.01 (61.86-68.17)	69.07 (64.77-73.38)	89.58 (85.74-93.41)	62.71 (58.72-66.70)	82.04 (79.53-84.54)	80.44 (77.48-83.39)	81.06 (78.36-83.75)	62.30 (57.82-66.77)
	Married	234114 (19.65) (18.49-20.79)	25.63 (23.21-28.05)	27.10 (24.20-30.00)	18.79 (15.93-21.66)	7.33 (5.61-9.04)	32.06 (28.24-35.87)	15.45 (12.82-18.08)	17.98 (14.83-21.14)	16.57 (14.13-19.01)	29.23 (25.61-32.85)
	Co-habiting	66914 (5.62) (4.27-6.96)	0.67 (0.26-1.08)	6.98 (5.02-8.94)	11.51 (7.53-15.49)	3.10 (0.0-6.82)	4.95 (2.83-7.08)	2.24 (1.36-3.13)	0.99 (0.12-1.86)	1.75 (1.06-2.44)	7.27 (4.95-9.60)
	Widowed	2079 (0.17) (0.11-0.24)	-	0.63 (0.12-1.15)	0.25 (0.04-0.45)	-	-	0.17 (0.0-0.37)	0.59 (0.18-1.00)	0.45 (0.12-0.79)	0.23 (0.02-0.42)
	Divorced / separated	3269 (0.27) (0.18-0.37)	0.34 (0.07-0.60)	0.28 (0.0-0.55)	0.31 (0.02-0.60)	-	0.28 (0.01-0.55)	0.10 (0.0-0.28)	-	0.17 (0.0-0.37)	0.98 (0.60-1.37)
	Unknown	195.13 (0.02)	-	-	0.06 (0.0-0.17)	-	-	-	-	-	-
Main building material of house	Brick/Cement block	902267 (75.74) (73.77—77.71)	59.06 (52.77-65.35)	79.71 (77.12-82.30)	80.52 (76.62-84.43)	68.29 (61.94-74.64)	87.45 (84.79-90.12)	89.90 (87.25-92.54)	79.25 (75.27-83.23)	74.51 (71.25-77.76)	70.26 (64.11-76.42)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
	Informal material / corrugated iron / wood	190680 (16.01) (14.52-17.49)	9.90 (6.64-13.16)	18.96 (16.44-21.47)	19.48 (15.57-23.38)	12.38 (9.03-15.74)	7.96 (5.80-10.12)	7.95 (5.54-10.36)	20.75 (16.77-24.73)	23.46 (20.18-26.74)	29.74 (23.59-35.90)
	Traditional material/mud	97799 (8.21) (6.43-9.98)	31.04 (23.55-38.53	1.33 (0.54-2.13)	No data	19.13 (12.03-26.24)	4.59 (2.48-6.69)	2.09 (0.88-3.30)	-	2.03 (0.89-3.16)	-
	Other	529.76 (0.05) (0-0.09)	-	-	-	0.20 (0.0-43)	-	0.06 (0.0-1.6)	-	-	-
Main source of drinking water	Piped in house or yard	872976 (73.28) (70.84-75.72)	46.56 (38.78-54.35)	96.52 (95.63-97.41)	92.91 (90.53-95.28)	55.34 (46.34-64.33)	42.88 (37.87-47.90)	85.37 (80.49-90.25)	90.32 (87.60-93.04)	74.83 (68.94-80.73)	98.01 (96.90-99.12)
	Not piped in house or yard	318299 (26.72) (24.28-29.16)	53.44 (45.66-61.22)	3.48 (2.59-4.37)	7.09 (4.72-9.47)	44.66 (35.67-53.66)	57.12 (52.10-62.14)	14.63 (9.75-19.51)	9.68 (6.97-12.40)	25.17 (19.27-31.06)	1.99 (0.88-3.10)
Type of toilet	Flush toilet	598233 (50.22) (47.85-52.58)	24.58 (18.28-30.88)	72.00 (66.94-77.05)	87.06 (83.50-90.62)	22.56 (16.11-29.01)	13.76 (9.17-18.36)	20.80 (14.92-26.69)	80.63 (76.72-84.54)	43.58 (35.75-51.40)	92.61 (90.01-95.22)
	Pit latrine	554604 (46.56) (44.24-48.87)	69.13 (62.88-75.38)	25.43 (20.48-30.39)	12.63 (9.10-16.16)	71.04 (64.12-77.95)	81.84 (77.22-86.45)	78.88 (73.00-84.75)	11.86 (9.22-14.50)	54.31 (46.59-62.04)	5.26 (2.83-7.69)
	None	34037 (2.86) (1.77-3.94)	5.87 (3.69-8.05)	0.55 (0.16-0.94)	0.19 (0.01-0.37)	6.41 (1.37-11.44)	4.31 (2.69-5.92)	0.32 (0.07-0.57)	3.36 (2.00-4.72)	2.02 (1.27-2.78)	1.20 (0.57-1.83)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
	Other	4401 (0.37) (0.25-0.48)	0.42 (0.05-0.79)	2.02 (0.68-3.36)	0.13 (0.0-0.34)	-	0.09 (0.0-0.26)	-	4.15 (2.49-5.81)	0.09 (0.0-0.24)	0.93 (0.46-1.40)
Main source of fuel	Electricity/ gas/ Paraffin	1064496 (89.36) (87.47-91.24)	88.84 (83.41-94.27)	98.74 (97.90-99.57)	99.25 (98.70-99.81)	81.48 (74.23-88.72)	57.21 (49.56-64.86)	97.35 (96.05-98.65)	96.25 (94.60-97.89)	96.00 (94.77-97.24)	99.56 (99.28-99.84)
	Other	126779 (10.64) (8.76-12.52)	11.16 (5.73-16.59)	1.26 (0.43-2.10)	0.75 (0.20-1.30)	18.52 (11.28-25.77)	42.79 (35.14-50.44)	2.65 (1.35-3.95)	3.76 (2.11-5.40)	4.00 (2.77-5.23)	0.44 (0.16-0.72)
Depletion of food supply in past 12 months	Yes	153521 (12.89) (11.58-14.20)	12.42 (9.08-15.75)	14.90 (12.77-17.03)	8.15 (5.92-10.39)	18.35 (13.48-23.22)	17.14 (13.97-20.30)	5.43 (3.55-7.31)	21.15 (18.46-23.84)	10.81 (8.54-13.08)	14.80 (12.45-17.45)
	No	1035236 (86.90) (85.59-88.22)	87.16 (83.77-90.56)	84.93 (82.70-87.16)	91.72 (89.48-93.97)	81.55 (76.66-86.44)	82.87 (79.70-86.03)	94.44 (92.52-96.37)	78.66 (75.90-81.41)	88.54 (86.29-90.80)	84.72 (82.04-87.40)
	Don't know	2519 (0.21) (0.13-0.29)	0.42 (0.10-0.74)	0.17 (0.0-0.41)	0.13 (0.0-0.27)	0.10 (0.0-0.28)	-	0.13 (0.0-0.26)	0.20 (0.0-0.45)	0.65 (0.26-1.03)	0.48 (0.17-0.79)
Planned Pregnancy	Yes	437343 (38.37) (36.83-39.90)	31.99 (27.09-36.88)	50.16 (46.50-53.81)	43.12 (39.57-46.67)	22.67 (19.34-26.01)	52.61 (49.88-55.35)	47.15 (41.63-52.66)	38.71 (34.54-42.88)	34.46 (31.44-37.48)	38.36 (35.76-40.95)
	No	699693 (61.38) (59.84-62.92)	67.74 (62.89-72.59)	48.78 (44.78-52.79)	56.75 (53.19-60.32)	77.02 (73.68-80.36)	47.39 (44.66-50.12)	52.77 (47.26-58.27)	60.89 (56.68-65.10)	64.73 (61.68-67.77)	61.64 (59.05-64.24)
	Don't know	2849 (0.25) (0.15-0.35)	0.28 (0.01-0.54)	1.06 (0.20-1.92)	0.13 (0.0-0.28)	0.31 (0.0-0.62)	-	0.09 (0.0-0.22)	0.40 (0.06-0.75)	0.82 (0.27-1.37)	-

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
Infant gender	Male	596132 (50.02) (49.04-51.00)	51.84 (49.24-54.45)	50.36 (47.61-53.11)	50.97 (48.89-53.04)	49.66 (46.54-52.78)	48.04 (45.63-50.44)	50.38 (48.54-52.22)	54.15 (51.53-56.77)	46.81 (44.46-49.15)	49.35 (47.33-51.37)
	Female	595615 (49.98) (49.00- 50.95)	48.16 (45.56-50-76)	49.64 (46.89-52.39)	49.04 (46.96-51.11)	50.35 (47.23-53.47)	51.96 (49.56-54.37)	49.62 (47.78-51.46)	45.85 (43.23-48.47)	53.19 (50.85-55.54)	50.65 (48.63-52.67)
Infant age in weeks	4	12158 (1.02) (0.80-1.24)	3.09 (2.10-4.10)	0.54 (0.17-0.91)	0.25 (0.04-0.46)	1.05 (0.31-1.79)	0.65 (0.18-1.13)	3.03 (2.18-3.88)	0.59 (0.20-0.98)	0.56 (0.21-0.92)	0.07 (0.00-0.18)
	5	74632 (6.26, 5.40-7.12)	10.97 (7.91-14.03)	8.72 (6.06-11.39)	3.24 (2.01-4.46)	6.60 (3.68-9.52)	6.54 (4.03-9.05)	9.31 (7.28-11.34)	9.09 (6.73-11.45)	8.07 (6.178-9.96)	2.18 (1.19-3.16)
	6	955558 (80.18, 78.93-81.43)	64.57 (60.62-68.53)	82.60 (79.40-85.79)	86.43 (83.76-89.11)	79.09 (75.61-82.56)	86.63 (83.58-89.69)	71.51 (67.91-75.10)	74.11 (70.54-77.68)	79.53 (77.26-81.81)	83.79 (81.40-86.19)
	7	120393 (10.10, 9.25-10.95)	16.50 (13.76-19.23)	7.57 (5.94-9.20)	8.46 (6.37-10.56)	10.90 (8.74-13.06)	4.67 (3.01-6.34)	12.14 (10.12-14.15)	13.24 (11.50-14.98)	9.44 (7.74-11.15)	11.27 (9.22-13.33)
	8	29006 (2.43) (2.11- 2.75)	4.86 (3.49-6.22)	0.56 (0.28-0.85)	1.62 (1.05-2.19)	2.36 (1.50-3.23)	1.50 (0.76-2.23)	4.02 (2.80-5.23)	2.96 (1.92-3.29)	2.38 (1.47-3.29)	2.68 (1.85-3.51)

Key findings (2011): Nationally, 97.02% of infants were brought to the clinic by their mothers; 30.14% of mothers were aged 20-34 years; 79.21% mothers had completed grades 8-12 or more of school; 74.28% of mothers were single; 61.38% of mothers reported that their pregnancy was unplanned; 12.89% reported running out of food at some time during the past 12 months and 80.2% of infants were aged 6 weeks. National socio-economic indicators indicate that 75.74% of respondents lived in solid-structure homes (brick/block/cement); 73.28% had access to piped water in their home/yard; 50.22% had a flush toilet and more than 89.36% used electricity as their main fuel source.

Table 3b Selected socio-demographic characteristics - 2012-2013 SAPMTCTE

Key: ZA: South Africa EC: Eastern Cape FS: Free State GP: Gauteng KZN: KwaZulu-Natal LP: Limpopo MP: Mpumalanga NC: Northern Cape NW: North West WC: Western Cape

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
Relationship of interviewee to child	Mother	1181637 (96.89) (96.52-97.25)	94.46 (92.96-95.96)	96.62 (95.70-97.54)	98.52 (97.99-99.04)	96.43 (95.36-97.50)	96.27 (95.20-97.34)	96.09 (95.01-97.17)	96.85 (95.88-97.82)	97.60 (96.63-98.56)	97.95 (97.30-98.61)
	Father	1487 (0.12) (0.06-0.18)	0.15 (0.0-0.32)	0.20 (0.0-0.41)	0.11 (0.0-0.24)	0.08 (0.0-0.21)	0.17 (0.0-0.39)	0.11 (0.0-0.30)	-	0.12 (0.0-0.31)	0.16 (0.0-0.34)
	Grandmother/ grandfather	20840 (1.71) (1.45-1.97)	3.15 (2.05-4.26)	2.29 (1.49-3.08)	0.72 (0.32-1.11)	1.98 (1.24-2.72)	2.33 (1.42-3.24)	1.74 (1.01-2.46)	1.80 (1.01-2.59)	0.98 (0.46-1.49)	1.15 (0.70-1.60)
	Guardian/ legal guardian	7661 (0.63) (0.47-0.78)	1.40 (0.77-2.03)	0.22 (0.0-0.44)	0.25 (0.0-0.50)	0.51 (0.12-0.90)	0.45 (0.09-0.81)	1.63 (0.93-2.33)	1.13 (0.57-1.68)	0.71 (0.07-1.36)	0.32 (0.01-0.63)
	Other caregiver	7996 (0.66) (0.48-0.83)	0.83 (0.37-1.30)	0.68 (0.30-1.05)	0.41 (0.12-0.69)	1.00 (0.38-1.63)	0.77 (0.37-1.18)	0.43 (0.13-0.74)	0.23 (0.0-0.51)	0.60 (0.12-1.08)	0.42 (0.15-0.69)
Age of mother	<15	2467 (0.20) (0.09-0.31)	0.27 (0.0-0.55)	0.09 (0.0-0.21)	0.28 (0.0-0.57)	0.16 (0.0-0.46)	0.09 (0.0-0.23)	0.33 (0.04-0.62)	-	0.12 (0.0-0.31)	0.24 (0.02-0.46)
	15-19	179170 (14.75) (13.92-15.58)	18.15 (15.53-20.77)	12.88 (11.17-14.60)	11.29 (9.52-13.06)	18.75 (16.43-21.08)	13.49 (11.63-15.35)	17.60 (15.71-19.48)	13.12 (11.03-15.21)	13.59 (10.77-16.41)	11.30 (9.73-12.88)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
Age of mother cont.	20-24	375508 (30.91) (29.96-31.86)	34.73 (32.16-37.31)	31.61 (29.57-33.65)	28.01 (25.74-30.28)	33.41 (30.79-36.02)	29.61 (27.30-31.91)	30.82 (28.24-33.40)	31.67 (29.73-33.62)	29.48 (26.74-32.21)	29.80 (27.68-31.92)
	25-29	307204 (25.29) (24.39-26.18)	23.70 (21.15-26.25)	24.68 (22.95-26.42)	27.88 (25.71-30.05)	24.40 (22.15-26.64)	24.85 (22.11-27.59)	23.72 (21.54-25.90)	25.57 (23.11-28.02)	22.60 (20.26-24.93)	27.34 (24.77-29.90)
	30-34	204061 (16.80) (16.04-17.56)	12.49 (10.30-14.69)	17.65 (15.92-19.38)	19.94 (18.18-21.70)	13.19 (11.37-15.01)	19.40 (17.19-21.60)	15.19 (13.33-17.05)	19.00 (17.06-20.95)	19.55 (17.21-21.90)	17.66 (15.07-20.25)
	35-39	107980 (8.89) (8.33-9.45)	7.55 (5.82-9.27)	9.65 (8.24-11.05)	9.09 (7.85-10.32)	7.64 (6.18-9.10)	9.32 (7.67-10.96)	8.52 (7.0-10.05)	7.47 (5.83-9.10)	11.71 (10.09-13.34)	10.36 (8.84-11.89)
	40-44	36362 (2.99) (2.65-3.34)	2.67 (1.86-3.49)	3.25 (2.47-4.04)	3.46 (2.59-4.32)	2.38 (1.45-3.30)	3.17 (2.27-4.06)	3.28 (2.13-4.42)	2.94 (1.83-4.05)	2.83 (1.93-3.72)	3.20 (2.33-4.08)
	45-49	2004 (0.16) (0.09-0.24)	0.43 (0.04-0.82)	0.19 (0.0-0.38)	0.06 (0.0-0.16)	0.07 (0.0-0.20)	0.09 (0.0-0.23)	0.55 (0.08-1.02)	0.23 (0.0-0.48)	0.12 (0.0-0.30)	0.10 (0.0-0.25)
Education of mother	None	13898 (1.14) (0.94-1.34)	0.83 (0.34-1.32)	0.49 (0.14-0.84)	0.89 (0.50-1.28)	1.47 (0.92-2.01)	1.27 (0.65-1.88)	1.52 (0.87-2.17)	2.48 (1.72-3.23)	1.79 (0.95-2.63)	0.42 (0.08-0.76)
	Grade 1-7	164166 (13.46) (12.51-14.41)	22.61 (18.68-26.53)	16.81 13.21-20.42	9.65 (7.85-11.44)	12.23 (9.89-14.56)	11.66 (9.54-13.79)	14.12 (11.84-16.39)	16.44 (13.84-19.04)	18.12 (14.99-21.24)	9.77 (7.91-11.63)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
Education of mother cont.	Grade 8-12	968319 (79.40) (78.35-80.44)	69.23 (65.32-73.14)	78.44 (75.01-81.87)	83.34 (81.10-85.58)	81.21 (78.80-83.63)	78.02 (75.28-80.76)	79.37 (76.59-82.15)	78.38 (75.34-81.41)	75.69 (72.63-78.75)	83.29 (81.02-85.55)
	Completed tertiary/ technical/ University	69652 (5.71) (5.09-6.34)	6.79 (4.99-8.59)	3.76 (2.77-4.76)	5.71 (4.28-7.15)	4.94 (3.29-6.58)	8.81 (6.85-10.78)	4.67 (3.18-6.16)	2.25 (1.38-3.13)	4.28 (2.84-5.73)	6.45 (4.59-8.31)
	Unknown	3587 (0.29) (0.19-0.39)	0.54 (0.13-0.95)	0.50 (0.17-0.82)	0.40 (0.12-0.69)	0.15 0.0-0.34	0.24 (0.0-0.48)	0.33 (0.05-0.60)	0.45 (0.10-0.84)	0.12 (0.0-0.31)	0.08 (0.0-0.20)
Marital status of mother	Single	922670 (75.65) (74.36-76.94)	73.98 (71.01-76.95)	64.40 (60.67-68.13)	70.96 (67.54-74.38)	89.10 (86.60-91.60)	70.77 (66.61-74.93)	79.91 (77.24-82.60)	81.98 (80.17-83.80)	78.88 (75.37-82.40)	62.68 (58.92-66.43)
	Married	224942 (18.44) (17.42-19.47)	24.78 (21.76-27.80)	21.41 (19.04-23.79)	18.80 (16.20-21.40)	7.67 (6.17-9.18)	25.46 (21.50-29.42)	16.61 (13.93-19.29)	14.86 (13.32-16.41)	14.70 (11.88-17.52)	30.21 (27.46-32.96)
	Co-habiting	66056 (5.42) (4.56-6.27)	0.89 (0.18-1.60)	13.44 (8.72-8.17)	9.39 (6.73-12.04)	3.13 (1.41-4.85)	3.23 (1.72-4.73)	2.82 (1.73-3.92)	2.93 (1.68-4.17)	6.18 (3.63-8.73)	6.55 (4.10-8.99)
	Widowed	2410 (0.20) (0.12-0.28)	0.08 (0.0-0.21)	0.47 (0.16-0.78)	0.34 (0.08-0.59)	0.09 (0.0-0.26)	0.22 (0.0-0.43)	0.33 (0.06-0.59)	0.23 (0.0-0.50)	-	0.09 (0.0-0.23)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
	Divorced / separated	2925 (0.24) (0.15-0.33)	0.27 (0.0-0.61)	0.19 (0.01-0.37)	0.43 (0.16-0.71)	-	0.16 (0.0-0.35)	0.33 (0.02-0.63)	-	0.24 (0.0-0.50)	0.40 (0.12-0.68)
	Unknown	0.05 (0.01-0.09)	-	0.09 (0.0-0.21)	0.09 (0.0-0.24)	-	0.16 (0.0-0.36)	-	-	-	0.08 (0.0-0.20)
Main building material of house	Brick/ Cement Block	935758 (76.73) (74.95-78.51)	63.72 (57.93-69.52)	76.75 (74.33-79.18)	80.01 (76.23-83.80)	67.98 (62.10-73.86)	91.29 (88.97-93.60)	92.39 (90.27-94.51)	80.41 (77.25-83.56)	78.26 (78.85-81.68)	71.05 (65.62-76.47)
	Informal material / corrugated iron / wood	197279 (16.20) (14.68-17.67)	9.35 (6.20-12.49)	21.43 (18.95-23.91)	19.98 (16.20-23.77)	16.91 (12.60-21.23)	5.75 (3.60-7.89)	4.57 (3.06-6.07)	19.59 (16.44-22.75)	20.91 (17.39-24.43)	28.72 (23.32-34.12)
	Traditional material/ Mud	85465 (7.0) (5.63-8.38)	26.68 (20.90-32.46)	1.64 (0.81-2.47)	-	15.02 (9.70-20.37)	2.99 (1.52-4.41)	2.83 (1.34-4.31)	-	0.71 (0.20-1.22)	0.24 (0.01-0.46)
	Other	1014 (0.08) (0.03-0.13)	0.25 (0.02-0.48)	0.18 (0.0-0.36)	-	0.09 (0.0-0.25)	-	0.22 (0.0-0.47)	-	0.12 (0.0-0.30)	-
Main source of drinking water	Piped in house or yard	910773 (74.68) (72.35-77.01)	46.94 (38.86-55.02)	88.48 (85.37-91.60)	92.37 (89.29-95.45)	66.76 (59.03-74.48)	53.60 (46.92-60.29)	79.35 (73.64-85.06)	89.41 (86.81-92.01)	75.28 (69.53-81.04)	93.36 (89.94-96.78)
	Not piped in house or yard	308742 (25.32) (22.99-27.65)	53.06 (44.98-61.14)	11.52 (8.41-14.63)	7.63 (4.55-10.71)	33.24 (25.52-40.97)	46.40 (39.71-53.08)	20.65 (14.94-26.36)	10.59 (7.99-13.19)	24.72 (18.96-30.47)	6.64 (3.22-10.10)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
Type of toilet	Flush toilet	642901 (50.72) (50.20-55.23)	37.91 (29.58-46.23)	67.16 (61.90-72.43)	89.78 (86.98-92.58)	27.48 (20.19-34.77)	20.33 (12.75-27.90)	26.20 (20.19-32.20)	79.73 (76.15-83.31)	48.59 (40.87-56.31)	90.87 (87.98-93.76)
	Pit latrine	546537 (44.82) (42.42-47.22)	57.44 (49.63-65.26)	28.30 (22.95-33.65)	9.80 (6.97-12.60)	68.77 (61.97-75.57)	77.24 (69.86-84.62)	73.70 (67.70-79.69)	15.99 (12.64-19.35)	51.30 (43.63-58.96)	5.10 (3.12-7.10)
	None	22741 (1.86) (1.30-2.43)	4.44 (2.52-6.37)	0.47 (0.17-0.77)	0.29 (0.07-0.52)	3.75 (1.48-6.03)	2.05 (0.91-3.20)	0.11 (0.0-0.27)	2.25 (1.12-3.39)	0.12 (0.0-0.30)	1.61 (0.75-2.50)
	Other	7336 (0.60) (0.37-0.83)	0.21 (0.0-0.46)	4.07 (1.52-6.62)	0.14 (0.0-0.31)	-	0.38 (0.09-0.67)	-	2.03 (0.96-3.10)	-	2.42 (0.65-4.19)
Main source of fuel	Electricity	1001602 82.13 (80.33-83.93)	72.96 (67.47-78.44)	90.72 (89.01-92.42)	91.17 (88.70-93.64)	72.45 (66.31-78.59)	68.24 (61.66-74.83)	87.61 (84.02-91.20)	90.09 (87.67-92.51)	86.92 (84.37-89.48)	95.47 (93.72-97.23)
	Gas/ Paraffin	124197 10.18 (9.01-11.35)	18.13 (13.97-22.29)	7.73 (6.22-9.25)	8.78 (6.32-11.24)	15.53 (11.89-19.18)	5.13 (3.16-7.11)	6.52 (3.90-9.14)	8.78 (6.45-11.12)	8.75 (6.53-10.97)	3.89 (2.19-5.59)
	Other	93717 7.68 (6.29-9.08)	8.91 (15.11-12.71)	1.55 (0.75-2.34)	0.05 (0.0-0.14)	12.02 (7.26-16.77)	26.62 (19.85-33.39)	5.87 (3.29-8.45)	1.13 (0.15-2.10)	4.33 (2.65-6.01)	0.64 (0.17-1.10)
Depletion of food supply in past 12	Yes	212213 (17.40) (15.76-19.04)	14.07 (9.74-18.40)	19.46 (16.97-21.94)	8.23 (6.31-10.15)	31.50 (25.20-37.81)	11.34 (8.68-14.00)	14.78 (11.63-17.93)	24.77 (21.20-28.35)	18.73 (14.97-22.49)	16.40 (12.88-19.92)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
months	No	1004935 (82.40) (80.76-84.05)	85.40 (81.06-89.74)	80.28 (77.80-82.77)	91.67 (89.75-93.58)	68.35 (62.03-74.68)	88.66 (86.00-91.32)	84.89 (81.78-88.00)	75.23 (71.65-78.80)	81.15 (77.43-84.87)	83.28 (79.68-86.87)
	Don't know	2367 (0.04) (0.11-0.28)	0.53 (0.13-0.92)	0.27 (0.02-0.50)	0.10 (0.0-0.28)	0.15 (0.0-0.36)	-	0.33 (0.04-0.61)	-	0.12 (0.0-0.31)	0.32 (0.10-0.54)
Planned Pregnancy	Yes	455966 (38.93) (37.43-40.42)	35.48 (31.39-39.57)	40.91 (38.30-43.51)	43.67 (40.64-46.69)	23.15 (19.28-27.03)	57.14 (53.70-60.58)	42.68 (39.08-46.27)	36.71 (32.71-40.70)	44.43 (40.30-48.56)	37.10 (34.08-40.12)
	No	713540 (60.91) (59.41-62.42)	64.21 (60.13-68.29)	53.32 (55.66-60.99)	56.07 (53.01-59.13)	76.85 (72.97-80.72)	42.78 (39.36-46.21)	57.32 (53.73-60.92)	63.29 (59.30-67.29)	55.45 (51.31-59.58)	62.90 (59.88-65.92)
	Don't know	1843 (0.16) (0.09-0.23)	0.31 (0.01-0.61)	0.77 (0.35-1.19)	0.27 (0.03-0.50)	-	0.07 (0.00-0.20)	-	-	0.12 (0.00-0.32)	-
Infant gender	Male	617167 (50.60) (49.64-51.57)	50.86 (47.61-54.12)	48.62 (46.28-50.96)	49.99 (47.94-52.04)	49.97 (47.28-52.66)	53.16 (50.99-55.32)	51.14 (48.25-54.03)	50.45 (47.76-53.14)	50.49 (47.39-53.59)	50.99 (48.81-53.18)
	Female	602455 (49.40) (48.43-50.36)	49.14 (45.88-52.39)	51.38 (49.04-53.72)	50.01 (47.96-52.06)	50.03 (47.34-52.72)	46.84 (44.68-49.00)	48.86 (45.97-51.75)	49.55 (46.86-52.24)	49.51 (46.41-52.61)	49.01 (46.82-51.19)
Infant age in weeks	4	5470 0.45 (0.30-0.60)	1.59 (0.62-2.57)	-	0.20 (0.00-0.40)	0.07 (0.00-0.20)	0.99 (0.43-1.57)	0.33 (0.03-0.62)	0.23 (0.00-0.49)	0.52 (0.00-1.03)	0.26 (0.02-0.51)

Characteristics	Categories	ZA weighted freq (Wt%) (95% CI)	EC Wt% (95% CI)	FS Wt% (95% CI)	GP Wt% (95% CI)	KZN Wt% (95% CI)	LP Wt% (95% CI)	MP Wt% (95% CI)	NC Wt% (95% CI)	NW Wt% (95% CI)	WC Wt% (95% CI)
	5	40840 3.35 (2.79-3.90)	2.88 (1.69-4.07)	2.26 (1.17-3.35)	3.53 (2.04-5.01)	2.96 (1.79-4.14)	5.47 (3.28-7.67)	2.82 (1.71-3.94)	4.05 (2.71-5.40)	2.91 (1.62-4.20)	3.03 (1.42-4.65)
	6	1039607 85.24 (84.13-86.35)	71.50 (67.49-75.51)	90.29 (87.70-92.87)	86.51 (83.41-89.61)	87.40 (84.97-89.84)	85.69 (82.73-88.65)	88.60 (86.58-90.62)	83.56 (81.30-85.82)	88.40 (85.72-91.08)	84.90 (82.50-87.30)
	7	109274 8.96 (8.09-9.83)	18.58 (15.54-21.62)	5.39 (3.81-6.98)	7.91 (5.40-10.42)	7.85 (5.80-9.90)	6.47 (5.02-7.92)	7.38 (5.65-9.12)	10.36 (8.69-12.03)	7.40 (5.19-9.60)	10.15 (8.54-11.77)
	8	24431 2.00 (1.68-2.32)	5.44 (3.80-7.08)	2.06 (0.76-3.36)	1.86 (1.23-2.49)	1.71 (0.89-2.54)	1.37 (0.80-1.94)	0.87 (0.43-1.31)	1.80 (1.15-2.45)	0.78 (0.05-1.50)	1.65 (1.07-2.23)

Key findings: (2012-2013)

Nationally, 96.89% of infants were brought to the clinic by their mothers; 70.93% of mothers were aged 20-34 years; 85.10% mothers had completed grades 8-12 or more of school; 75.65% of mothers were single; 60.91% of mothers reported that their pregnancy was unplanned; 17.40% reported running out of food at some time during the past 12 months and 85.24% of infants were aged 6 weeks. National socio-economic indicators indicate that 76.7% of respondents lived in solid-structure homes (brick/block/cement); 74.68% had access to piped water in their home/yard; 50.7% had a flush toilet and more than 80.0% used electricity as their main fuel source.

3.3 Infant HIV Infection Prevalence

Table 4 Infant HIV infection prevalence nationally and by province (weighted analysis, 2010-2013: % (CI)

Province	Infant HIV Infection Prevalence 2010	Infant HIV Infection Prevalence 2011	Infant HIV Infection Prevalence 2012-2013
Eastern Cape	2.0 (1.1-2.9)	1.3 (0.7-1.8)	0.7 (0.3-1.1)
Free State	2.4 (1.6-3.2)	1.2 (0.7-1.7)	1.0 (0.5-1.4)
Gauteng	1.1 (0.6-1.5)	0.8 (0.3-1.2)	0.7 (0.4-1.1)
KwaZulu-Natal	1.9 (1.2-2.7)	0.9 (0.4-1.5)	1.3 (0.6-2.0)
Limpopo	0.9 (0.4-1.5)	0.8 (0.3-1.2)	0.5 (0.2-0.9)
Mpumalanga	3.0 (2.1-3.8)	1.2 (0.8-1.7)	0.6 (0.2-0.9)
Northern Cape	0.3 (0.1-0.6)	1.0 (0.4-1.6)	0.5 (0.1-0.9)
Northwest	1.9 (1.2-2.5)	0.8 (0.4-1.2)	1.7 (1.1-2.3)
Western Cape	0.9 (0.4-1.5)	0.4 (0.1-0.6)	0.4 (0.1-0.7)
National	**1.5 (1.3-1.7)**	**0.9 (0.7-1.1)**	**0.9 (0.7-1.0)**

The national weighted infant HIV infection prevalence among infants aged 4-8 weeks attending child health clinics for their six week immunisation was 0.9% [95% CI 0.7-1.0%] (Table 4). Infant HIV infection prevalence is the prevalence of HIV positivity among all infants tested regardless of exposure, which provides an indication of total burden of HIV disease in infants at 4-8 weeks of age.

3.4 National and Provincial Infant HIV Exposure and MTCT Risk

The national prevalence of infant HIV exposure was 33.1% [95% CI 31.8-34.4%], with wide provincial variation (Table 5). [Note: Infant HIV exposure prevalence is presumed to be roughly equivalent to maternal HIV prevalence].

Among these HIV-exposed infants, the national risk of MTCT of HIV by 8 weeks is 2.6% [95% CI 2.0-3.2%], with the lowest 1.5% [95% CI 0.6-2.4%] and highest 5.4% [95% CI 3.4-7.4%] risks recorded in the Mpumalanga and North West provinces respectively.

It is important to note that for the provinces marked with an '*' the sample precision was less (wider confidence intervals) due to the lower sample realisation (Table 2).

Table 5 Infant HIV exposure and (early) MTCT 4-8 weeks postpartum: nationally and by province (weighted analysis, 2010-2013): % (CI)

Province	Infant HIV exposure 2010	MTCT 2010	Infant HIV exposure 2011	MTCT 2011	Infant HIV exposure 2012-2013	MTCT 2012-2013
Eastern Cape	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)
Free State	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)*
Gauteng	30.4 (27.9-33.0)	2.5 (1.5-3.6)	33.1 (29.8-36.4)	2.1 (0.2-3.4)	34.0 (30.6-37.4)	2.2 (1.3-3.1)
KwaZulu-Natal	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)
Limpopo	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)
Mpumalanga	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)*
Northern Cape	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)*
Northwest	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)*
Western Cape	21.0 (17.0-25.0)	3.9 (1.9-5.8)	17.8 (14.8-20.8)	1.9 (0.7-3.3)	22.1 (17.8-26.6)	1.9 (0.4-3.3)
South Africa	**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)**

***Unstable estimates due to small sample size**

3.5 National PMTCT Programme Cascade

Table 6 presents results for PMTCT programme indicators as per maternal report in all mothers interviewed. The percent of pregnant women who knew their HIV status by 4-8 weeks postpartum was 95.5%% (95.0-96.0). Maternal receipt of HIV test results (amongst those tested) was 99.7%thus overall 95.2% of mothers enrolled in the 2012-13 survey were tested for HIV infection and received their results. This was a significant reduction compared with the 2010 and 2011 surveys

Of *ALL* mothers enrolled in the survey 32.1% reported being HIV-positive while HIV antibody was found in 32.2% of *ALL* infants – a 2.9% difference. Amongst *mothers who reported being HIV-negative*, 2.6% of their infants had HIV antibodies (referred to as "Maternal potential HIV acquisition"). This was a reduction from the 2011 measurement. This risk also varied substantially across provinces from a low of 0.6% in the Northern Cape to a high of 3.7% in the Eastern Cape. Maternal potential HIV acquisition is a likely combination of the following scenarios:

(i) Mothers did not want to admit being HIV positive and instead, reported being HIV negative. However, the 2012-2013 data show that refusals for infant HIV testing were low (0.5%) and disclosure was high; thus we assume that this scenario contributed little to this indicator.

(ii) Mothers were tested during the window period for the ANC test.

(iii) Poor performance of rapid tests in the field causes false negative results at ANC on HIV-infected women. Reported field sensitivities are as low as 87% to 95% depending on the rapid test used. The contribution of test-related characteristics to these findings are corroborated by our findings that 2.5% [95% CI 1.8-3.2%] mothers who reported being HIV positive had antibody negative infants by six weeks postpartum.

(iv) True acquisition of HIV after the last HIV test – primarily during pregnancy.

It is concerning to note that among self-reported HIV negative women 22% had their last HIV test at or after 32 weeks, with the lowest (10.1%) recorded in Gauteng and the highest (42.2%) in the Western Cape province (Table 6).

Table 6 HIV testing & results among pregnant women (weighted analysis for 2010-2013): % (CI)

Province	Tested for HIV infection			Proportion that received results, amongst those tested			Mothers report being HIV-positive			% ELISA positive infants born to self-reported HIV negative mothers			Self-reported negative mothers with last HIV test at or after 32 weeks gestation
	2010	**2011**	**2012-2013**	**2010**	**2011**	**2012-2013**	**2010**	**2011**	**2012-2013**	**2010**	**2011**	**2012-2013**	**2012-2013**
Eastern Cape	97.5 (96.5-98.6)	98.3 (97.6-98.9)	91.5 (89.4-93.6)	98.1 (97.1-99.1)	98.4 (97.7-99.2)	95.5 (92.8-98.2)	27.1 (23.5-30.7)	29.9 (26.8-32.9)	28.1 (24.9-31.2)	7.8 (5.8-9.7)	5.2 (3.7-6.7)	3.7 (2.1-5.2)	17.6 (12.5-22.8)
Free State	98.8 (98.3-99.2)	97.6 (96.8-98.5)	94.6 (93.3-95.9)	98.9 (98.5-99.4)	99.0 (98.5-99.6)	96.6 (94.7-98.4)	27.9 (25.7-30.1)	28.5 (25.8-31.1)	33.0 (30.3-35.8)	5.4 (4.3-6.4)	4.2 (3.0-5.3)	2.4 (1.4-3.4)	14.4 (10.4-18.3)
Gauteng	99.1 (98.7-99.2)	98.5 (98.0-99.1)	97.3 (96.5-98.2)	99.3 (98.9-99.6)	99.7 (99.5-99.9)	97.1 (95.6-98.6)	28.3 (25.8-30.8)	30.4 (27. 1-33.7)	32.9 (29.7-36.1)	3.0 (2.2-3.9)	3.4 (2.4-4.4)	1.9 (1.1-2.7)	10.1 (7.4-13.0)
KwaZulu-Natal	98.9 (98.3-99.2)	97.9 (96.8-99.1)	95.4 (94.1-96.7)	99.5 (99.1-99.9)	99.9 (99.7-100.0)	97.4 (96.2-98.7)	42.2 (38.1-46.2)	41.4 (36.3-46.4)	43.5 (39.7-47.3)	3.2 (2.1-4.4)	5.0 (3.7-6.4)	2.6 (1.2-4.0)	26.5 (19.5-33.4)
Limpopo	98.6 (97.8-99.5)	98.4 (97.7-99.0)	95.1 (93.7-96.5)	97.0 (95.9-98.1)	99.4 (98.9-99.8)	88.1 (84.0-92.2)	19.4 (17.3-21.6)	20.2 (17.3-23.1)	23.8 (20.7-26.9)	5.1 (3.6-6.7)	1.6 (0.9-2.3)	3.4 (2.2-4.7)	34.3 (27.9-40.6)
Mpumalanga	98.6 (97.8-99.3)	98.4 (97.6-99.1)	94.3 (93.0-95.6)	97.1 (96.3-98.0)	99.0 (98.6-99.5)	97.7 (96.1-99.4)	32.6 (29.7-35.5)	29.1 (26.7-31.4)	36.8 (33.5-40.0)	7.8 (5.8-9.7)	10.2 (8.2-12.2)	2.6 (1.5-3.8)	12.7 (9.1-16.3)
Northern Cape	99.3 (98.9-99.8)	99.0 (98.4-99.5)	95.3 (93.6-97.0)	96.7 (95.7-97.6)	99.8 (99.5-100.0)	98.8 (97.2-100)	14.4 12.2-16.7)	14.3 (12.3-16.2)	20.5 (17.3-23.6)	2.2 (1.2-3.3)	1.9 (1.2-2.7)	0.6 (0.1-1.2)	21.1 (15.4-26.8)
North West	99.2 (98.8-99.6)	99.1 (98.7-99.6)	97.3 (96.3-98.3)	98.5 (97.8-99.1)	99.1 (98.5-99.6)	96.9 (94.9-98.9)	28.7 (26.7-30.6)	29.2 (26.7-31.7)	29.6 (26.6-32.6)	5.4 (3.9-6.8)	3.7 (2.5-4.9)	3.4 (2.0-4.8)	18.7 (13.9-23.5)
Western Cape	98.6 (97.9-99.3)	97.7 (97.1-98.4)	97.0 (96.2-97.8)	98.8 (98.3-99.3)	99.4 (99.0-99.8)	94.6 (90.9-98.2)	19.9 (16.1-23.8)	17.2 (14.1-20.3)	21.1 (17.5-24.8)	1.1 (0.3-1.9)	0.7 (0.3-1.2)	1.7 (0.9-2.4)	42.7 (37.4-48.0)
South Africa	**98.8 (98.5-99.0)**	**98.3 (98.0-98.6)**	**95.5 (95.0-96.0)**	**98.6 (98.4-98.9)**	**99.4 (99.3-99.6)**	**99.7 (99.6-99.8)**	**29.4 (28.1-30.7)**	**29.6 (28.0-31.2)**	**32.1 (30.8-33.4)**	**4.1 (3.7-4.6)**	**3.9 (3.5-4.4)**	**2.6 (2.1-3.0)**	**22.0 (20.1-24.0)**

Table 7a shows uptake of CD4 cell count results and infant HIV testing: 65.9% (63.3-68.6%) of mothers reported receiving a CD4 test result; Maternal knowledge of CD4 cell count results (Table 7a) was lower than observed in 2010 and 2011, possibly illustrating the lack of communication between health care personnel and HIV-positive women or poor maternal memory of their CD4 cell count result. Health policy that obviated the need for CD4 cell counts to initiate appropriate ARV therapy only changed in 2013, and cannot explain this reduction.

Only 47.0% [95% CI 42.8-51.3%] of reported HIV-positive mothers indicated that they planned to obtain early infant diagnosis (EID) for their infant during their six week immunisation visit (ranging from 12.04% in Northern Cape to 60.23% in the Western Cape). Apart from a slight decline in the KZN province, it is very encouraging to note that all other provinces indicated a significant increase in intention to obtain EID (2012-2013) [Table 7a].

Table 7a Access to the PMTCT programme in self-reported HIV-positive mothers: Uptake of CD4 cell count results and intention to seek early infant HIV diagnosis (weighted analysis, 2010-2013): % (CI)

Province	Blood taken for maternal CD4 Test and mother received result			Intended to obtain EID at 6 weeks		
	2010	2011	2012-2013	2010	2011	2012-2013*
EC	67.6 (60.2-75.1)	70.1 (64.1-76.0)	57.9 (52.4-63.5)	21.6 (14.9-28.4)	28.0 (17.6-38.4)	55.4 (45.2-65.6)
FS	85.8 (82.7-89.0)	63.2 (56.9-69.4)	59.2 (53.5-64.9)	43.7 (33.3-54.1)	24.6 (17.8-31.4)	36.4 (29.6-43.1)
GP	74.6 (69.8-79.4)	77.1 (72.1-82.0)	68.1 (61.6-74.5)	42.5 (32.6-52.4)	25.4 (19.2-31.5)	39.2 (30.1-48.4)
KZN	85.5 (82.1-88.8)	87.2 (81.3-93.1)	74.5 (68.4-80.5)	41.1 (30.5-51.6)	63.6 (53.7-73.5)	59.0 (48.2-69.7)
LP	68.3 (61.0-75.5)	68.1 (62.2-74.0)	54.2 (47.1-61.3)	28.4 (20.4-36.5)	31.1 (23.2-38.9)	34.1 (25.9-42.3)
MP	69.5 (65.5-73.5)	66.6 (62.6-70.7)	55.6 (49.5-61.8)	29.8 (23.1-36.5)	41.2 (32.1-50.3)	52.4 (44.2-60.7)
NC	88.7 (83.0-94.3)	76.8 (69.4-84.3)	61.4 (52.8-70.1)	1.6 (0.1-4.0)	11.6 (5.2-18.0)	12.0 (6.0-18.1)
NW	81.7 (78.3-85.1)	74.2 (69.9-78.5)	58.1 (52.2-64.1)	3.6 (1.6-5.7)	13.0 (7.3-18.7)	28.0 (21.0-35.0)
WC	89.6 (86.8-92.5)	86.4 (81.7-91.2)	78.6 (72.9-84.2)	37.9 (28.8-47.0)	46.3 (36.1-56.5	60.2 (50.0-70.4)
ZA	**78.3 (76.4-80.4)**	**77.4 (74.9-80.0)**	**65.9 (63.3-68.6)**	**35.1 (30.6-39.6)**	**38.5 (34.3-42.7)**	**47.0% (42.8-51.3)**

Amongst mothers with self-reported HIV positive status, 54.8% reported initiating ART before or during pregnancy and 35.5%% reported receiving maternal and infant ARV prophylaxis (no ART), Table 7b. The significant increase in ART access in 2012-13 compared with 2010 is due to the changed criteria for ART access between 2010 and 2012-13. Antiretroviral coverage as ART for mother or prophylaxis for mother and baby was 90.3% (Table 7b). Amongst self-reported HIV positive mothers 8.4% (95% CI 7.4-9.5%) received antiretroviral coverage for mother or baby (not both) whilst 1.2% (95% CI 0.8-1.6%) did not receive any antiretroviral prophylaxis.

Table 7b Access to the PMTCT programme in self-reported HIV-positive mothers: Uptake of ART and ARV prophylaxis, weighted analysis, 2010-2013: % (CI)

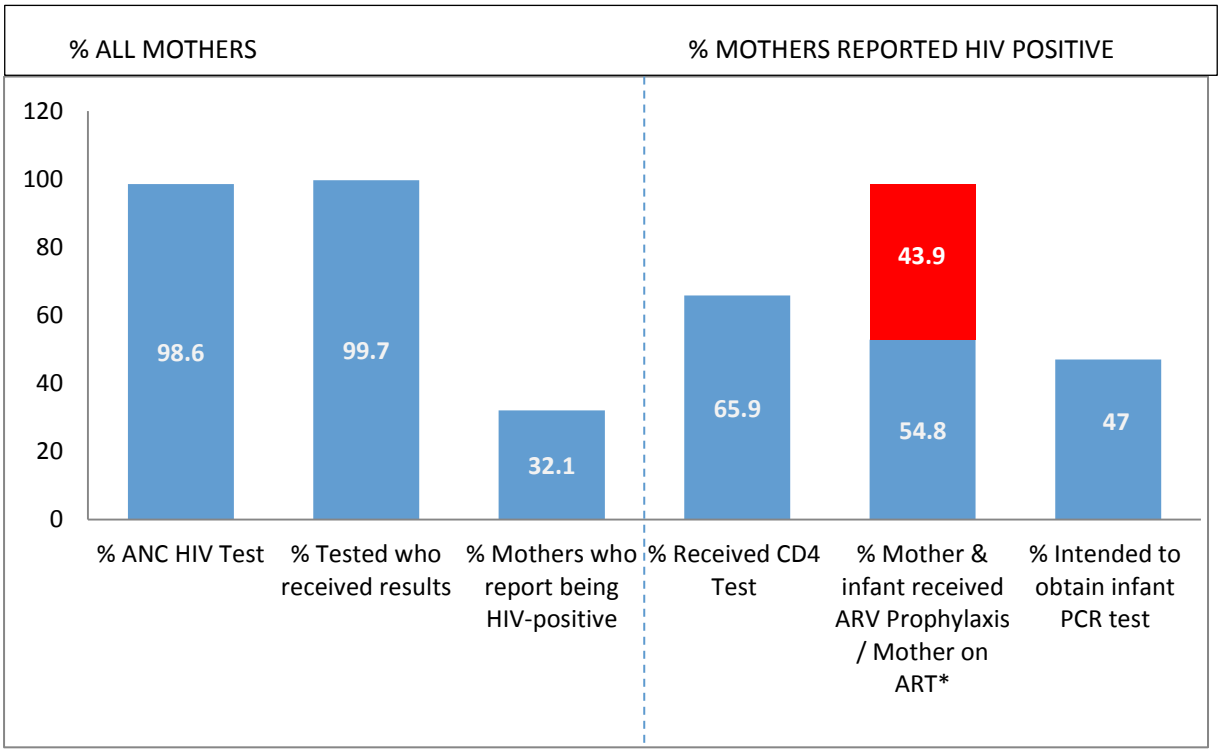
Province	Mother and Infant Received ARV Prophylaxis (no ART)			Received ART antenatally or before		
	2010	2011	2012-2013	2010	2011	2012-2013*
EC	63.5 (55.3-71.7)	53.5 (48.1-58.9)	35.7 (29.9-41.4)	23.0 (16.9-29.0)	38.9 (33.3-44.4)	50.4 (43.7-57.1)
FS	56.4 (51.6-61.1)	51.8 (46.5-57.2)	28.0 (23.5-32.4)	37.7 (33.2-42.2)	44.2 (38.8-49.7)	65.0 (61.6-68.4)
GP	52.8 (47.1-58.4)	48.1 (42.8-53.4)	35.6 (30.3-41.0)	40.1 (34.9-45.3)	46.1 (41.1-51.1)	57.6 (52.9-62.4)
KZN	65.2 (61.1-69.3)	56.6 (51.8-61.3)	38.4 (33.5-43.2)	29.4 (25.5-33.3)	39.0 (34.2-43.8)	52.6 (47.5-57.6)
LP	54.3 (47.3-61.3)	48.2 (42.5-53.9)	34.4 (28.1-40.7)	33.3 (27.3-39.4)	37.7 (31.9-43.5)	53.4 (46.9-59.9)
MP	56.1 (51.8-60.3)	60.5 (54.3-66.7)	37.3 (32.4-42.3)	27.5 (23.3-31.7)	31.9 (25.9-37.8)	46.1 (40.5-51.7)
NC	58.7 (51.1-66.3)	46.4 (41.3-51.5)	21.9 (16.2-27.7)	28.6 (19.6-37.6)	52.2 (46.6-57.7)	67.1 (59.8-74.3)
NW	57.4 (52.4-62.5)	44.0 (39.6-48.5)	27.0 (21.4-32.6)	33.7 (29.1-38.4)	49.3 (44.6-53.9)	61.3 (55.5-67.2)
WC	60.0 (52.7-67.3)	47.6 (43.8-51.4)	39.0 (33.8-44.2)	34.2 (27.9-40.6)	49.8 (45.4-54.3)	56.9 (51.8-62.0)
ZA	**58.7 (56.3-61.1)**	**52.0 (49.7-54.2)**	**35.5 (33.3-37.6)**	**33.1 (30.8-35.3)**	**41.9 (39.7-44.2)**	**54.8 (52.6-57.0)**

Table 7c shows the timing of ART initiation amongst women in 2012-2013. It is encouraging to note that there has been a steady increase in access to ART from 2010 to present. For 2012-2013, data obtained shows that nationally, more women received ART during pregnancy (55.7%) [95% CI 41.8-55.4] vs. before pregnancy (42.2%) [95% CI 42.6-56.7] or after pregnancy (1.9%) [95% CI 0-3.9]. This observation was seen in all provinces except for Northern Cape, Western Cape and the North West province.

Table 7c Timing of ART initiation amongst women reportedly receiving ART in 2012-2013: (weighted analysis, % and 95% CI)

Timing of ART initiation amongst women receiving ART in 2012-2013			
	Labour		
Province	Before	During	After
EC	49.6 (42.6-56.7)	48.6 (41.8-55.4)	1.8 (0-3.9)
FS	37.1 (31.3-42.9)	61.2 (55.5-66.9)	1.6 (0.3-3.0)
GP	39.2 (34.7-43.7)	58.6 (54.5-62.8)	2.2 (0.8-3.5)
KZN	40.1 (34.2-45.9)	58.1 (52.3-63.9)	1.4 (0-3.1)
LP	37.2 (29.8-44.7)	61.5 (54.1-68.9)	1.3 (0-2.9)
MP	40.5 (34.3-46.8)	55.4 (49.2-61.6)	3.4 (1.1-5.7)
NC	50.0 (42.3-57.7)	44.8 (37.2-52.5)	5.2 (1.5-8.8)
NW	53.6 (46.5-60.7)	45.7 (38.7-52.6)	0.7 (0-1.9)
WC	50.6 (43.8-57.4)	45.9 (39.1-52.8)	3.5 (0.6-6.3)
ZA	**42.2 (39.9-44.6)**	**55.7 (53.4-58.0)**	**2.0 (1.3-2.6)**

Figure 5 PMTCT service uptake (PMTCT cascade) in South Africa: 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who reported being HIV positive. For the indicator '% Mother and Infant received ARV prophylaxis/Mother on ART', the colour red indicates the percentage of self-reported HIV positive mothers receiving any ARV prophylaxis (no ART) while the colour blue indicates the percentage receiving ART before or during pregnancy.

The ARV uptake data describe ARV uptake in mothers who reported being HIV positive; thus the percentages exclude mothers who reported being HIV negative but whose infants were ELISA positive. Thus actual ARV uptake amongst mothers with ELISA positive infants is lower than those reported in the tables and Figure 4.

The data illustrate that missed opportunities exist even amongst women who know their HIV positive status.

3.6 Demographic Characteristics, MTCT and the PMTCT Cascade by Province

3.6.1 Eastern Cape

Eastern Cape achieved a sample realisation of 73.9%.

General Description of Provincial Sample

Table 8 presents characteristics of respondents in the Eastern Cape Province (2010-2013). Similar to the national trend, the majority of the respondents are single (73.98%) mothers (94.46%), with education level of grade 8-12 (69.23%). Similar to other provinces, Eastern Cape also has a notable % (14.07) of respondents that reported experiencing depletion of food in the household in the last 12 months. Economic status indicators also show that pit latrines (57.44%) and not piped water (53.06%) are utilised by the majority of the respondents.

Table 8 Baseline characteristics of Eastern Cape SAPMTCTE survey participants

	2010		
Characteristics	**Categories**	**%**	**95% CI**
Relationship to child	Mother	95.5	93.9-97.1
	Caregiver	4.7	3.2-6.1
Median maternal age (years) [range]	25.1 (14-52)		
Infant gender	Male	52.1	48.7-55.5
	Female	47.9	44.5-51.3
Education of mother	None	2.5	1.6-3.4
	Grade 1-7	21.8	18.4-25.1
	Grade 8-12	70.8	67.4-74.3
	Above Grade 12	4.4	3.0-5.9
Marital status of mother	Single	75.8	73.1-78.6
	Married/cohabitating	23.8	21.1-26.6
Main building material of house	Brick/Cement block	63.1	55.5-70.7
	Informal material	11.8	8.1-15.5
	Traditional material/mud	25.1	18.6-31.5
Main source of drinking water	Piped in house or yard	42.3	34.8-49.8
	Not piped in house or yard	57.7	50.2-65.2
Type of toilet	Flush toilet	26.4	19.6-33.3
	Pit latrine	62.9	56.6-69.1
	None	9.6	5.9-13.4
	Other	1.0	0.4-1.7
Main source of fuel	Electricity/gas/paraffin	97.8	96.9-98.8
	Other	2.2	1.2-3.1
Depletion of food supply in past 12 months	Yes	24.5	18.9-30.1
	No	75.0	69.4-80.6

2011								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					94.0	92.53-95.58	
	Father					0.1	0.0-2.3	
	Grandmother/grandfather					3.8	2.7-5.0	
	Guardian/legal guardian					1.3	0.7-2.0	
	Caregiver					0.7	0.3-1.1	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	3.3	21.6	30.9	21.6	12.5	7.7	1.8	0.7
95% CI of the %	2.4-4.1	19.5-23.7	28.5-33.3	19.9-23.3	11.1-13.9	6.3-9.0	1.3-2.2	0.3-1.0
Infant gender	Male					51.8	49.2-54.4	
	Female					48.2	45.6-50.8	
Education of mother	None					1.7	1.1-2.3	
	Grade 1-7					19.9	17.0-22.9	
	Grade 8-12					72.8	69.8-75.7	
	Completed tertiary/technical /university					5.2	3.9-6.5	
	Don't know					0.4	0.1-0.7	
Marital status of mother	Single					73.4	71.1-75.7	
	Married					25.6	23.2-28.1	
	Co-habiting					0.7	0.3-1.1	
	Widowed					-	-	
	Divorced/separated					0.3	0.1-0.6	
	Don't know					-	-	
Main building material of house	Brick/Cement block					59.1	52.8-65.3	
	Informal material/corrugated iron/wood					9.9	6.6-13.2	
	Traditional material/mud					31.0	23.6-38.5	
	Other					-	-	
Main source of drinking water	Piped in house or yard					46.6	38.8-54.3	
	Not piped in house or yard					53.4	45.7-61.2	
Type of toilet	Flush toilet					24.6	18.3-30.9	
	Pit latrine including ventilated pit latrine					69.1	62.9-75.4	
	None					5.9	3.7-8.1	
	Other					0.4	0.1-0.8	
Main source of fuel	Electricity/gas/paraffin					88.8	83.4-94.3	
	Other					11.2	5.7-16.6	
Depletion of food supply in past 12 months	Yes					12.4	9.1-15.8	
	No					87.2	83.8-90.6	
	Don't know					0.4	0.1-0.7	
Was this pregnancy planned	Yes					32.0	27.1-36.9	
	No					67.7	62.9-72.6	
	Don't know					0.3	0.0-0.5	

2012-2013								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					94.5	92.9-95.9	
	Father					0.2	0.0-0.3	
	Grandmother/grandfather					3.2	2.1-4.3	
	Guardian/legal guardian					1.4	0.8-2.0	
	Caregiver					0.8	0.4-1.3	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.3	18.1	34.7	23.7	12.5	7.6	2.7	0.4
95% CI of the %	0.0-0.6	15.5-20.8	32.2-37.3	21.2-26.3	10.3-14.7	5.8-9.3	1.9-3.5	0.0-0.8
Infant gender	Male					50.9	47.6-54.1	
	Female					49.1	45.9-52.4	
Education of mother	None					0.8	0.3-1.3	
	Grade 1-7					22.6	18.7-26.5	
	Grade 8-12					69.2	65.3-73.1	
	Completed tertiary/technical /university					6.8	4.9-8.6	
	Don't know					0.5	0.1-0.9	
Marital status of mother	Single					73.9	71.0-76.9	
	Married					24.8	21.8-27.8	
	Co-habiting					0.9	0.2-1.6	
	Widowed					0.1	0.0-0.2	
	Divorced/separated					0.3	0.0-0.6	
	Don't know					-	-	
Main building material of house	Brick/Cement block					63.7	57.9-69.5	
	Informal material/corrugated iron/wood					9.4	6.2-12.5	
	Traditional material/mud					26.7	20.9-32.5	
	Other					0.3	0.0-0.5	
Main source of drinking water	Piped in house or yard					46.9	38.9-55.0	
	Not piped in house or yard					53.1	44.9-61.1	
Type of toilet	Flush toilet					37.9	29.6-46.3	
	Pit latrine including ventilated pit latrine					57.4	49.6-65.3	
	None					4.4	2.5-6.4	
	Other					0.2	0.0-0.5	
Main source of fuel	Electricity					72.9	67.5-78.4	
	Gas/paraffin					18.1	13.9-22.3	
	Other					8.9	15.1-12.7	
Depletion of food supply in past 12 months	Yes					14.1	9.7-18.4	
	No					85.4	81.1-89.7	
	Don't know					0.5	0.1-0.9	
Was this pregnancy planned	Yes					35.5	31.4-39.6	
	No					64.2	60.1-68.3	
	Don't know					0.3	0.0-0.6	

Infant HIV Exposure and MTCT in Eastern Cape Province

Text Box 1 shows that infant HIV exposure was 29.0% [95% CI 25.1-32.9]. The prevalence of early infant HIV infection in the general population of infants enrolled in the study was 0.7% [95% CI 0.3-1.1]. The risk of MTCT (amongst HIV exposed infants), measured at 4-8 weeks postpartum, was 2.4% [95% CI 1.1-3.8] . The larger confidence interval attached to this estimate is due to the smaller sample size attained in the Eastern Cape. The percent of self-reported HIV-negative mothers whose infants had HIV antibodies (presumed maternal HIV acquisition after the initial HIV test) was 3.7% [95% CI 2.1-5.2], was significantly lower than in 2010, but still the second highest in South Africa (after Mpumalanga).

Text Box 1: Weighted Eastern Cape infant HIV exposure and MTCT: % (CI)

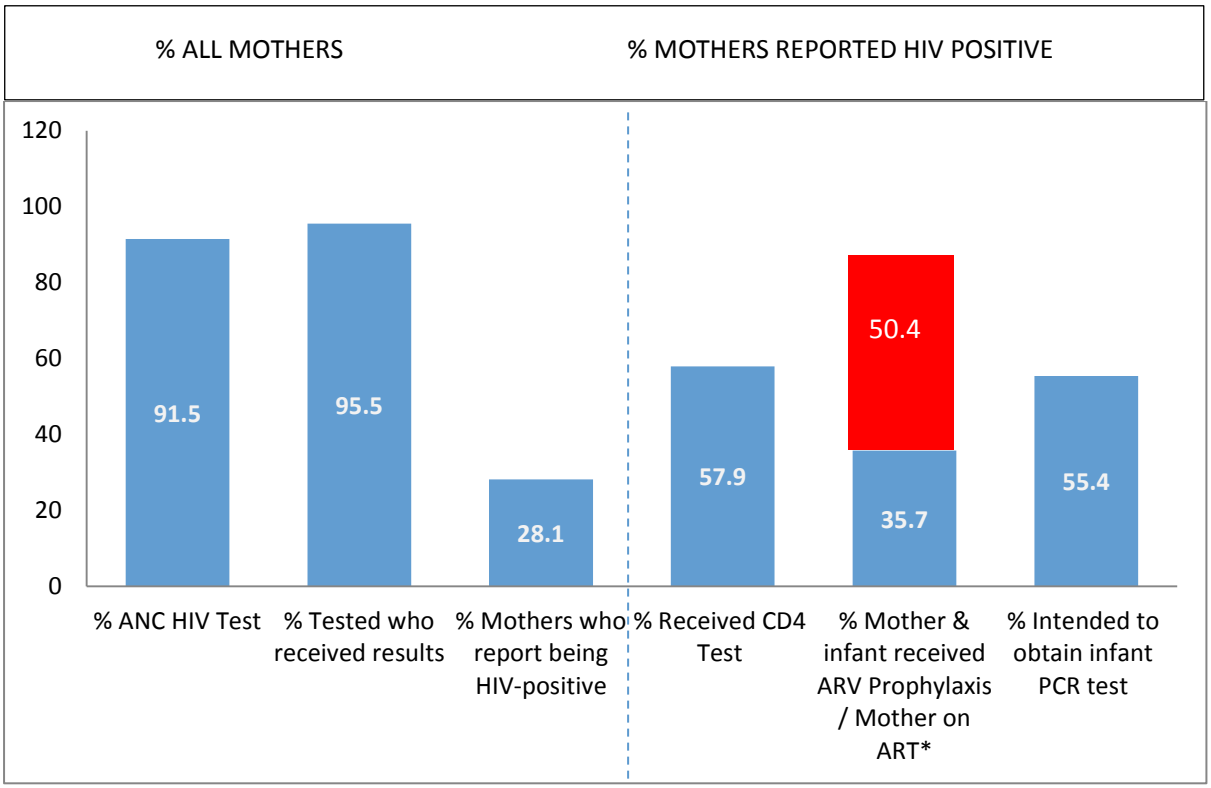
Infant HIV Exposure	Infant HIV infection prevalence at 4-8 weeks	MTCT at 4-8 weeks	% ELISA positive infants born to self-reported HIV negative mothers
2010			
30.5 (26.9-34.2)	2.0 (1.1-2.9)	4.7 (2.4-7.0)	7.8 (5.8-9.7)
2011			
32.0 (29.6-35.5)	1.3 (0.7-1.8)	3.8 (2.1-5.5)	5.2 (3.7-6.7)
2012-2013			
29.0 (25.1-32.9)	0.7 (0.3-1.1)	2.4 (1.1-3.8)	3.7 (2.1-5.2)

PMTCT Service Uptake (PMTCT Cascade) in the Eastern Cape Province

Table 6 indicates that coverage of maternal HIV testing dropped significantly in 2012-12 compared with 2010 (91.5% compared with 97.5%)

However intended EID significantly increased from 21.6% in 2010 and 28.0% in 2011 to 55.4% (45.2-65.6%) in 2012-13.

Figure 6 PMTCT service uptake (PMTCT cascade) in the Eastern Cape 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who reported being HIV positive. For the indicator '% Mother and Infant received ARV prophylaxis/Mother on ART', blue indicates the percentage of self-reported HIV positive mothers receiving maternal and infant ARV prophylaxis (no ART) while red indicates the percentage receiving ART before or during pregnancy (antenatally).

In 2012-2013, the proportion of self-reported HIV positive mothers and infants initiating ART before or during pregnancy increased from 23.0% (16.9-29.0%) in 2010 to 50.4% (43.7-57.1%) , Table 7b and Figure 5. The total proportion of self-reported HIV positive mothers receiving either ART antenatally or prophylaxis for mother and infant dropped to 86.1% in 2012-13 compared with 92.4% in 2011 (Table 7b).. In 2012-13 most women started ART before (49.6%) and during (48.6%) pregnancy versus after (1.8%) (Table 7c).

Note: These data only describe ARV uptake amongst women with known HIV positive status, thus excluding the 3.7% of self-reported HIV negative women whose infants tested ELISA positive. Actual ARV uptake is thus lower than tis percentage.

3.6.2 Free State

Compared to previous years [88%] (2010) and [81%] (2011), the 2012-2013 survey only attained 66.8% of targeted sample size in the Free State. This lower sampling size can be attributed to the increased use of mobile health facilities and immunization-related factors.

General Description of Provincial Sample

In the Free State 64.40% of mothers were single and 78.44% had completed grade 8-12. More respondents (88%) had access to piped water and electricity (90.7%) while only 67.2% had a flush toilet (Table 9).

Table 9 Baseline characteristics of Free State SAPMTCTE survey participants

2010			
Characteristics	**Categories**	**%**	**95% CI**
Relationship to child	Mother	96.9	96.2-97.7
	Caregiver	3.1	3.2-6.1
Median age of mother (years) [range]	25.8 (14-48)		
Infant gender	Male	51.6	49.6-53.6
	Female	48.4	46.4-50.4
Education of mother	None	0.9	0.5-1.4
	Grade 1-7	15.1	13.3-16.8
	Grade 8-12	79.4	77.5-81.3
	Above Grade 12	3.7	2.7-4.6
Marital status of mother	Single	63.5	61.0-66.0
	Married/cohabitating	36.0	33.5-38.5
Main building material of house	Brick/Cement block	78.6	76.3-80.9
	Informal material	19.8	17.7-22.0
	Traditional material/mud	1.5	0.9-2.1
Main source of drinking water	Piped in house or yard	85.1	81.5-88.8
	Not piped in house or yard	14.9	11.2-18.5
Type of toilet	Flush toilet	66.4	60.9-72.0
	Pit latrine	31.1	25.5-36.6
	None	0.2	0.0-0.3
	Other	2.3	1.3-3.4
Main source of fuel	Electricity/Gas/Paraffin	97.3	96.1-98.6
	Other	2.7	1.4-3.9
Depletion of food supply in past 12 months	Yes	13.7	11.6-15.8
	No	86.1	84.0-88.2

2011								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					96.5	95.7-97.3	
	Father					0.1	0.0-0.2	
	Grandmother/grandfather					2.1	1.4-2.8	
	Guardian/legal guardian					1.2	0.7-1.6	
	Caregiver					0.12	0.0-0.35	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	1.2	13.9	31.6	25.6	17.1	8.1	2.1	0.2
95% CI of the %	0.7-1.8	12.1-15.7	29.6-33.7	23.6-27.8	15.2-19.1	6.8-9.4	1.5-2.8	0.0-0.4
Infant gender	Male					50.4	47.6-53.1	
	Female					49.6	46.9-52.4	
Education of mother	None					0.6	0.2-1.0	
	Grade 1-7					11.8	10.0-13.5	
	Grade 8-12					85.1	82.9-87.2	
	Completed tertiary/technical /university					2.3	1.6-3.0	
	Don't know					0.3	0.0-0.6	
Marital status of mother	Single					65.0	61.9-68.2	
	Married					27.1	24.2-30.0	
	Co-habiting					7.0	5.0-8.9	
	Widowed					0.6	0.1-1.2	
	Divorced/separated					0.3	0.0-0.6	
	Don't know					-	-	
Main building material of house	Brick/Cement block					79.7	77.1-82.3	
	Informal material/corrugated iron/wood					19.0	16.4-21.5	
	Traditional material/mud					1.3	0.5-2.1	
	Other					-	-	
Main source of drinking water	Piped in house or yard					96.5	95.6-97.4	
	Not piped in house or yard					3.5	2.6-4.4	
Type of toilet	Flush toilet					72.0	66.9-77.0	
	Pit latrine including ventilated pit latrine					25.4	20.5-30.4	
	None					0.6	0.2-0.9	
	Other					2.0	0.7-3.4	
Main source of fuel	Electricity/gas/paraffin					98.7	97.9-99.6	
	Other					1.3	0.4-2.1	
Depletion of food supply in past 12 months	Yes					14.9	12.8-17.0	
	No					84.9	82.1-87.2	
	Don't know					0.2	0.0-0.4	
Was this pregnancy planned	Yes					50.1	46.5-53.8	
	No					48.8	44.8-52.8	
	Don't know					1.1	0.2-1.9	

2012-2013								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					96.6	95.7-97.5	
	Father					0.2	0.0-0.4	
	Grandmother/grandfather					2.3	1.5-3.1	
	Guardian/legal guardian					0.2	0.0-0.4	
	Caregiver					0.7	0.3-1.1	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.1	12.9	31.6	24.7	17.7	9.7	3.3	0.2
95% CI of the %	0.0-0.2	11.2-14.6	29.6-33.6	22.9-26.4	15.9-19.4	8.2-11.1	2.5-4.0	0.0-0.4
Infant gender	Male					48.6	46.3-50.9	
	Female					51.4	49.0-53.7	
Education of mother	None					0.5	0.1-0.8	
	Grade 1-7					16.8	13.2-20.4	
	Grade 8-12					78.4	75.0-81.9	
	Completed tertiary/technical /university					3.8	2.8-4.8	
	Don't know					0.5	0.2-0.8	
Marital status of mother	Single					64.4	60.7-68.1	
	Married					21.4	19.0-23.8	
	Co-habiting					13.4	8.7-18.2	
	Widowed					0.5	0.2-0.8	
	Divorced/separated					0.2	0.0-0.4	
	Don't know					0.1	0.0-0.2	
Main building material of house	Brick/Cement block					76.8	74.3-79.2	
	Informal material/corrugated iron/wood					21.4	18.9-23.9	
	Traditional material/mud					1.6	0.8-2.5	
	Other					0.2	0.0-0.4	
Main source of drinking water	Piped in house or yard					88.5	85.4-91.6	
	Not piped in house or yard					11.5	8.4-14.6	
Type of toilet	Flush toilet					67.2	61.9-72.4	
	Pit latrine including ventilated pit latrine					28.3	22.9-33.7	
	None					0.5	0.2-0.8	
	Other					4.1	1.5-6.6	
Main source of fuel	Electricity					90.7	89.0-92.4	
	Gas/Paraffin					7.7	6.2-9.3	
	Other					1.6	0.8-2.3	
Depletion of food supply in past 12 months	Yes					19.5	16.9-21.9	
	No					80.3	77.8-82.8	
	Don't know					0.3	0.0-0.5	
Was this pregnancy planned	Yes					40.9	38.3-43.5	
	No					53.3	38.3-61.0	
	Don't know					0.8	0.4-1.2	

Infant HIV Exposure and MTCT in Free State Province

Text Box 2 shows that infant HIV exposure was 34.2% with a 1.0% early infant HIV infection prevalence and a 2.8% [95% CI 1.5-4.1%] MTCT risk at 4-8 weeks. The percentage of infants with self-reported HIV-negative mothers who were actually HIV-exposed (presumed maternal HIV acquisition) was 2.4% [95% CI 1.4-3.4], significantly lower than in 2010.

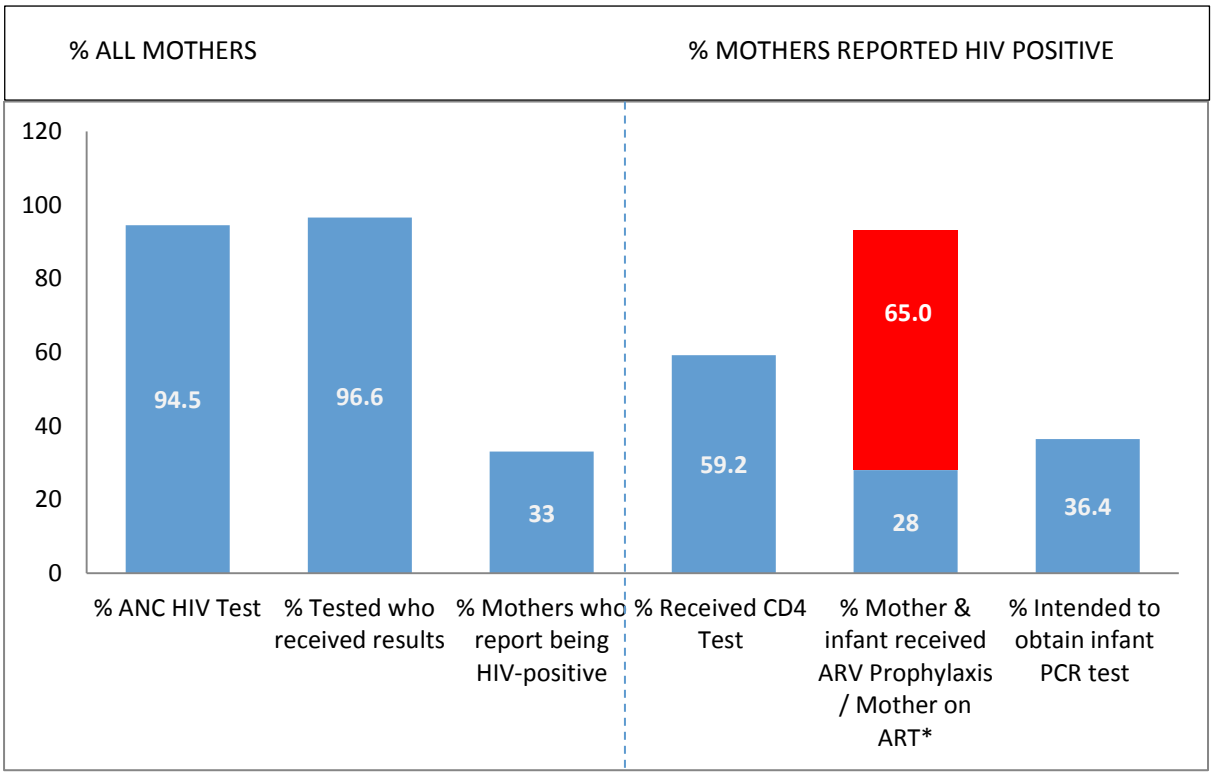
Text Box 2: Weighted Free State Infant HIV Exposure and MTCT: % (CI)

Infant HIV Exposure	Infant HIV infection prevalence at 4-8 weeks	MTCT at 4-8 weeks	% ELISA positive infants born to self-reported HIV negative mothers
2010			
31.3 (29.1-33.5)	2.4 (1.6-3.2)	5.9 (3.8-8.0)	5.4 (4.3-6.4)
2011			
30.9 (28.6-33.3)	1.2 (0.7-1.7)	3.8 (2.3-5.3)	4.2 (3.0-5.3)
2012-2013			
34.2 (30.6-37.7)	1.0 (0.5-1.4)	2.8 (1.5-4.1)	2.4 (1.4-3.4)

PMTCT Service Uptake (PMTCT cascade) in the Free State Province

Table 6 shows that uptake of maternal HIV testing (94.5%) and CD4 cell count testing (59.2%) was lower compared with 2010 and 2011.

Figure 7 PMTCT service uptake (PMTCT cascade) in the Free State 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who self-reported being HIV-positive. For the indicator '% Mother and Infant received ARV

prophylaxis/Mother on ART', red indicates the percentage of self-reported HIV positive mothers receiving ART before or during pregnancy while blue indicates the percentage receiving ARV prophylaxis in mother and infant (no ART).

Amongst mothers who self-reported being HIV positive 65% (61.6%-68.4%) received ART whilst 28% (23.5-32.4%) received maternal and infant prophylaxis (no ART), Tables 7b and Figure 6. Thus the proportion of self-reported HIV positive mothers receiving ART or maternal and infant prophylaxis was 93% in 2012-13 (Figure 6), compared with 94.1% in 2010 and 96% in 2011 (Tables 7b).

3.6.3 Gauteng

The SAPMTCTE in Gauteng province attained 90.9% of targeted sample size.

General Description of Provincial Sample

In keeping with the national trend, more than 96.2% mothers brought in their infants to clinic, 72.9% were single and 83.3% had completed grade 8-12. Socioeconomic indicators show that compared to other provinces, participants in Gauteng Province have higher rates of piped water in house (92.4%); flush toilet (89.8%) and (91.2%) used electricity as the main fuel source (Table 10).

Table 10 Baseline characteristics of Gauteng SAPMTCTE survey participants

2010			
Characteristics	**Categories**	**%**	**95% CI**
Relationship to child	Mother	98.4	97.8-99.0
	Caregiver	1.6	1.0-2.2
Median age of mother (years) [range]	26.6 (13-49)		
Infant gender	Male	52.1	49.8-54.3
	Female	47.9	45.7-50.2
Education of mother	None	1.5	0.9-2.2
	Grade 1-7	10.9	9.3-12.5
	Grade 8-12	80.2	77.7-82.7
	Above Grade 12	7.1	5.4-8.9
Marital status of mother	Single	69.9	65.3-74.4
	Married/co-habiting	29.4	24.8-33.9
Main building material of house	Brick/cement block	77.1	73.3-80.8
	Informal material	22.7	19.0-26.5
	Traditional material/mud	0.2	0.0-0.4
Main source of drinking water	Piped in house or yard	92.5	90.0-94.9
	Not piped in house or yard	7.5	5.1-9.9
Type of toilet	Flush toilet	84.8	81.6-88.0
	Pit latrine	14.5	11.5-17.6
	None	0.6	0.0-1.2
	Other	0.1	0.0-0.3
Main source of fuel	Electricity/gas/paraffin	99.2	98.8-99.6
	Other	0.8	0.4-1.2
Depletion of food supply in past 12 months	Yes	9.8	7.3-12.3
	No	89.9	87.4-92.4

2011								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					98.4	98.0-99.9	
	Father					0.2	0.0-0.4	
	Grandmother/grandfather					0.9	0.5-1.3	
	Guardian/legal guardian					0.2	0.0-0.5	
	Caregiver					0.2	0.0-0.4	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.4	10.9	29.2	27.4	17.3	11.4	3.1	0.2
95% CI of the %	0.1-0.7	9.4-12.4	27.3-31.2	25.5-29.2	15.8-18.8	10.0-12.8	2.4-3.8	0.0-0.4
Infant gender	Male					51.0	48.9-53.0	
	Female					49.0	47.0-51.1	
Education of mother	None					1.2	0.8-1.7	
	Grade 1-7					8.1	6.6-9.6	
	Grade 8-12					81.6	78.7-84.5	
	Completed tertiary/technical /university					9.0	6.8-11.1	
	Don't know					0.1	0.0-0.3	
Marital status of mother	Single					69.1	64.8-73.4	
	Married					18.8	15.9-21.7	
	Co-habiting					11.5	7.5-15.5	
	Widowed					0.2	0.0-0.4	
	Divorced/separated					0.3	0.0-0.6	
	Don't know					0.1	0.0-0.2	
Main building material of house	Brick/Cement block					80.5	76.6-84.4	
	Informal material/corrugated iron/wood					19.5	15.6-23.4	
	Traditional material/mud					-	-	
	Other					-	-	
Main source of drinking water	Piped in house or yard					92.9	90.5-95.3	
	Not piped in house or yard					7.1	4.7-9.5	
Type of toilet	Flush toilet					87.1	83.5-90.6	
	Pit latrine including ventilated pit latrine					12.6	9.1-16.2	
	None					0.2	0.0-0.4	
	Other					0.1	0.0-0.3	
Main source of fuel	Electricity/gas/paraffin					99.3	98.7-99.8	
	Other					0.8	0.2-1.3	
Depletion of food supply in past 12 months	Yes					8.2	5.9-10.4	
	No					91.7	89.5-94.0	
	Don't know					0.13	0.0-0.3	
Was this pregnancy planned	Yes					43.1	39.6-46.7	
	No					56.8	53.2-60.3	
	Don't know					0.1	0.0-0.3	

2012-2013								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					98.5	97.9-99.0	
	Father					0.1	0.0-0.2	
	Grandmother/grandfather					0.7	0.3-1.1	
	Guardian/legal guardian					0.3	0.0-0.5	
	Caregiver					0.4	0.1-0.7	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.3	11.3	28.0	27.9	19.9	9.1	3.5	0.1
95% CI of the %	0.0-0.6	9.5-13.1	25.7-30.3	25.7-30.1	18.2-21.7	7.9-10.3	2.6-4.3	0.0-0.2
Infant gender	Male					49.9	47.9-52.0	
	Female					50.0	47.9-52.1	
Education of mother	None					0.9	0.5-1.3	
	Grade 1-7					9.7	7.9-11.4	
	Grade 8-12					83.3	81.1-85.6	
	Completed tertiary/technical /university					5.7	4.3-7.2	
	Don't know					0.4	0.1-0.7	
Marital status of mother	Single					70.9	67.5-74.4	
	Married					18.8	16.2-21.4	
	Co-habiting					9.4	6.7-12.0	
	Widowed					0.3	0.1-0.6	
	Divorced/separated					0.4	0.2-0.7	
	Don't know					0.1	0.0-0.2	
Main building material of house	Brick/Cement block					80.0	76.2-83.8	
	Informal material/corrugated iron/wood					19.9	16.2-23.8	
	Traditional material/mud					-	-	
	Other					-	-	
Main source of drinking water	Piped in house or yard					92.4	89.3-95.5	
	Not piped in house or yard					7.6	4.6-10.7	
Type of toilet	Flush toilet					89.8	86.9-92.6	
	Pit latrine including ventilated pit latrine					9.8	6.9-12.6	
	None					0.3	0.1-0.5	
	Other					0.1	0.0-0.3	
Main source of fuel	Electricity					91.2	88.7-93.6	
	Gas/Paraffin					8.8	6.3-11.2	
	Other					0.1	0.0-0.1	
Depletion of food supply in past 12 months	Yes					8.2	6.3-10.2	
	No					91.7	89.8-93.6	
	Don't know					0.1	0.0-0.3	
Was this pregnancy planned	Yes					43.7	40.6-46.7	
	No					56.1	53.0-59.1	
	Don't know					0.3	0.0-0.5	

Infant HIV Exposure and MTCT in Gauteng

Text Box 3 shows that infants' HIV exposure was 34.0% [95% CI 30.6-37.4], with a 0.7% [95% CI 0.4-1.1] early infant HIV infection prevalence and a 2.2% [95% CI 1.3-3.1] MTCT risk at 4-8 weeks. Maternal potential HIV acquisition was 1.9% [95% CI 1.1-2.7].

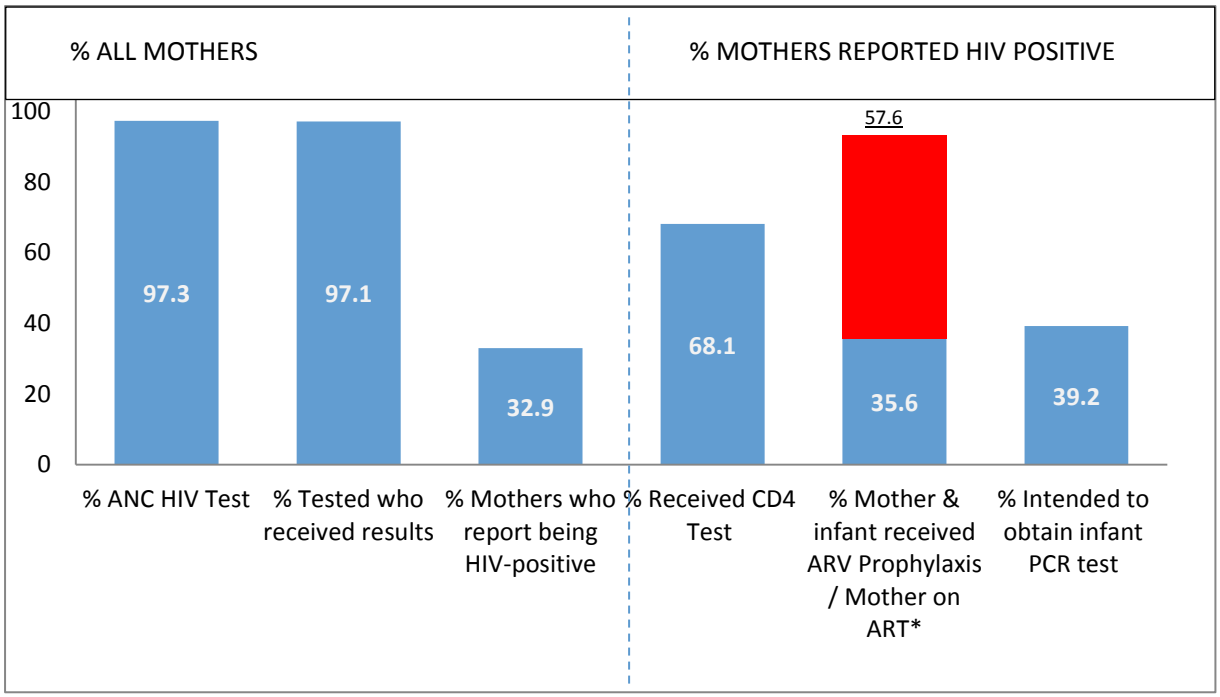
Text Box 3: Weighted Gauteng Infant HIV Exposure and MTCT: % (CI)

Infant HIV Exposure	Infant HIV infection prevalence at 4-8 weeks	MTCT at 4-8 weeks	% ELISA positive infants born to self-reported HIV negative mothers
2010			
30.4 (27.9-33.0)	1.1 (0.6-1.5)	2.5 (1.5-3.6)	3.0 (2.2-3.9)
2011			
33.1 (29.8-36.4)	0.8 (0.3-1.2)	2.1 (0.2-3.4)	3.4 (2.4-4.4)
2012-2013			
34.0 (30.6-37.4)	0.7 (0.4-1.1)	2.2 (1.3-3.1)	1.9 (1.1-2.7)

PMTCT service uptake (PMTCT cascade) in Gauteng

In keeping with previous trends, Gauteng continued to maintain a high prevalence of antenatal HIV testing 97.3% with 97.1% receiving their results (Table 6). CD4 cell count uptake is only 68.1% (Table 7a) and intended to access EID services was 39.2% (Table 7a).

Figure 8 PMTCT Service Uptake (PMTCT cascade) in Gauteng 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who self-reported being HIV positive. For the indicator '% Mother and Infant received ARV prophylaxis/Mother on ART', red indicates the percentage of self-self-reported HIV positive mothers

receiving ART antenatally while blue indicates the percentage receiving maternal and infant ARV (no ART).

Amongst self-reported HIV positive mothers 57.6% received ART antenatally (Table 7b) while 35.6% received maternal and infant prophylaxis (Figure 7). Thus the total proportion of self-reported HIV positive mothers receiving ART or maternal and infant prophylaxis was 93.2% (Figure 7), compared with 92.9% in 2010 and 94.2% in 2011 (Table 7b).

3.6.4 KwaZulu-Natal

The SAPMTCTE in KwaZulu-Natal attained 75.7% of targeted sample size during 2012-2013.

General Description of Provincial Sample

Of all provinces surveyed, KwaZulu-Natal had the highest prevalence of single mothers (89.10%) and highest rate of unplanned pregnancies (76.85%).

Socio-economic indicators revealed that 67.98% of respondents lived in homes constructed of brick/cement, 66.76% had piped water and 72.45% used electricity as the main source of fuel. Compared to all other provinces, KZN had the highest prevalence of participants (31.5%) who reported depletion of food supply in the past 12 months (Table 11).

Table 11 Baseline characteristics of KwaZulu-Natal SAPMTCTE survey participants

2010			
Characteristics	**Categories**	**%**	**95% CI**
Relationship to child	Mother	95.5	95.4-97.5
	Caregiver	3.5	2.5-4.6
Median age of mother (years) [range]	24.9 (14-47)		
Infant gender	Male	47.9	45.2-50.7
	Female	52.1	49.3-54.8
Education of mother	None	1.5	0.7-2.3
	Grade 1-7	14.5	11.6-17.3
	Grade 8-12	79.5	76.3-82.6
	Above Grade 12	4.0	2.8-5.2
Marital status of mother	Single	90.7	89.0-92.4
	Married/cohabitating	8.9	7.2-10.6
Main building material of house	Brick/Cement block	61.9	55.5-68.3
	Informal material	13.3	9.0-17.6
	Traditional material/mud	24.8	18.3-31.4
Main source of drinking water	Piped in house or yard	60.6	52.8-68.4
	Not piped in house or yard	39.4	31.6-47.2
Type of toilet	Flush toilet	24.4	17.8-30.9
	Pit latrine	71.9	65.2-78.5
	None	3.8	1.0-6.5
	Other	0.0	--
Main source of fuel	Electricity/Gas/Paraffin	83.4	78.8-88.0
	Other	16.6	12.0-21.2
Depletion of food supply in past 12 months	Yes	21.6	16.2-27.0
	No	77.7	72.3-83.1

2011								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					96.5	95.4-97.7	
	Father					0.1	0.0-0.2	
	Grandmother/grandfather					1.7	0.9-2.4	
	Guardian/legal guardian					0.4	0.0-0.8	
	Caregiver					1.4	0.6-2.1	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	1.2	19.5	31.3	24.7	13.3	7.3	2.2	0.3
95% CI of the %	0.6-1.7	17.0-22.1	28.1-34.5	22.0-27.6	11.2-15.4	5.7-8.9	1.3-3.2	0.0-0.6
Infant gender	Male					49.7	46.5-52.8	
	Female					50.4	47.2-53.5	
Education of mother	None					1.3	0.6-2.0	
	Grade 1-7					13.8	10.8-16.7	
	Grade 8-12					80.9	77.5-84.4	
	Completed tertiary/technical /university					4.0	2.6-5.4	
	Don't know					-	-	
Marital status of mother	Single					89.6	85.7-93.4	
	Married					7.3	5.6-9.0	
	Co-habiting					3.1	0.0-6.8	
	Widowed					-	-	
	Divorced/separated					-	-	
	Don't know					-	-	
Main building material of house	Brick/Cement block					68.3	61.9-74.6	
	Informal material/corrugated iron/wood					12.4	9.0-15.7	
	Traditional material/mud					19.1	12.0-26.2	
	Other					0.2	0.0-0.4	
Main source of drinking water	Piped in house or yard					55.3	46.3-64.3	
	Not piped in house or yard					44.7	35.7-53.67	
Type of toilet	Flush toilet					22.6	16.1-29.0	
	Pit latrine including ventilated pit latrine					71.0	64.1-78.0	
	None					6.4	1.4-11.4	
	Other					-	-	
Main source of fuel	Electricity/gas/paraffin					81.5	74.2-88.7	
	Other					18.5	11.3-25.8	
Depletion of food supply in past 12 months	Yes					18.3	13.5-23.2	
	No					81.6	76.7-86.4	
	Don't know					0.1	0.0-0.3	
Was this pregnancy planned	Yes					22.7	19.3-26.0	
	No					77.0	73.7-80.4	
	Don't know					0.31	0.0-0.62	

2012-2013								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					96.4	95.4-97.5	
	Father					0.1	0.0-0.2	
	Grandmother/grandfather					1.9	1.2-2.7	
	Guardian/legal guardian					0.5	0.1-0.9	
	Caregiver					1.0	0.4-1.6	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.2	18.8	33.4	24.4	13.2	7.6	2.4	0.1
95% CI of the %	0.0-0.5	16.4-21.1	30.8-36.0	22.2-26.6	11.4-15.0	6.2-9.1	1.5-3.3	0.0-0.2
Infant gender	Male					49.9	47.3-52.7	
	Female					50.0	47.3-52.7	
Education of mother	None					1.5	0.9-2.0	
	Grade 1-7					12.2	9.8-14.6	
	Grade 8-12					81.2	78.8-83.6	
	Completed tertiary/technical /university					4.9	3.3-6.6	
	Don't know					0.2	0.0-0.3	
Marital status of mother	Single					89.1	86.6-91.6	
	Married					7.7	6.2-9.2	
	Co-habiting					3.1	1.4-4.9	
	Widowed					0.1	0.0-0.3	
	Divorced/separated					-	-	
	Don't know					-	-	
Main building material of house	Brick/Cement block					67.9	62.1-73.9	
	Informal material/corrugated iron/wood					16.9	12.6-21.2	
	Traditional material/mud					15.0	9.7-20.4	
	Other					0.1	0.0-0.3	
Main source of drinking water	Piped in house or yard					66.8	59.0-74.5	
	Not piped in house or yard					33.2	25.5-40.9	
Type of toilet	Flush toilet					27.5	20.2-34.8	
	Pit latrine including ventilated pit latrine					68.8	61.9-75.6	
	None					3.8	1.5-6.0	
	Other					-	-	
Main source of fuel	Electricity					72.5	66.3-78.6	
	Gas/Paraffin					15.5	11.9-19.2	
	Other					12.0	7.3-16.8	
Depletion of food supply in past 12 months	Yes					31.5	25.2-37.8	
	No					68.4	62.0-74.7	
	Don't know					0.2	0.0-0.4	
Was this pregnancy planned	Yes					23.2	19.3-27.0	
	No					76.9	72.9-80.7	
	Don't know					-	-	

Infant HIV Exposure and MTCT in KwaZulu-Natal

Text Box 4 shows that infants HIV exposure was 43.6%, with a 1.3% [95% CI 0.6-2.0] early infant HIV infection prevalence and a 2.9% [95% CI 1.3-4.6%] MTCT risk at 4-8 weeks. Among infants whose mothers reported being HIV negative 2.6% [95% CI 1.2-4.0%] were HIV exposed (maternal potential HIV acquisition after the initial test).

Text Box 4: KwaZulu-Natal HIV Infant Exposure and MTCT (% CI)

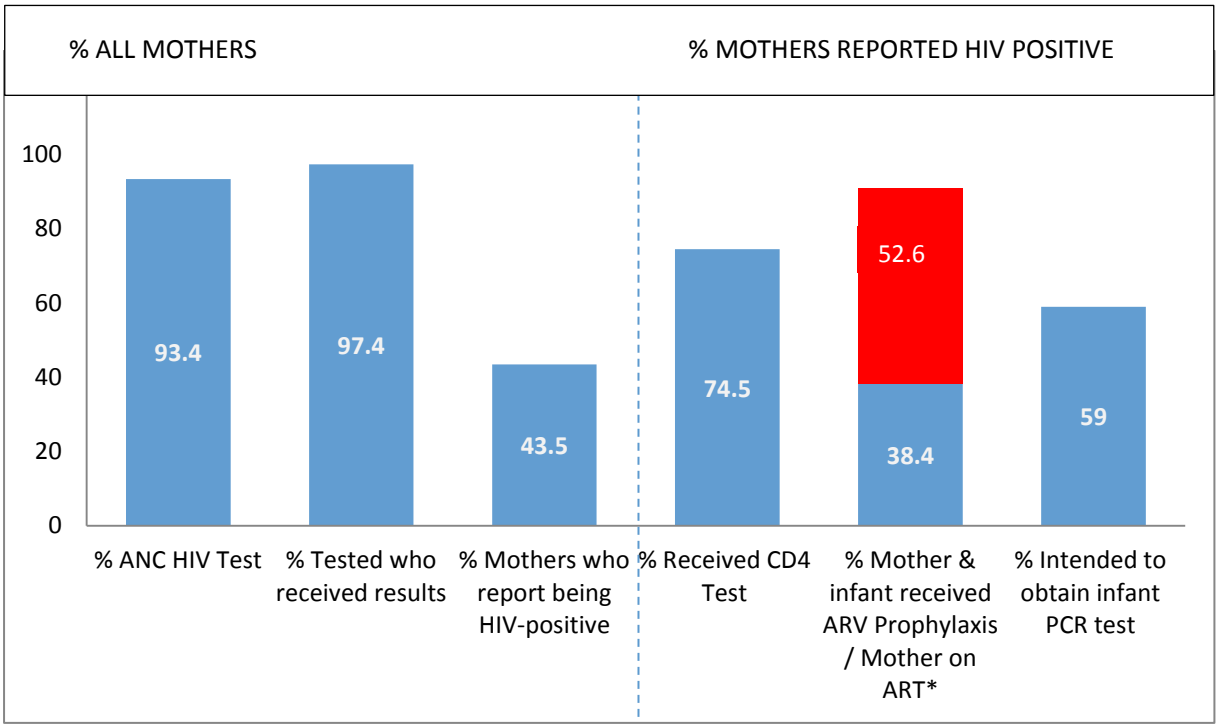
Infant HIV Exposure %	Infant HIV infection prevalence at 4-8 weeks	MTCT at 4-8 weeks:%	% ELISA positive infants born to self-reported HIV negative mothers
2010			
44.3 (40.2-48.4)	1.9 (1.2-2.7)	2.9 (1.7-4.0)	3.2 (2.1-4.4)
2011			
44.4 (39.8-48.9)	0.9 (0.4-1.5)	2.1 (0.9-3.3)	5.0 (3.7-6.4)
2012-2013			
43.6 (39.5-47.8)	1.3 (0.6-2.0)	2.9 (1.3-4.6)	2.6 (1.2-4.0)

PMTCT service uptake (PMTCT cascade) in the KwaZulu-Natal

In KwaZulu-Natal, 93.4% of pregnant mothers received HIV testing and 97.4% of these received their test results (Table 6). Compared to 2011, a lower proportion (74.5%) of HIV-positive mothers received their CD4 cell count test results (Table 7a). In 2012-13 59% (48.2-69.7%) of self-reported HIV positive mothers intended to seek care for EID (Table 7a)

In 2012-2013, 52.6% (47.5-57.6%) self-reported HIV positive mothers reported taking ART whilst 38.4% (33.5-43.2%) reported taking maternal and infant ARV prophylaxis (Table 7b and Figure 8). The proportion of mothers receiving ART or maternal and infant prophylaxis was 91% in 2012-13 compared with 95.6% in 2011 and 86% in 2010 (Table 7b).In 2012-13 more women received ART antenatally (58.1%) as compared to before (40.1%) or after (1.4%) pregnancy (Table 7c).

Figure 9 PMTCT service uptake (PMTCT cascade) in KwaZulu-Natal 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who reported being HIV positive. For the indicator '% Mother and Infant received ARV prophylaxis/Mother on ART', red indicates the percentage of self-reported HIV positive mothers receiving ART antenatally while blue indicates the percentage receiving maternal and infant ARV prophylaxis (no ART).

3.6.5 Limpopo

The SAPMTCT Evaluation in Limpopo province attained 87.5% of targeted sample size.

General Description of Provincial Sample

Limpopo showed a slightly higher prevalence of grandparents (other than mothers) bringing infants to services (2.3%) and the lowest percentage of unplanned pregnancy when compared to South African national prevalence (Table 12). Socio-economic indicators reflected that access to piped water (53.6%), flush toilets (20.3%) and electricity (68.2%) in this province was very poor and ranked lowest when compared to all other provinces.

Table 12 Baseline characteristics of Limpopo SAPMTCTE survey participants

2010			
Characteristics	**Categories**	**%**	**95% CI**
Relationship to child	Mother	93.8	92.4-95.2
	Caregiver	6.2	4.8-7.6
Median age of mother (years) [range]	26.0 (14-47)		
Infant gender	Male	50.3	47.4-53.2
	Female	49.7	46.8-52.6
Education of mother	None	1.6	1.0-2.3
	Grade 1-7	15.3	12.6-18.0
	Grade 8-12	75.0	71.9-78.1
	Above Grade12	7.5	6.0-9.0
Marital status of mother	Single	69.7	66.0-73.4
	Married/co-habiting	30.0	26.4-33.7
Main building material of house	Brick/Cement block	89.2	87.2-91.2
	Informal material	8.3	6.3-10.2
	Traditional material/mud	2.5	1.6-3.5
Main source of drinking water	Piped in house or yard	47.4	41.5-53.4
	Not piped in house or yard	52.6	46.6-58.5
Type of toilet	Flush toilet	17.4	12.4-22.4
	Pit latrine	76.1	71.4-80.8
	None	6.0	4.2-7.9
	Other	0.4	0.1-0.8
Main source of fuel	Electricity/Gas/Paraffin	71.4	65.6-77.2
	Other	28.6	22.8-34.4
Depletion of food supply in past 12 months	Yes	15.1	12.0-18.1
	No	84.8	81.7-87.8

2011								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					96.5	95.5-97.5	
	Father					0.1	0.0-0.3	
	Grandmother/grandfather					2.0	1.1-2.8	
	Guardian/legal guardian					0.6	0.2-0.9	
	Caregiver					0.8	0.3-1.4	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	1.0	13.8	31.8	25.0	15.5	9.9	2.9	0
95% CI of the %	0.5-1.6	11.8-15.8	29.1-34.5	22.5-27.6	13.4-17.6	7.9-11.9	2.0-3.8	0
Infant gender	Male					48.0	45.6-50.4	
	Female					52.0	49.6-54.4	
Education of mother	None					1.0	0.6-1.5	
	Grade 1-7					11.6	9.4-13.7	
	Grade 8-12					79.1	76.8-81.3	
	Completed tertiary/technical /university					8.1	6.5-9.8	
	Don't know					0.2	0.0-4	
Marital status of mother	Single					62.7	58.7-66.7	
	Married					32.1	28.2-35.9	
	Co-habiting					5.0	2.8-7.1	
	Widowed					-	-	
	Divorced/separated					0.3	0.0-0.6	
	Don't know					-	-	
Main building material of house	Brick/Cement block					87.4	84.8-90.1	
	Informal material/corrugated iron/wood					8.0	5.8-10.1	
	Traditional material/mud					4.6	2.5-6.7	
	Other					-	-	
Main source of drinking water	Piped in house or yard					42.9	37.9-47.9	
	Not piped in house or yard					57.1	52.1-62.1	
Type of toilet	Flush toilet					13.8	9.2-18.4	
	Pit latrine including ventilated pit latrine					81.8	77.2-86.4	
	None					4.3	2.7-5.9	
	Other					0.1	0.0-0.3	
Main source of fuel	Electricity/gas/paraffin					57.2	49.6-64.9	
	Other					42.8	35.1-50.4	
Depletion of food supply in past 12 months	Yes					17.1	14.0-20.3	
	No					82.9	79.7-86.0	
	Don't know					-	-	
Was this pregnancy planned	Yes					52.6	49.9-55.3	
	No					47.4	44.7-50.1	
	Don't know					-	-	

2012-2013								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					96.3	95.2-97.3	
	Father					0.2	0.0-0.4	
	Grandmother/grandfather					2.3	1.4-3.2	
	Guardian/legal guardian					0.5	0.1-0.8	
	Caregiver					0.8	0.4-1.2	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.1	13.5	29.6	24.9	19.4	9.3	3.2	0.1
95% CI of the %	0.0-0.2	11.6-15.4	27.3-31.9	22.1-27.6	17.2-21.6	7.7-11.0	2.3-4.1	0.0-0.2
Infant gender	Male					53.2	50.9-52.7	
	Female					46.9	44.7-49.0	
Education of mother	None					1.3	0.7-1.9	
	Grade 1-7					11.7	9.5-13.8	
	Grade 8-12					78.0	75.3-80.8	
	Completed tertiary/technical /university					8.8	6.8-10.8	
	Don't know					0.2	0.0-0.5	
Marital status of mother	Single					70.8	66.6-74.9	
	Married					25.5	21.5-29.4	
	Co-habiting					3.2	1.7-4.7	
	Widowed					0.2	0.0-0.4	
	Divorced/separated					0.2	0.0-0.4	
	Don't know					0.1	0.0-0.4	
Main building material of house	Brick/Cement block					91.3	88.9-93.6	
	Informal material/corrugated iron/wood					5.8	3.6-7.9	
	Traditional material/mud					2.9	2.5-4.4	
	Other					-	-	
Main source of drinking water	Piped in house or yard					53.6	46.9-60.3	
	Not piped in house or yard					46.4	39.7-53.1	
Type of toilet	Flush toilet					20.3	12.8-27.9	
	Pit latrine including ventilated pit latrine					77.2	69.9-84.6	
	None					2.1	0.9-3.2	
	Other					0.4	0.1-0.7	
Main source of fuel	Electricity					68.2	61.7-74.8	
	Gas/paraffin					5.1	3.2-7.1	
	Other					26.6	19.9-33.4	
Depletion of food supply in past 12 months	Yes					11.3	8.7-14.0	
	No					88.7	86.0-91.3	
	Don't know					-	-	
Was this pregnancy planned	Yes					57.1	53.7-60.6	
	No					42.8	39.4-46.2	
	Don't know					0.1	0.0-0.2	

Infant HIV Exposure and MTCT in Limpopo

Text Box 5 shows that infants' HIV exposure was 25.2%, with a 0.5% [95% CI 0.2-0.9] early infant HIV infection prevalence and a 2.1% [95% CI 0.6-3.6] MTCT risk at 4-8 weeks. Among infants whose mothers self-reported being HIV-negative 3.4% [95% CI 2.2-4.7] were HIV-exposed.

Text Box 5: Limpopo HIV Infant Exposure and MTCT (% CI)

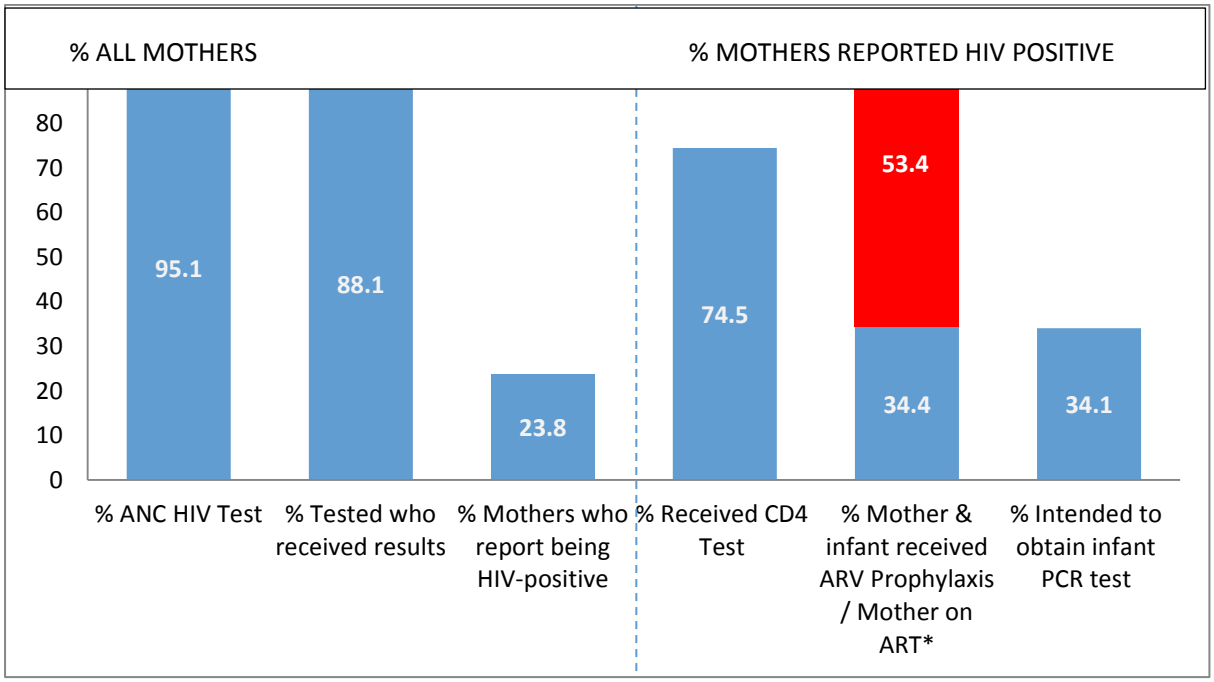
Infant HIV Exposure % (95%CI)	Infant HIV infection prevalence at 4-8 weeks % (95%CI)	MTCT at 4-8 weeks: % (95%CI)	% ELISA positive infants born to self-reported HIV negative mothers
2010			
23.9 (21.8-25.9)	0.9 (0.4-1.5)	3.6 (1.4-5.8)	5.1 (3.6-6.7)
2011			
23.0 (19.9-26.2)	0.8 (0.3-1.2)	3.1 (1.2-4.9)	1.6 (0.9-2.3)
2012-2013			
25.2 (21.8-28.7)	0.5 (0.2-0.9)	2.1 (0.6-3.6)	3.4 (2.2-4.7)

MTCT service uptake (PMTCT cascade) in the Limpopo

Uptake of ANC HIV testing was lower than previous years (95.1%), and the proportion of tested women who received their results also dropped to 88.1% (84.0-92.2%).

In 2012-2013, the proportion of self-reported HIV positive mothers and infants receiving ART was 53.4% (46.9-59.9%) and ARV prophylaxis to mother and baby was 34.4% (28.1-40.7%), Table 7b and Figure 9. The proportion of women receiving ART or ARV for mother and baby was 91.8% in 2012-13, compared with 85.9% in 2011 and 87.6% in 2010 (Table 7b). In 2012-13 more women received ART antenatally (61.5%) compared with before (37.2%) and (1.3%) after pregnancy (Table 7c). This excludes ARV uptake amongst the 5.1% of reportedly HIV negative mothers whose infants were found to be HIV exposed.

Figure 10 PMTCT service uptake (PMTCT cascade) in Limpopo 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who self-reported being HIV positive. For the indicator '% Mother and Infant received ARV prophylaxis/Mother on ART', red indicates the percentage of self-reported HIV positive mothers receiving ART antenatally or during pregnancy while blue indicates the percentage receiving ARV prophylaxis for mother and baby (no ART).

3.6.6 Mpumalanga

The SAPMTCT Evaluation attained the lowest targeted sample size (56.1%) in Mpumalanga. This was mainly attributed to immunization-related factors: lack of immunization i.e. stock-out or poor cold chain; low immunization uptake and reduced immunization numbers (due to cold weather).

General Description of Provincial Sample

In Mpumalanga, 92.4% of study participants have brick/cement block houses, piped water in house or yard (79.4%), and electricity (87.6%), but only 26.2% have a flush toilet (Table 13).

Table 13 Baseline characteristics of Mpumalanga SAPMTCTE survey participants

2010			
Characteristics	**Categories**	**%**	**95% CI**
Relationship to child	Mother	95.0	94.3-95.8
	Caregiver	5.0	4.2-5.7
Median age of mother (years) [range]	25.3 (13-46)		
Infant gender	Male	50.3	48.1-52.5
	Female	49.7	47.5-51.9
Education of mother	None	3.0	2.3-3.7
	Grade 1-7	17.9	15.7-20.2
	Grade 8-12	75.2	72.9-77.5
	Above Grade 12	2.1	1.3-2.9
Marital status of mother	Single	74.8	72.6-77.1
	Married/co-habiting	23.9	21.7-26.2
Main building material of house	Brick/Cement block	85.7	82.5-88.9
	Informal material	8.4	5.9-10.8
	Traditional material/mud	5.9	3.8-8.0
Main source of drinking water	Piped in house or yard	83.9	79.9-87.9
	Not piped in house or yard	16.1	12.1-20.1
Type of toilet	Flush toilet	30.3	23.9-36.7
	Pit latrine	66.5	60.1-72.8
	None	2.9	1.8-4.0
	Other	0.3	0.1-0.6
Main source of fuel	Electricity/Gas/Paraffin	88.3	65.6-77.2
	Other	11.7	22.8-34.4
Depletion of food supply in past 12 months	Yes	8.9	6.6-11.2
	No	89.1	86.6-91.6

2011								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					97.6	97.0-98.3	
	Father					0.3	0.0-0.6	
	Grandmother/grandfather					1.0	0.5-1.4	
	Guardian/legal guardian					0.5	0.2-0.9	
	Caregiver					0.6	0.2-0.9	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	1.8	19.9	30.4	23.2	13.9	8.1	2.8	0
95% CI of the %	1.2-2.4	17.8-22.0	27.7-33.0	21.1-25.2	12.3-15.5	6.8-9.3	2.0-3.6	0
Infant gender	Male					50.4	48.5-52.2	
	Female					49.6	47.8-51.5	
Education of mother	None					2.5	1.6-3.4	
	Grade 1-7					18.6	15.7-21.6	
	Grade 8-12					76.5	73.5-79.6	
	Completed tertiary/technical /university					2.1	1.4-2.8	
	Don't know					0.2	0.0-0.5	
Marital status of mother	Single					82.0	79.5-84.5	
	Married					15.4	12.8-18.1	
	Co-habiting					2.2	1.4-3.1	
	Widowed					0.2	0.0-0.4	
	Divorced/separated					0.1	0.0-0.3	
	Don't know					-	-	
Main building material of house	Brick/Cement block					89.9	87.2-92.5	
	Informal material/corrugated iron/wood					8.0	5.5-10.4	
	Traditional material/mud					2.1	0.9-3.3	
	Other					0.1	0.0-0.2	
Main source of drinking water	Piped in house or yard					85.4	80.5-90.2	
	Not piped in house or yard					14.6	9.8-19.5	
Type of toilet	Flush toilet					20.8	14.9-26.7	
	Pit latrine including ventilated pit latrine					78.9	73.0-84.8	
	None					0.3	0.1-0.6	
	Other					-	-	
Main source of fuel	Electricity/gas/paraffin					97.3	96.0-98.6	
	Other					2.7	1.3-4.0	
Depletion of food supply in past 12 months	Yes					5.4	3.6-7.3	
	No					94.4	92.5-96.4	
	Don't know					0.1	0.0-0.3	
Was this pregnancy planned	Yes					47.1	41.6-52.7	
	No					52.8	47.3-58.3	
	Don't know					0.1	0.0-0.2	

2012-2013								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					96.1	95.0-97.2	
	Father					0.1	0.0-0.3	
	Grandmother/grandfather					1.7	1.0-2.5	
	Guardian/legal guardian					1.6	0.9-2.3	
	Caregiver					0.4	0.1-0.8	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.3	17.6	30.8	23.7	15.2	8.5	3.3	0.6
95% CI of the %	0.0-0.6	15.7-19.5	28.2-33.4	21.5-25.9	13.3-17.1	7.0-10.1	2.1-4.4	0.1-1.0
Infant gender	Male					51.1	48.3-54.0	
	Female					48.9	45.9-51.8	
Education of mother	None					1.5	0.9-2.2	
	Grade 1-7					14.1	11.8-16.4	
	Grade 8-12					79.4	76.6-82.2	
	Completed tertiary/technical /university					4.7	3.2-6.2	
	Don't know					0.3	0.1-0.6	
Marital status of mother	Single					79.9	77.2-82.6	
	Married					16.6	13.9-19.3	
	Co-habiting					2.8	1.7-3.9	
	Widowed					0.3	0.1-0.6	
	Divorced/separated					0.3	0.0-0.6	
	Don't know					-	-	
Main building material of house	Brick/Cement block					92.4	90.3-94.5	
	Informal material/corrugated iron/wood					4.6	3.1-6.1	
	Traditional material/mud					2.8	1.3-4.3	
	Other					0.2	0.0-0.5	
Main source of drinking water	Piped in house or yard					79.4	73.6-85.1	
	Not piped in house or yard					20.7	14.9-26.4	
Type of toilet	Flush toilet					26.2	20.2-31.2	
	Pit latrine including ventilated pit latrine					73.7	67.7-79.7	
	None					0.1	0.0-0.3	
	Other					-	-	
Main source of fuel	Electricity					87.6	84.0-91.2	
	Gas/Paraffin					6.5	3.9-9.1	
	Other					5.9	3.3-8.5	
Depletion of food supply in past 12 months	Yes					14.8	11.6-17.9	
	No					84.9	81.8-88.0	
	Don't know					0.3	0.0-0.6	
Was this pregnancy planned	Yes					42.7	39.1-46.3	
	No					57.3	53.7-60.9	
	Don't know					-	-	

Infant HIV Exposure and MTCT in Mpumalanga

Text Box 6 shows a 0.6% [95% CI 0.2-0.9] early infant HIV infection prevalence and a 1.5% [95% CI 0.6-2.3] MTCT risk at 4-8 weeks. Among infants whose mothers self-reported being HIV-negative 2.6% [95% CI 1.5-3.8] were HIV-exposed.

Infant HIV-exposure was 37.6% [95% CI 33.6-41.7].

Text Box 6: Mpumalanga HIV Infant Exposure and MTCT (% CI)

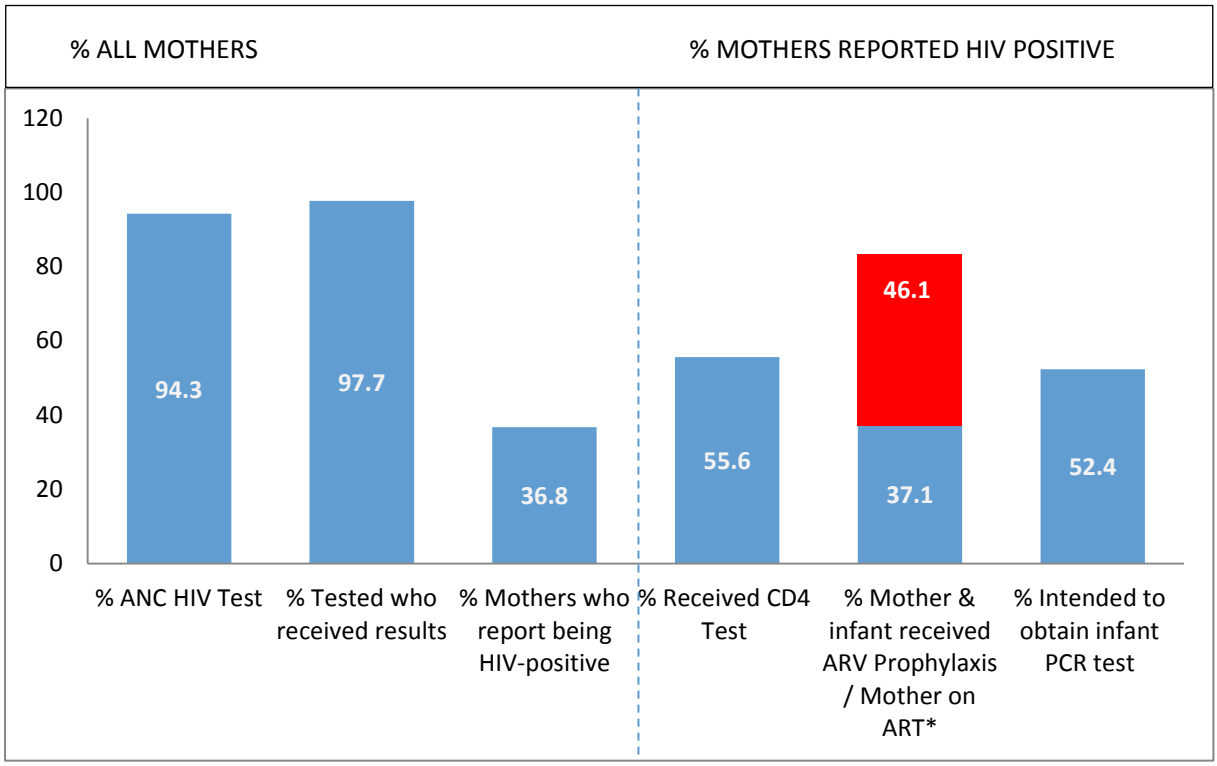
2010			
Infant HIV Exposure %	**Infant HIV infection prevalence at 4-8 weeks**	**MTCT at 4-8 weeks:%**	**% ELISA positive infants born to self-reported HIV negative mothers**
2010			
37.0 (34.3-39.7)	3.0 (2.1-3.8)	5.7 (4.1-7.3)	7.8 (5.8-9.7)
2011			
35.6 (33.3-37.8)	1.2 (0.8-1.7)	3.3 (2.2-4.5)	10.2 (8.2-12.2)
2012-2013			
37.6 (33.6-41.7)	0.6 (0.2-0.9)	1.5 (0.6-2.3)	2.6 (1.5-3.8)

PMTCT service uptake (PMTCT cascade) in the Mpumalanga

Mpumalanga had a high coverage of testing (94.3%) and receipt of results (97.7%) [Figure 10].

Notably the proportion of infants with recently acquired HIV exposure reduced form the 10.2% measured in 2011 to 2.6% in 2012-13.

Figure 11 PMTCT service uptake (PMTCT cascade) in Mpumalanga 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who reported being HIV-positive. For the indicator '% Mother and Infant received ARV prophylaxis/Mother on ART', red indicates the percentage receiving ART before or during pregnancy while blue indicates the percentage receiving ARV prophylaxis for mother and infant (no ART).

In 2012-2013, the proportion of mothers and infants receiving ART was 46.1% (40.15-51.7), whilst the proportion receiving maternal and infant prophylaxis (no ART) was 37.3% (32.4-42.3%), Table 7b and Figure 10. Thus 83.4% self-reported HIV positive mothers received ART or maternal and infant ARV prophylaxis (Tables 7b). In 2012-13 more women received ART antenatally (55.4%) compared to before (40.4%) and after (3.4%) pregnancy (Table 7c).

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3.6.7 Northern Cape

Northern Cape attained a low sample realisation of 60.9%. This was due to erratic immunisation services, low immunisation numbers in small communities and low immunisation uptake in deep rural facilities.

General Description of Provincial Sample

In Northern Cape, 81.9% of mothers were single. More than 90.0% of families had electricity, piped water (89.4%) and flush toilets (79.7%). Only 24.8% reported depletion of food supply in the past 12 months (Table 14).

Table 14 Baseline characteristics of Northern Cape SAPMTCTE survey participants

	2010		
Characteristics	**Categories**	**%**	**95% CI**
Relationship to child	Mother	97.6	96.7-98.5
	Caregiver	2.4	1.5-3.3
Median age of mother (years) [range]	25.8 (14-45)		
Infant gender	Male	48.9	46.1-51.7
	Female	51.1	48.3-53.9
Education of mother	None	3.5	2.6-4.4
	Grade 1-7	18.3	16.1-20.4
	Grade 8-12	74.3	71.8-76.9
	Above Grade 12	3.0	1.9-4.2
Marital status of mother	Single	78.0	75.0-81.1
	Married/co-habiting	21.1	18.0-24.1
Main building material of house	Brick/Cement block	80.4	77.5-83.4
	Informal material	18.7	15.9-21.5
	Traditional material/mud	0.9	0.4-1.3
Main source of drinking water	Piped in house or yard	93.5	91.6-95.4
	Not piped in house or yard	6.5	4.6-8.4
Type of toilet	Flush toilet	87.6	85.1-90.1
	Pit latrine	7.8	5.9-9.8
	None	2.2	1.4-3.0
	Other	2.4	1.7-3.0
Main source of fuel	Electricity/Gas/Paraffin	97.6	96.7-98.5
	Other	2.4	1.5-3.3
Depletion of food supply in past 12 months	Yes	10.9	8.1-13.6
	No	89.1	86.4-91.9

2011								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					98.6	97.9-99.3	
	Father					-	-	
	Grandmother/grandfather					0.6	0.2-1.0	
	Guardian/legal guardian					0.8	0.3-1.3	
	Caregiver					-	-	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.6	15.8	29.1	23.2	13.9	8.1	2.8	0
95% CI of the %	0.2-1.0	13.8-17.8	26.4-31.6	21.1-25.2	12.3-15.5	6.8-9.4	2.0-3.6	0
Infant gender	Male					54.2	51.5-56.8	
	Female					45.8	43.2-48.5	
Education of mother	None					2.0	1.2-2.8	
	Grade 1-7					14.0	11.7-16.4	
	Grade 8-12					82.0	79.7-84.3	
	Completed tertiary/technical /university					1.4	0.6-2.2	
	Don't know					0.6	0.2-1.0	
Marital status of mother	Single					80.4	77.5-83.4	
	Married					18.0	14.8-21.1	
	Co-habiting					1.0	0.1-1.9	
	Widowed					0.6	0.2-1.0	
	Divorced/separated					-	-	
	Don't know					-	-	
Main building material of house	Brick/Cement block					79.2	75.3-83.2	
	Informal material/corrugated iron/wood					20.8	16.8-24.7	
	Traditional material/mud					-	-	
	Other					-	-	
Main source of drinking water	Piped in house or yard					90.3	87.6-93.0	
	Not piped in house or yard					9.7	7.0-12.4	
Type of toilet	Flush toilet					80.6	76.7-84.5	
	Pit latrine including ventilated pit latrine					11.9	9.2-14.5	
	None					3.4	2.0-4.7	
	Other					4.2	2.5-5.8	
Main source of fuel	Electricity/gas/paraffin					96.2	94.60-97.89	
	Other					3.8	2.11-5.40	
Depletion of food supply in past 12 months	Yes					21.4	18.5-23.8	
	No					78.7	75.9-81.4	
	Don't know					0.2	0.0-0.4	
Was this pregnancy planned	Yes					38.7	34.5-42.9	
	No					60.9	56.7-65.1	
	Don't know					0.4	0.1-0.8	

2012-2013								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					96.9	95.9-97.8	
	Father					-	-	
	Grandmother/grandfather					1.8	1.0-2.6	
	Guardian/legal guardian					1.1	0.6-1.7	
	Caregiver					0.2	0.0-0.5	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	-	13.1	31.7	25.6	19.0	7.5	2.9	0.2
95% CI of the %	-	11.0-15.2	29.7-33.6	23.1-28.0	17.1-20.9	5.8-9.1	1.8-4.1	0.0-0.5
Infant gender	Male					50.5	47.8-53.1	
	Female					49.6	46.9-52.4	
Education of mother	None					2.5	1.7-3.2	
	Grade 1-7					16.4	13.8-19.0	
	Grade 8-12					78.4	75.3-81.4	
	Completed tertiary/technical /university					2.3	1.4-3.1	
	Don't know					0.5	0.1-0.8	
Marital status of mother	Single					81.9	80.2-83.8	
	Married					14.9	13.3-16.4	
	Co-habiting					2.9	1.7-4.2	
	Widowed					0.2	0.0-0.5	
	Divorced/separated					-	-	
	Don't know					-	-	
Main building material of house	Brick/Cement block					80.4	77.3-83.6	
	Informal material/corrugated iron/wood					19.6	16.4-22.8	
	Traditional material/mud					-	-	
	Other					-	-	
Main source of drinking water	Piped in house or yard					89.4	86.8-92.0	
	Not piped in house or yard					10.5	7.9-13.2	
Type of toilet	Flush toilet					79.7	76.2-83.3	
	Pit latrine including ventilated pit latrine					15.9	12.6-19.4	
	None					2.3	1.1-3.4	
	Other					2.0	0.9-3.1	
Main source of fuel	Electricity					90.1	87.7-92.5	
	Gas/Paraffin					8.8	6.4-11.1	
	Other					1.1	0.2-2.1	
Depletion of food supply in past 12 months	Yes					24.8	21.2-28.4	
	No					75.2	71.7-78.8	
	Don't know					-	-	
Was this pregnancy planned	Yes					36.7	32.7-40.7	
	No					63.3	59.3-67.3	
	Don't know					-	-	

Infant HIV Exposure and MTCT in the Northern Cape

Text Box 7 shows that infants' HIV-exposure was 20.9% [95% CI 15.6-26.2], with a 0.5% [95% CI 0.1-0.9] early infant HIV infection prevalence and a 2.2% [95% CI 0.4-4.1] MTCT risk at 4-8 weeks. Among infants whose mothers self-reported being HIV-negative 0.6% [95% CI 0.1-1.2] were HIV-exposed.

Text Box 7: Infant HIV Exposure and MTCT, Northern Cape (% CI)

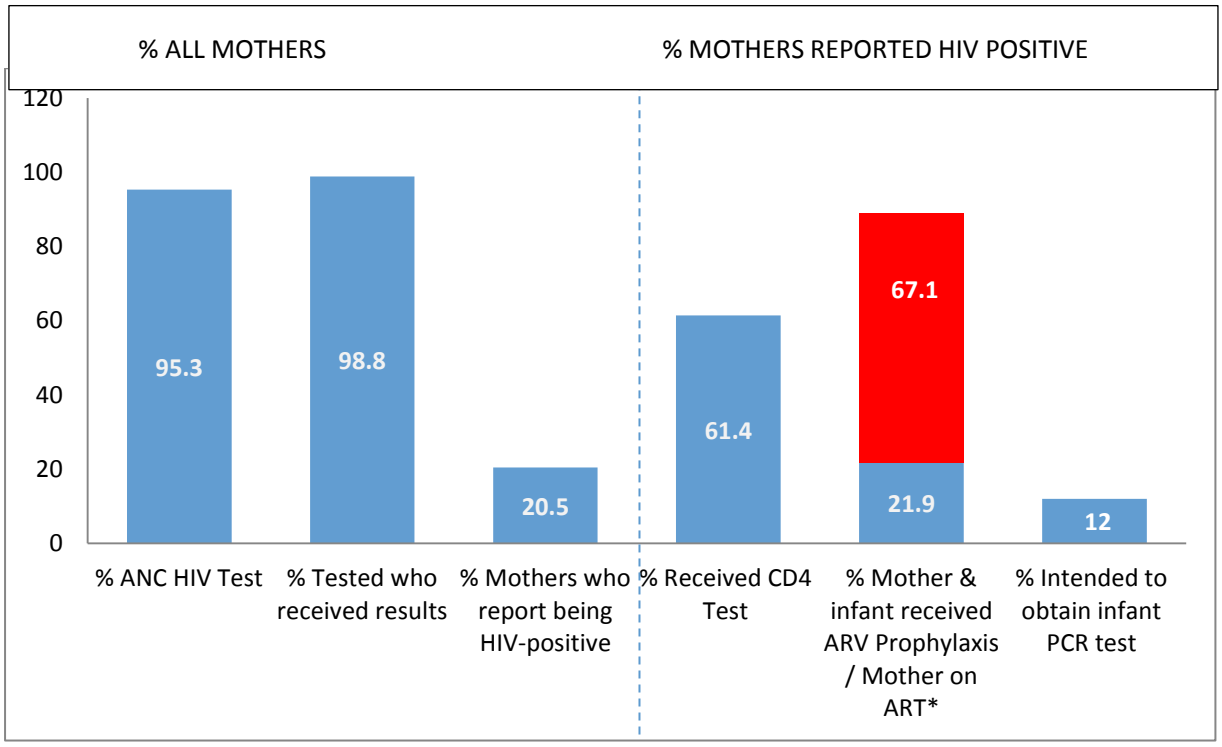
Infant HIV Exposure %	Infant HIV infection prevalence at 4-8 weeks	MTCT at 4-8 weeks:%	% ELISA positive infants born to self-reported HIV negative mothers
2010			
16.0 (13.7-18.3)	0.3 (0.1-0.6)	1.4 (0.1-3.4)	2.2 (1.2-3.3)
2011			
15.1 (12.7-17.5)	1.0 (0.4-1.6)	6.1 (2.5-9.6)	1.9 (1.2-2.7)
2012-2013			
20.9 (15.6-26.2)	0.5 (0.1-0.9)	2.2 (0.4-4.1)	0.6 (0.1-1.2)

PMTCT service uptake (PMTCT cascade) in the Northern Cape

Similar to 2011, Northern Cape has the lowest intended early infant diagnosis coverage of all provinces (12%).

The low MTCT risk is likely due to the high coverage of the PMTCT cascade in Northern Cape and the lower HIV acquisition risk, compared with other provinces.

Figure 12 PMTCT service uptake (PMTCT cascade) in the Northern Cape 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who reported being HIV-positive. For the indicator '% Mother and Infant received ARV

prophylaxis/Mother on ART', red indicates the percentage receiving ART before or during pregnancy while blue indicates the percentage receiving ARV prophylaxis to mother and baby (no ART).

In 2012-2013, the % of self-reported HIV positive mothers and infants receiving ART was 67.1% (59.8-74.3%), whilst the proportion receiving ARV prophylaxis for mother and infant was 21.9% (16.2-27.7%), Table 7b and Figure 11. Coverage of ART or maternal and infant prophylaxis amongst self-reported HIV positive mothers was 89% in 2012-13 compared with 87.3% in 2010 and 98.6% in 2011 (Table 7b).

3.6.8 The North West Province

The SAPMTCTE in the North West province attained 65.1% of targeted sample size.

General Description of Provincial Sample

In the North West province 78.88% of mothers were single. Socio-economic indicators showed that (86.92%) families had electricity, brick/cement houses (78.26%) and piped water (75.28%), but fewer than half had a flush toilet (48.59%). Reported depletion of food supply in the last 12 months was 18.73%. (Table 15)

Table 15 Baseline characteristics of North West SAPMTCTE survey participants

2010			
Characteristics	**Categories**	**%**	**95% CI**
Relationship to child	Mother	97.0	96.1-97.9
	Caregiver	3.0	2.1-3.9
Median age of mother (years) [range]	26.3 (14-46)		
Infant gender	Male	50.9	48.9-52.8
	Female	49.1	47.2-51.1
Education of mother	None	5.3	3.6-7.0
	Grade 1-7	19.1	16.1-22.0
	Grade 8-12	71.8	67.9-75.8
	Above Grade 12	3.3	2.2-4.4
Marital status of mother	Single	83.1	80.8-85.6
	Married/co-habiting	16.0	13.6-18.4
Main building material of house	Brick/Cement block	73.8	70.7-76.9
	Informal material	24.0	21.1-26.9
	Traditional material/mud	2.2	1.2-3.1
Main source of drinking water	Piped in house or yard	75.9	71.3-80.4
	Not piped in house or yard	24.1	19.6-28.7
Type of toilet	Flush toilet	44.1	37.1-51.0
	Pit latrine	54.0	47.1-61.0
	None	1.3	0.8-1.9
	Other	0.6	0.1-1.0
Main source of fuel	Electricity/Gas/Paraffin	93.5	91.4-95.5
	Other	6.5	4.5-8.6
Depletion of food supply in past 12 months	Yes	19.1	16.4-21.7
	No	80.6	78.0-83.3

2011								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					97.4	96.6-98.1	
	Father					0.2	0.0-0.4	
	Grandmother/grandfather					1.8	1.2-2.4	
	Guardian/legal guardian					0.3	0.1-0.5	
	Caregiver					0.4	0.1-0.7	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.6	14.4	31.4	26.0	13.0	11.1	3.6	0
95% CI of the %	0.3-1.0	12.3-16.4	29.2-33.5	23.6-28.4	11.5-14.6	9.5-12.7	2.7-4.4	0
Infant gender	Male					46.8	44.5-49.2	
	Female					53.2	50.8-55.5	
Education of mother	None					3.5	2.4-4.5	
	Grade 1-7					21.0	18.5-23.6	
	Grade 8-12					70.9	67.8-73.9	
	Completed tertiary/technical /university					4.5	3.2-5.8	
	Don’t know					0.2	0.0-0.3	
Marital status of mother	Single					81.1	78.4-83.8	
	Married					16.6	14.1-19.0	
	Co-habiting					1.8	1.1-2.4	
	Widowed					0.4	0.1-0.8	
	Divorced/separated					0.2	0.0-0.4	
	Don’t know					-	-	
Main building material of house	Brick/Cement block					74.5	71.2-77.8	
	Informal material/corrugated iron/wood					23.5	20.2-26.7	
	Traditional material/mud					2.0	1.0-3.2	
	Other					-	-	
Main source of drinking water	Piped in house or yard					74.8	68.9-80.7	
	Not piped in house or yard					25.2	19.3-31.1	
Type of toilet	Flush toilet					43.6	35.8-51.4	
	Pit latrine including ventilated pit latrine					54.3	46.6-62.0	
	None					2.0	1.3-2.8	
	Other					0.1	0.0-0.2	
Main source of fuel	Electricity/gas/paraffin					96.0	94.8-97.2	
	Other					4.0	2.8-5.2	
Depletion of food supply in past 12 months	Yes					10.8	8.5-13.1	
	No					88.5	86.29-90.80	
	Don’t know					0.7	0.26-1.03	
Was this pregnancy planned	Yes					34.5	31.44-37.48	
	No					64.7	61.68-67.77	
	Don’t know					0.8	0.27-1.37	

2012-2013								
Characteristics	**Categories**					**%**	**95% CI**	
Relationship to child	Mother					97.6	96.3-98.6	
	Father					0.1	0.0-0.3	
	Grandmother/grandfather					0.9	0.5-1.5	
	Guardian/legal guardian					0.7	0.1-1.4	
	Caregiver					0.6	0.1-1.1	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.1	13.6	29.5	22.6	19.6	11.7	2.8	0.1
95% CI of the %	0.0-0.3	10.8-16.4	26.7-32.2	20.3-24.9	17.2-21.9	10.1-13.3	1.9-3.7	0.0-0.3
Infant gender	Male					50.5	47.4-53.4	
	Female					49.5	46.4-52.6	
Education of mother	None					1.8	0.9-2.6	
	Grade 1-7					18.1	14.9-21.2	
	Grade 8-12					76.7	72.6-78.6	
	Completed tertiary/technical /university					4.3	2.8-5.7	
	Don't know					0.1	0.0-0.3	
Marital status of mother	Single					78.9	75.4-82.4	
	Married					14.7	11.9-17.5	
	Co-habiting					6.2	3.6-8.7	
	Widowed					-	-	
	Divorced/separated					0.2	0.0-0.5	
	Don't know					-	-	
Main building material of house	Brick/Cement block					78.3	78.9-81.7	
	Informal material/corrugated iron/wood					20.9	17.4-24.4	
	Traditional material/mud					0.7	0.2-1.2	
	Other					0.1	0.0-0.3	
Main source of drinking water	Piped in house or yard					75.3	69.5-81.0	
	Not piped in house or yard					24.7	18.9-30.5	
Type of toilet	Flush toilet					48.6	40.9-56.3	
	Pit latrine including ventilated pit latrine					51.3	43.6-58.9	
	None					0.1	0.0-0.3	
	Other					-	-	
Main source of fuel	Electricity					86.9	84.4-89.5	
	Gas/paraffin					8.8	6.5-10.9	
	Other					4.3	2.7-6.0	
Depletion of food supply in past 12 months	Yes					18.7	14.9-22.5	
	No					81.2	77.4-84.9	
	Don't know					0.1	0.0-0.3	
Was this pregnancy planned	Yes					44.3	40.3-48.6	
	No					55.5	51.3-59.6	
	Don't know					0.1	0.0-0.3	

Infant HIV Exposure and MTCT in North West Province

Text Box 8 shows that infants' HIV-exposure was 31.4% [95% CI 27.8-35.0%], with a 1.7% [(95% CI 1.1-2.3%] early infant HIV infection prevalence and a 5.4% [95% CI 3.4-7.4%] MTCT risk at 4-8 weeks. The percentage of infants with self-reported HIV-negative mothers who were actually HIV-exposed (presumed maternal HIV acquisition) was 3.4% [95% CI 2.0-4.8] was significantly lower than in 2010.

Text Box 8: Infant HIV Exposure and MTCT in North West Province: % (CI)

Infant HIV Exposure	Infant HIV infection prevalence at 4-8 weeks	MTCT at 4-8 weeks	% ELISA positive infants born to self-reported HIV negative mothers
2010			
31.3 (29.0-33.5)	1.9 (1.2-2.5)	4.4 (2.9-5.9)	5.4 (3.9-6.8)
2011			
30.8 (28.5-33.1)	0.8 (0.4-1.2)	2.6 (1.1-4.0)	3.7 (2.5-4.9)
2012-2013			
31.4 (27.8-35.0)	1.7 (1.1-2.3)	5.4 (3.4-7.4)	3.4 (2.0-4.8)

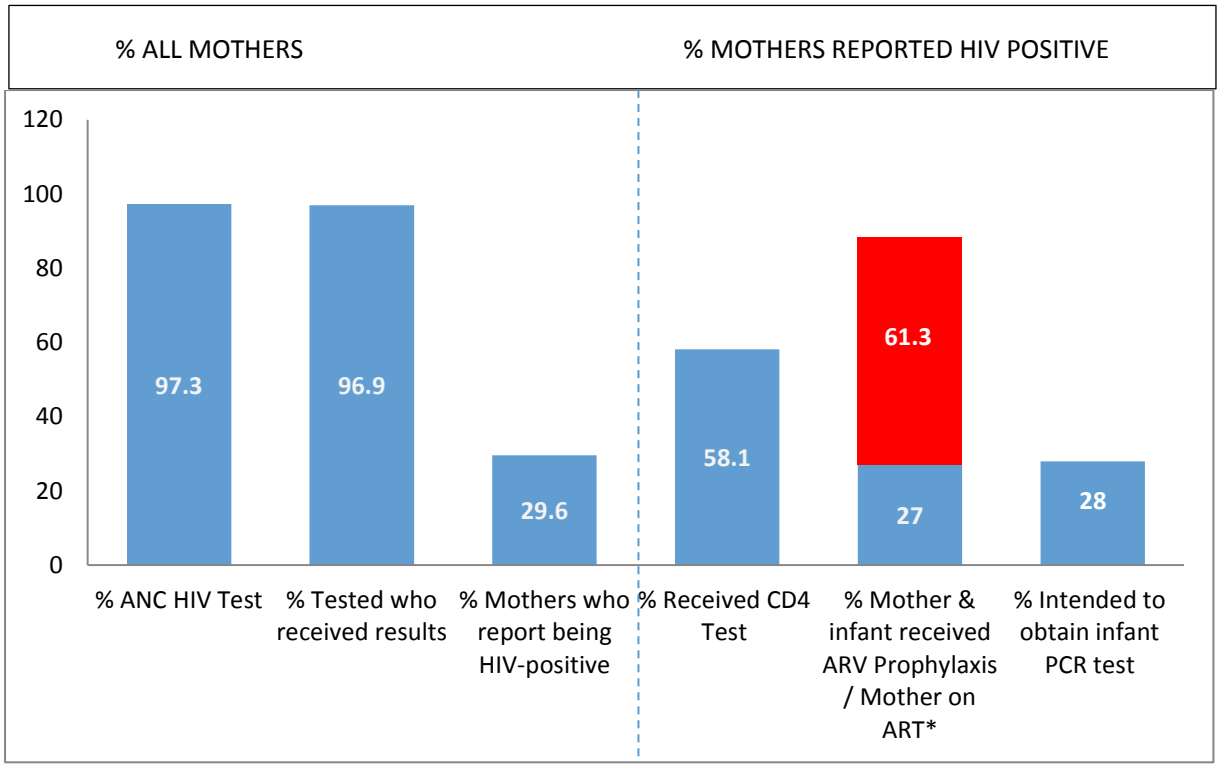
The higher prevalence of infants (3.4%) with self-reported HIV-negative mothers who were HIV-exposed and who would not have received any PMTCT interventions may explain the 5.4% MTCT risk in the North West province (the highest MTCT risk recorded during 2012-2013).

PMTCT Service Uptake (PMTCT cascade) in the North West Province

The North West Province had an antenatal HIV testing uptake of 97.3% and of these 96.90% received their result (Table 6).

Coverage of CD4 cell count testing was low (58.1%, Table 7a) and of intended EID was 28% (21.0-35.0) – higher than previously recorded (Table 7b)

Figure 13 PMTCT service uptake (PMTCT cascade) in the North West Province 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who reported being HIV positive. For the indicator '% Mother and Infant received ARV prophylaxis/Mother on ART', red indicates the percentage of self-reported HIV positive mothers receiving ART antenatally or before while blue indicates the percentage receiving ARV prophylaxis to mother and baby (no ART).

In 2011-12 88.3% self-reported HIV positive mothers received ART or ARV prophylaxis for mother and infant compared with 91.1% in 2010 and 93.3% in 2011 (Table 7b and Figure 12). In 2012-2013, more women received ART before (53.6%) vs during (45.7%) their pregnancy (Table 7c).

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3.6.9 Western Cape

The SAPMTCTE in the Western Cape attained 85.0% of targeted sample size.

General Description of Provincial Sample

The majority of Western Cape participants reported use of piped water (in house) (93.36%), flush toilet (90.87%) and electricity (95.47%) for their fuel needs. However, a substantial percentage (28.72%) of the participants reported living in a house built from informal materials. A large percentage (16.40%) of respondents also reported that they experienced food shortage at least once in the last 12 months (Table 16).

Table 16 Baseline characteristics of Western Cape SAPMTCTE survey participants

Characteristics	Categories	%	95% CI
Relationship to child	Mother	97.1	96.3-97.9
	Caregiver	2.9	2.1-3.7
Median age of mother (years) [range]	26.4 (14-47)		
Infant gender	Male	49.7	47.4-52.0
	Female	50.3	48.0-52.6
Education of mother	None	0.8	0.3-1.3
	Grade 1-7	15.1	12.2-17.9
	Grade 8-12	76.2	73.0-79.4
	Above Grade 12	7.3	5.1-9.5
Marital status of mother	Single	54.3	50.5-58.1
	Married/co-habiting	44.0	40.2-47.8
Main building material of house	Brick/Cement block	68.5	63.3-73.7
	Informal material	31.1	26.0-36.3
	Traditional material/mud	0.4	0.1-0.6
Main source of drinking water	Piped in house or yard	93.9	91.9-95.8
	Not piped in house or yard	6.1	4.2-8.0
Type of toilet	Flush toilet	90.7	88.4-93.0
	Pit latrine	5.6	3.5-7.7
	None	1.3	0.6-2.0
	Other	2.4	1.5-3.3
Main source of fuel	Electricity/Gas/Paraffin	99.3	99.0-99.7
	Other	0.7	0.3-1.0
Depletion of food supply in past 12 months	Yes	26.1	22.9-29.2
	No	73.0	69.9-76.0

2011								
Characteristics	Categories					%	95% CI	
Relationship to child	Mother					97.29	96.58-98.01	
	Father					0.21	0.01-0.40	
	Grandmother/grandfather					1.01	0.53-1.49	
	Guardian/legal guardian					0.29	0.06-0.51	
	Caregiver					1.21	0.67-1.75	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	1.5	13.5	25.5	29.1	17.8	10.1	2.4	0.1
95% CI of the %	1.0-2.1	11.9-15.1	23.5-27.5	27.0-31.2	16.1-19.4	8.9-11.3	1.7-3.0	0.0-0.2
Infant gender	Male					49.35	47.33-51.37	
	Female					50.65	48.63-52.67	
Education of mother	None					0.69	0.23-1.15	
	Grade 1-7					11.00	8.89-13.11	
	Grade 8-12					81.55	78.98-84.12	
	Completed tertiary/technical /university					6.32	4.42-8.21	
	Don't know					0.45	0.16-0.74	
Marital status of mother	Single					62.30	57.82-66.77	
	Married					29.23	25.61-32.85	
	Co-habiting					7.27	4.95-9.60	
	Widowed					0.22	0.02-0.42	
	Divorced/separated					0.98	0.60-1.37	
	Don't know					-	-	
Main building material of house	Brick/Cement block					70.26	64.11-76.42	
	Informal material/corrugated iron/wood					29.74	23.59-35.90	
	Traditional material/mud					-	-	
	Other					-	-	
Main source of drinking water	Piped in house or yard					98.01	96.90-99.12	
	Not piped in house or yard					1.99	0.88-3.10	
Type of toilet	Flush toilet					92.61	90.01-95.22	
	Pit latrine including ventilated pit latrine					5.26	2.83-7.69	
	None					1.20	0.57-1.83	
	Other					0.93	0.46-1.40	
Main source of fuel	Electricity/gas/paraffin					99.56	99.28-99.84	
	Other					0.44	0.16-0.72	
Depletion of food supply in past 12 months	Yes					14.80	12.15-17.45	
	No					84.72	82.04-87.40	
	Don't know					0.48	0.17-0.79	
Was this pregnancy planned	Yes					38.36	35.76-40.95	
	No					61.64	59.05-64.24	
	Don't know					-	-	

2012-2013								
Characteristics	Categories					%	95% CI	
Relationship to child	Mother					97.9	97.3-98.6	
	Father					0.2	0.0-0.3	
	Grandmother/grandfather					1.2	0.7-1.6	
	Guardian/legal guardian					0.3	0.0-0.6	
	Caregiver					0.4	0.2-0.7	
Age of mother in years	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49
%	0.2	11.3	29.8	27.3	17.7	10.4	3.2	0.1
95% CI of the %]	0.0-0.5	9.7-12.9	27.7-31.9	24.8-29.9	15.1-20.3	8.8-11.9	2.3-4.1	0.0-0.3
Infant gender	Male					50.9	48.8-53.2	
	Female					49.0	46.8-51.2	
Education of mother	None					0.4	0.1-0.8	
	Grade 1-7					9.8	7.9-11.6	
	Grade 8-12					83.3	81.0-85.6	
	Completed tertiary/technical /university					6.5	4.6-8.3	
	Don't know					0.1	0.0-0.2	
Marital status of mother	Single					62.7	58.9-66.4	
	Married					30.2	27.5-32.9	
	Co-habiting					6.6	4.1-8.9	
	Widowed					0.1	0.0-0.2	
	Divorced/separated					0.4	0.1-0.7	
	Don't know					0.1	0.0-0.2	
Main building material of house	Brick/Cement block					71.1	65.6-76.5	
	Informal material/corrugated iron/wood					28.7	23.3-34.1	
	Traditional material/mud					0.2	0.0-0.5	
	Other					-	-	
Main source of drinking water	Piped in house or yard					93.4	89.9-96.8	
	Not piped in house or yard					6.6	3.2-10.1	
Type of toilet	Flush toilet					90.9	87.9-93.8	
	Pit latrine including ventilated pit latrine					5.1	3.1-7.1	
	None					1.6	0.8-2.5	
	Other					2.4	0.7-4.2	
Main source of fuel	Electricity					95.5	93.7-97.2	
	Gas/Paraffin					3.9	2.2-5.6	
	Other					0.6	0.2-1.1	
Depletion of food supply in past 12 months	Yes					16.4	12.9-19.9	
	No					83.3	79.7-86.9	
	Don't know					0.3	0.1-0.5	
Was this pregnancy planned	Yes					37.1	34.1-40.1	
	No					62.9	59.9-65.9	
	Don't know					-	-	

Infant HIV Exposure and MTCT in Western Cape

Text Box 9 shows that infants' HIV-exposure was 22.1% [95% CI 17.8-26.6], with a 0.4% [95% CI 0.1-0.7] early infant HIV infection prevalence and a 1.9% [95% CI 0.4-3.3] MTCT risk at 4-8 weeks. The percentage of infants with self-reported HIV-negative mothers who were actually HIV-exposed (presumed maternal HIV acquisition) was 1.7% [95% CI 0.9-2.4].

Text Box 9: Infant HIV Exposure and MTCT in Western Cape (95% CI)

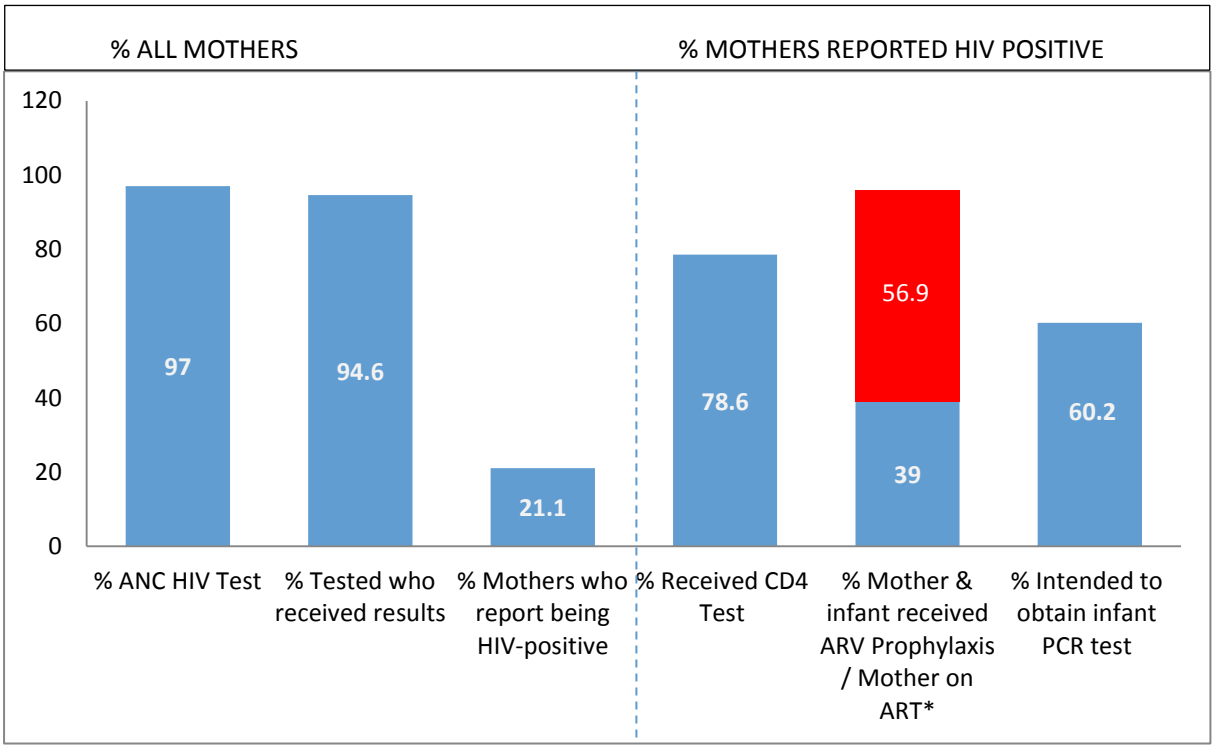
Infant HIV Exposure %	Infant HIV infection prevalence at 4-8 weeks	MTCT at 4-8 weeks:%	% ELISA positive infants born to self-reported HIV negative mothers
2010			
21.0 (30.7-33.3)	0.9 (0.4-1.5)	3.9 (1.9-5.8)	1.1 (0.3-1.9)
2011			
17.8 (14.8-20.8)	0.4 (0.1-0.6)	1.98 (0.65-3.31)	0.7 (0.3-1.2)
2012-2013			
22.1 (17.8-26.6)	0.4 (0.1-0.7)	1.9 (0.4-3.3)	1.7 (0.9-2.4)

PMTCT service uptake (PMTCT cascade) in the Western Cape

The Western Cape had an antenatal HIV testing uptake of 97.7% and 94.6% of women received their results. Although the uptake of HIV testing was similar to uptake in 2010 and 2011 the proportion of mothers receiving their results appeared to be lower than in 2010 and 2011 (Table 6). CD4 cell count testing uptake was 78.6% .

Of all provinces, Western Cape recorded the highest (60.2%) proportion of mothers who intended to obtain EID services during the six-week immunisation visit.

Figure 14 PMTCT service uptake (PMTCT cascade) in the Western Cape Province 2012-13



Footnote: The first three indicators apply to all mothers, while the last three apply only to those who self-reported being HIV positive. For the indicator '% Mother and Infant received ARV prophylaxis/Mother on ART', red indicates the percentage of self-reported HIV positive mothers receiving ART antenatally or before whilst blue indicates the percentage receiving AV prophylaxis for mother and baby (no ART).

In 2012-2013, the percentage of self-reported HIV positive mothers receiving ART antenatally or before was 56.9% (51.8-62%) whilst 39% (33.8-47.0%) received maternal and infant ARV prophylaxis (Table 7b and Figure 13). In total 95.9% self-reported HIV positive mothers received ART or ARV prophylaxis to mother and baby in 2012-13, compared with 94.2% in 2010 and 97.4% in 2011 (Table 7b). Unlike most provinces, more women received ART before (50.6%) and compared to during (45.9%) their pregnancy (Table 7c).

This excludes the 1.1% of reportedly HIV negative mothers whose infants were found to be HIV exposed.

3.7 Infant Feeding

The prevalence of HIV-positive mothers who recalled receiving infant feeding counseling during antenatal care was 94.4% with a range from 84.9% in Free State to >96.0% in Gauteng and KwaZulu-Natal.

Among all infants (regardless of HIV exposure status) 12.1% [95% CI 11.2-12.9%] were mixed breastfeeding; 57.5% [95% CI 55.8-59.1%] were exclusively breastfed in the 8 days prior to the 4-8 week interview and 11.2% [95% CI 11.2-12.9%] received no breast milk.

We categorised HIV-exposed infants who received breast milk plus any other milk or food (not including prescribed medicines) over the past eight days as being at-risk as they were practicing mixed breastfeeding. This ranged from a low of 11.5% in Gauteng to a high of 33.5% in Limpopo, with a national average of 20.5% (Table 17).

Table 17 Weighted Infant feeding practices amongst HIV exposed infants over the past 8 days by province: % (CI)

Province	Mother reportedly received infant feeding counseling during ANC			At Risk/ Mixed Feeding			Exclusive Breastfeeding		
	2010	2011	2012-2013	2010	2011	2012-2013	2010	2011	2012-2013
Eastern Cape	82.4 (76.1-88.8)	94.2 (91.3-97.3)	93.6 (91.2-96.1)	20.3 (16.6-23.9)	9.9 (6.7-13.0)	22.4 (18.7-26.2)	14.8 (11.3-18.2)	23.2 (17.8-28.6)	47.4 (39.9-54.9)
Free State	91.6 (88.7-94.6)	95.5 (93.7-97.4)	84.9 (81.2-88.5)	22.9 (19.1-26.8)	19.2 (14.9-23.5)	27.8 (22.7-33.0)	18.0 (14.5-21.5)	35.1 (30.1-40.1)	55.9 (49.9-61.7)
Gauteng	92.4 (89.7-95.1)	91.8 (87.9-95.6)	96.9 (95.3-98.6)	14.8 (11.4-18.1)	9.6 (6.2-13.0)	11.5 (8.9-14.0)	19.6 (15.9-23.2)	37.6 (32.2-43.0)	57.6 (53.1-62.1)
KwaZulu-Natal	92.4 (90.0-94.8)	97.2 (95.2-99.2)	96.7 (95.2-98.3)	14.0 (10.5-17.5)	10.4 (6.9-13.9)	21.6 (17.2-26.1)	26.1 (21.2-31.1)	42.5 (37.1-47.9)	53.8 (48.9-58.7)
Limpopo	77.9 (72.0-83.7)	82.2 (76.2-88.2)	88.4 (84.5-92.2)	32.8 (27.0-38.7)	33.0 (25.9-40.1	35.3 (29.4-41.3)	20.3 (15.5-25.1)	28.3 (21.5-35.0)	53.4 (47.4-59.3)
Mpumalanga	91.5 (88.4-94.6)	93.5 (91.5-95.4)	94.8 (92.6-96.9)	29.7 (26.0-33.4)	20.6 (15.5-25.6)	19.8 (16.1-23.5)	13.9 (11.01-16.8)	34.5 (28.6-40.5)	51.5 (47.1-55.9)
Northern Cape	81.0 (73.3-88.6)	94.2 (90.3-98.2)	95.3 (92.9-97.7)	23.9 (16.1-31.8)	21.7 (13.8-29.7)	17.9 (14.6-21.4)	43.7 (37.0-50.3)	43.5 (35.9-51.1)	76.4 (72.1-80.7)
North West	81.5 (76.1-86.8)	90.6 (87.3-94.0)	92.2 (89.9-94.3)	21.3 (17.5-25.1)	23.2 (16.7-29.7)	23.1 (16.9-29.2)	25.7 (21.3-30.0)	38.9 (33.0-44.8)	61.7 (56.1-67.3)
Western Cape	85.3 (80.5-90.1)	95.0 (92.6-97.3)	94.5 (92.4-96.6)	7.0 (4.3-9.6)	11.4 (7.3-15.4)	17.9 (14.2-21.7)	7.9 (5.3-10.4)	18.8 (13.9)	41.9 (33.9-50.0)
South Africa	**89.2 (87.8-90.6)**	**93.3 (92.0-94.7)**	**94.4 (93.6-95.3)**	**18.1 (16.5-19.7)**	**14.0 (12.3-15.7)**	**20.5 (18.8-22.1)**	**20.4 (18.5-22.3)**	**35.5 (33.1-38.0)**	**54.1 (51.9-56.2)**

There are several encouraging findings with regards to infant feeding:

- Among mothers of HIV exposed infants:
    - 54.1% [95% CI 51.9-56.2%] reported exclusive breastfeeding over the past 8 days which is a significant increase from the 20.4% [95% CI 18.5-22.3%] and 35.5% [95% CI 33.12-38.0%] reported in 2010 and 2011 respectively. A significant increase in exclusive breastfeeding was measured in ALL provinces since 2010.
    - In keeping with the trend observed in both 2010 and 2011, the prevalence of exclusive breastfeeding continued to remain the lowest in the Western Cape and highest in Northern Cape Provinces.
    - 27.7% [95% CI 25.6-29.7%] reported avoiding breastmilk, which is a reduction from the 47.1% [95% CI 44.9-49.3%] and 61.5% [95% CI: 59.2-63.8%] measured in 2011 and 2010 respectively. However mixed feeding significantly increased in all provinces except GP, LP and NW.
    - The province with the highest reported infant feeding counseling (Gauteng, 96.9%) also reported the lowest prevalence of at risk/mixed feeding (11.5%).

- Amongst mothers of HIV unexposed infants:
    - 59.2% [95% CI 57.3-61.0%] reported exclusive breastfeeding over the past 8 days in 2012-2013 compared with 31.3% [95% CI 29.0-33.0%] in 2010 and 43.6% [95% CI 41.6-45.7%] in 2011.
    - The Free State (47.5%) and Limpopo (44.6%) provinces recorded the lowest prevalence of exclusive breastfeeding. The prevalence of exclusive breastfeeding was highest (66.9%) in the Gauteng and Mpumalanga provinces.
    - Data also shows a significant reduction in mixed feeding amongst HIV unexposed infants: In 2010, 57.4% [95% CI 55.5-59.2%] reported mixed feeding whereas in 2011 this dropped to 46.2% [95% CI 44.2-48.3%] with a further decreased to 37.2 [95% CI 35.3-39.1] in 2012-2013.
    - National prevalence of infant feeding counseling was reported at 90.9% [95% CI 89.9-91.9%], with the lowest in the Free State (80.5%) and the highest in the province (94.5%) of Gauteng.

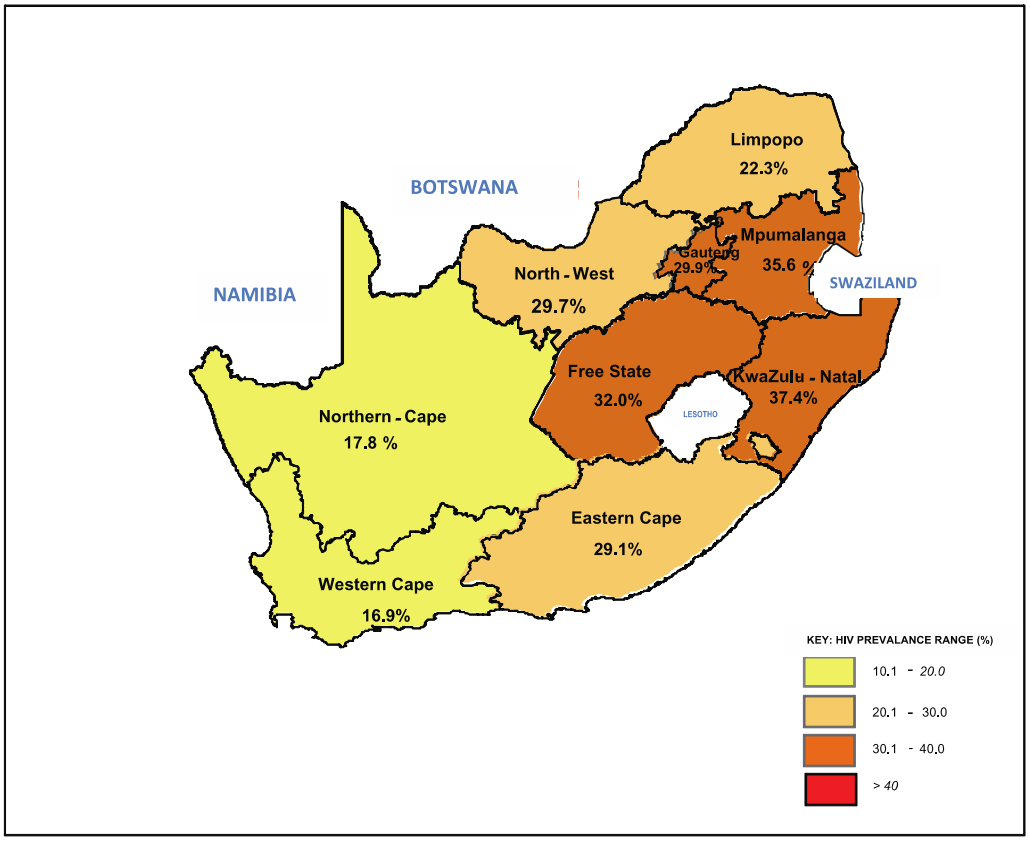
4. DISCUSSION

4.1 Infant HIV Exposure

Figure 14 indicates the 2011 maternal HIV prevalence in mothers from the antenatal sentinel surveillance by province (NDOH, 2013).

The weighted proportion of mothers who reported being HIV positive in the 2012-2013 SAPMTCT Evaluation was 32.1% [95% CI 30.8-33.4%], which is very similar to the antenatal HIV prevalence, which was measured as 29.5% [95% CI 28.8-30.2%] in the 2012 national antenatal survey that is conducted annually by the National Department of Health. The infant HIV exposure was higher, viz. weighted proportion of children who were HIV exposed at six weeks (4-8 weeks postpartum) in the SAPMTCTE was 33.1% (95% CI of 31.8-34.4%). As it measures incident HIV infections and sero-conversions, it is expected for the SAPMTCTE infant HIV exposure results to be slightly higher than the antenatal HIV prevalence.

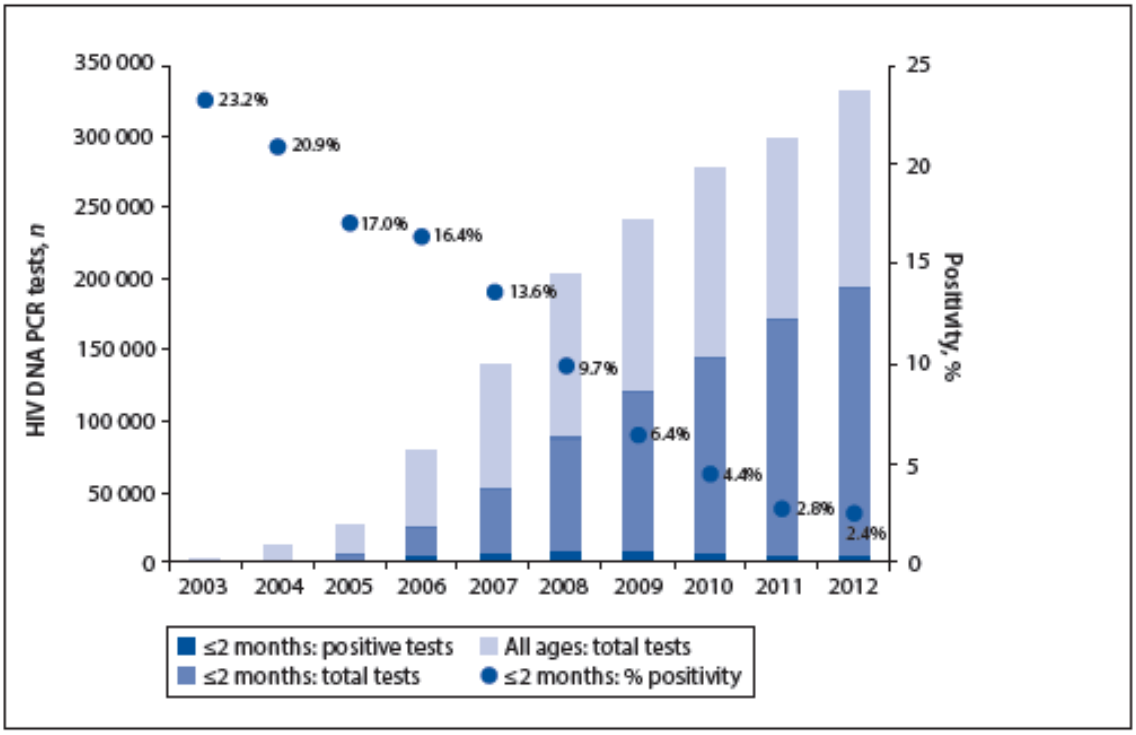
Figure 15 Maternal antenatal HIV prevalence by province in South Africa (Source: NDOH, 2013)



4.2 Mother-to-Child Transmission of HIV

Figure 15 presents data from the National Health Laboratory Service (NHLS) data warehouse for infants less than 2 months old (Sherman *et al*, 2014). The data show an increase in the number of HIV PCR tests done between 2003 and 2011; by 2011 (58%) of all HIV PCR tests were done early in infants. According to routine NHLS data early vertical HIV transmission in children <2 months of age dropped from 9.7% in 2008 to 2.8% in 2011. The NHLS data mirror the SAPMTCTE findings, and illustrate the gains made in preventing early infants HIV infections. While these different data sources have varying methods, limitations and strengths, the underlying message is that early MTCT has reduced substantially in South Africa over the past three years and at present is less than 5%.

Figure 16 NHLS Early Infant Diagnosis PCR <2 months old 2011 (Sherman *et al*, 2014)



The MTCT risk measured at six weeks in recent PMTCT studies (not operational settings) using somewhat similar regimens to the South African 2010 PMTCT policy ranged from 2.5%-5% (Table 18):

Table 18 Early MTCT measured in recent research settings

Study and setting	Maternal regimen	Infant regimen	Cumulative MTCT measured at 6 weeks postpartum
SWEN Study Team (2008), Ethiopia, Uganda and India 3 similar RCTs Breastfeeding populations	**C:** sd NVP **Int:** sd NVP	**C:** sd NVP **Int:** sd NVP + extended daily NVP until 6 weeks	2.5% in Int versus 5.3% in C group. risk ratio I:C = 0.54 (95% confidence interval 0.34-0.85)
Kilewo C at.al MITRA (2008) Dar es Salaam, Tanzania Prospective observational study Breastfeeding population	AZT/3TC to mothers from 36 weeks gestation to 1 week postpartum	1 weeks AZT/3TC to infants for 1 week followed by daily 3TC to infants for a maximum of 6 months	3.8% (2.0%-5.6%)
Kilewo C et.al MITRA PLUS (2009) Dar es Salaam, Tanzania Prospective observational study Breastfeeding population	HAART to pregnant women starting at 34 weeks and continuing through 6 months of breastfeeding	ZDV + 3TC for 1 week after birth	4.1% [2.2 to 6.0] at 6 weeks
Kesho Bora study Team (2009) 5 sites in Burkina Faso, Kenya and South Africa HIV-infected women with CD4 200-500 cells/µl randomised. RCT Breastfeeding populations	**C:** AZT started 28-36 weeks + sdNVP at labour + 1 week PN AZT/3TC **Int:** HAART started 28-36 weeks pregnancy through 6 months postpartum	sd NVP + 1 week AZT in both arms	5.0% (3.3-7.7%) in the C group versus 3.3% (1.9-5.6%) in the Int group.
Chasela et.al Breastfeeding, Antiretrovirals and Nutrition (BAN) study (2009) Malawi RCT Women with CD4 cell counts>250 cells/µl at delivery and no previous antenatal prophylaxis.	**C :** intrapartum sd NVP + 1 week AZT/3TC **Int1 :** C regimen + HAART from 1 week till 6 months postpartum **Int2:** C regimen	**C:** sd NVP + 1 week AZT/3TC As above **Int2:** daily infant NVP from 1 week to 6 months postpartum	C: 5.4% (3.9-7.4%) at 2 weeks + 2% (1.2-3.6%) amongst infants negative at 2 weeks Int1: 5.5% (4.1-7.2%0 at 2 weeks + 0.9% (0.4-1.9%) amongst infants negative at 2 weeks Int2: 4.4% (3.2-6.0%) at 2 weeks + 0.1% (0.0-0.9%) amongst infants negative at 2 weeks

RCT = Randomised controlled trial C = Control group Int = intervention group

NVP = Nevirapine sdNVP = singe dose nevirapine

The SAPMTCTE 2012-2013 results (MTCT: 2.6%), which are measured at population level compare favourably with these results. Achievement of results similar to trials in a national PMTCT programme is very encouraging.

Provincial Variation in MTCT

There was a greater than 4-fold difference in MTCT across the 9 provinces in South Africa. The provincial variation in MTCT is due to the differences in 'effective coverage' and quality of the PMTCT programme including uptake of CD4 cell count testing results, repeat HIV testing at 32 weeks, appropriate ARV prophylaxis/ART for HIV-positive women, and adherence to PMTCT regimens. More detailed explorations of quality and adherence to PMTCT prophylaxis or ART are underway to understand MTCT risk across provinces.

4.3 PMTCT Cascade

Missed opportunities along the PMTCT cascade of services (Stringer *et al*, 2003) can reduce both the coverage and quality of the PMTCT programme. HIV testing in ANC clinics is the entry point into the PMTCT programme. High coverage of this and each subsequent step reduces missed opportunities for care. In 2012-2013, ANC HIV testing by mothers was almost universal 98.6% but services further along the cascade were not as high, with only 65.9% of HIV-positive mothers receiving a CD4 cell count. This was significantly lower compared to both 2010 and 2011 data. These data shows improvement over a previous report from KwaZulu-Natal where prior to a quality improvement intervention only 85% of women were tested in ANC, 40% received a CD4 test and only 15% were given appropriate ARV prophylaxis (Doherty *et al*, 2009). After the intervention, the data from the Doherty study were comparable to the SAPMTCTE with 98.6% ANC HIV testing, 65.9% CD4 testing and 98.5% self-reported HIV positive mothers had received any PMTCT intervention (45.6% ART and 52.9% prophylaxis). There has been an effort in South Africa in the last few years to improve the PMTCT programme through interventions like the one described by Doherty et.al., (2009) as well as others (e.g. Best Practices in Prevention of Mother-to-Child Transmission (PMTCT) of HIV South Africa; NDOH/MRC/UWC/UNICEF/USAID, 2009). These efforts are clearly impacting PMTCT, as shown by programme indicators and infant outcomes (early MTCT) as described in this report.

Of *ALL* mothers enrolled in the survey, 32.1% reported being HIV positive while HIV antibody was found in 33.1% of *ALL* infants. Of concern is that of those *mothers who reported being HIV negative*, 2.6% of their infants had HIV antibodies, suggesting a high rate of maternal potential acquisition of HIV infection during pregnancy. This rate also varied substantially across provinces from a low of 0.6% in the Northern Cape to a high of 3.7% in the Eastern Cape. The indicator 'Maternal potential HIV acquisition' is a combination of the following scenarios:

i. Mothers do not wish to admit being HIV positive and reported being HIV negative. The data show that refusals for infant HIV testing were low and disclosure was high; thus the contribution that this scenario makes to the indicator is probably minimal.

ii. Mothers were tested during the window period for the ANC test.
iii. Poor QC/performance of rapid tests in the field caused false negative results at ANC of HIV-infected women. Reported field sensitivities are as low as 87% to 95% depending on the rapid test. In correlation to this was mothers who reported being HIV positive but for which infant test HIV antibody negative which was 2.5% (95% CI 1.8-3.2%) and also suggests potential problems with performance of rapid tests during ANC.
iv. True acquisition of HIV after the last HIV test - which for most mothers was during pregnancy.

Regardless of the cause this group of women and infants represent a substantial missed opportunity for care as the mothers and infants did not receive ARV prophylaxis or appropriate counseling and represents a metric for PMTCT programme quality.

4.4 Early Infant Diagnosis

It is very positive to note that intention to obtain a PCR test at the six-week immunization visit increased in 2012-2013 (40.7%) [95% CI 42.8-51.3%] compared to 2010 (35.1%) [95% CI 30.6-39.6%] and 2011 (38.5%) [95% CI: 34.3-42.6%] respectively, illustrating a growing improvement in the integration between routine child health services and HIV-related care. Furthermore, apart from a slight decline observed in the KwaZulu-Natal province, all other provinces indicated a significant increase in intention to obtain EID.

4.5 Infant Feeding

Infant feeding per caregiver recall for the past 8 days suggests a substantial increase in infant feeding counseling and exclusive breastfeeding amongst HIV exposed (in all nine provinces). The Tshwane Declaration of Support for Breastfeeding was adopted in August 2011 just as the survey started (National Department of Health, 2011). It received wide publicity and its effects are likely to have been measured over the duration of the survey.

5. STRENGTHS AND LIMITATIONS OF SAPMTCTE

5.1 Strengths

- This evaluation provides estimates of early vertical HIV transmission using a national and provincial population-based representative sample of infants 4-8 weeks of age.
- This survey includes mothers with known and unknown HIV status with variable access to PMTCT services as well as mothers with recent HIV acquisition.
- The survey was conducted 36 months after South Africa adopted PMTCT Option A, and thus provides population level data on effectiveness of WHO PMTCT Option A. The country adopted PMTCT Option B in April 2013, which was 1 month before the end of data collection on this survey.
- This evaluation provides data on uptake of the PMTCT programme and infant feeding.

5.2 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.
  The data are facility-based using infants presenting for immunisation. Infants who do not come for immunization/attended private or mobile health facilities and those who demised before 4-8 weeks were excluded from the survey suggesting a possible under-estimation of infant HIV infection prevalence.
- Maternal Incidence (sero-conversion during pregnancy) was based on self-reports of previous HIV-negative status and presence of HIV antibodies in infant ELISA test. Mothers may not accurately report their previous HIV status for a variety of reasons, such as fear of stigma and disclosure. Confidentiality was assured and discussed as part of the informed consent process and a private place was secured for the conduct of interviews in an attempt to reduce this potential limitation.
- Coverage of PMTCT programme and infant feeding indicators was assessed via maternal recall and was not verified with maternal antenatal or intrapartum records, however the recall period was relatively short (generally less than 3-6 months).
- Two-stage cluster random sampling was used. The primary sampling unit was primary health care clinics reporting at least 130 immunisations per year from the 2007 DHIS data. Therefore this sample excluded smaller primary health care facilities due to logistic reasons and secondary and tertiary facilities, mobile clinics and other facilities in order to focus on PMTCT in the primary health care services. Therefore this survey is not representative of these excluded facilities.
- This survey does not measure postnatal HIV transmission.

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusions:

1. Maternal access to HIV testing was lower compared with 2010 and 2011; overall uptake of HIV testing and receipt of results was 95% compared with >98% in 2010 and 2011.
2. Amongst known HIV positive mothers, access to antiretroviral treatment (triple drugs – ART) increased from 33% in 2010 to 54.8% (any ART access) in 2012-13. Data collected during 2012-2013, showed that amongst mothers on ART more were initiated during pregnancy (55.7%) [95% CI 41.8-55.4] vs. before pregnancy (42.2%) [95% CI 42.6-56.7] or after pregnancy (1.9%) [95% CI 0-3.9]. This was observed in all provinces except for Northern Cape, Western Cape and the North West province.
3. Uptake of maternal ART or maternal and infant ARV prophylaxis amongst self-reported HIV positive women was 90.3%. This means that despite knowing their HIV positive status 9.7% of mothers did not receive either ART or prophylaxis for mother and infant. This excludes the 2.6% of self-reported HIV negative women who received no ARVs but whose infants tested ELISA positive.
4. The risk of perinatal MTCT was 2.6% in 2012-2013: 107 000 infants were saved from early HIV infection in 2012-13. (Assumptions: 391 000 infants - 32.2% of 1 214 485 live births - and early MTCT is 30% without PMTCT interventions).
5. Reported infant feeding counseling improved nationally between 2010 (89.2%; 87.8-90.6) and 2012-2013 (94.4%, 93.6-95.3%). The prevalence of exclusive breastfeeding (EBF) among HIV exposed infants also increased from 20.4% (18.5-22.3%) in 2010 to 54.1% (51.9-56.2%) in 2012-2013 (8-day recall data

6.2 Implications for Policy and Programmes:

- Bottlenecks to reducing MTCT to <2% by 6 weeks postpartum include
  - Only 95% uptake of maternal HIV testing and receipt of HIV test results
  - Only 22%% coverage of late testing amongst HIV negative women
  - Only 90%% coverage of adequate antiretroviral interventions (ART or maternal and infant ARV prophylaxis)
  - Only 47% intention to seek early infant HIV testing at routine 6 weeks immunisation visits

  - 94% coverage of infant feeding counselling, despite the fact that breastfeeding is a significant contributor to postnatal MTCT and
  - 54.1% prevalence of EBF during the 8 days prior to the six week interview
- All health care personnel should inquire about HIV-status and treatment for every pregnant or lactating woman and woman of reproductive age. This should occur at every contact with the health services to avoid missed PMTCT opportunities.
- As per recent national policy HIV negative mothers should continue to be re-tested at every opportunity during pregnancy and lactation, and at least every 3 months.
- Efforts to provide effective infant feeding counseling need to be scaled up to ensure continued improvements in infant feeding practices (i.e. to further reduce mixed feeding and increase EBF).

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Appendix 1: Sample size calculation by province

	Antenatal HIV Prevalence 2007	% antenatal HIV test (%)	% admin of PMTCT to babies	Estimated Coverage (prevalence X %tested X %admin to baby)	Est. not Covered	Transmission Rate in exposed assuming SD NVP MTCT=15% & untreated MTCT=29% (Rollins)*	Overall Population Prevalence per 100 kids	Same precision across province	Same relative precision across province (%)	sample size for 30% relative precision	Sample size for design effect** of 2 & relative precision 30%	Overall population prevalence per 100 kids (%)	Varying precision by province	Varying relative precision by province (%)	Sample size using varying precision level without design effect	Sample size using varying precision level with design effect** of 2
SA	29	67	47	31.5%	68.5%	24.6%	7.1%	2.1	30	575	1150					
WC*	15	97	75	72.8%	27.3%	13.0%	1.9%	0.6	30	1989	3978	1.9	1.0	51	716	1400
NC	14	81	70	56.7%	43.3%	21.1%	2.9%	0.9	30	1336	2672	2.9	1.8	60	350	700
EC	24	73	35	25.6%	74.5%	25.4%	6.1%	1.8	30	680	1360	6.1	1.8	30	700	1400
FS	29	70	52	36.4%	63.6%	23.9%	6.9%	2.1	30	560	1120	6.9	2.0	29	617	1300
KZN	37	66	52	34.3%	65.7%	21.4%	7.9%	2.4	30	485	970	7.9	2.0	25	699	1400
MP	34	56	36	20.2%	79.8%	26.2%	8.9%	2.7	30	428	856	8.9	2.0	22	779	1600
LP	20	74	54	40.0%	60.0%	23.4%	4.7%	1.4	30	878	1756	4.7	1.5	32	703	1400
NW	29.9	86	50	43.0%	57.0%	23.0%	6.9%	2.1	30	560	1119	6.9	2.0	29	601	1200
GP	31	65	27	17.6%	82.5%	26.5%	8.2%	2.5	30	463	926	8.2	2.0	24	723	1800
Total										7379	14758					12200

ANC Prevalence & Coverage Data from DHIS

*WC & KZN assume full coverage dual therapy - Rollins KZN Study is 7%

** Design Effect = 1+(100-1)*(ICC=.01)=2

To determine the sample size for each province, HIV prevalence was calculated based on the provincial antenatal survey prevalence and coverage of PMTCT ARV prophylaxis (Appendix II). Estimates of transmission rates for SdNVP and no treatment are taken from Rollin while the transmission rate for Dual Therapy comes from the recent KZN survey (Horwood et.al 2009). Given these estimates we then deliberated on the relevant precision required. The first sample size calculations were based on a fixed relative precision of 30% across all provinces. The Western Cape Province had the lowest estimated prevalence at 6 weeks of 1.9%. Specifying a 30% relative precision leads to a sample size of nearly 4000 infants for this province alone. The numbers for the other provinces are also indicated in the table and this approach leads to an imbalance in field work effort required. The biggest effort would be required in the province with the lowest expected prevalence. We felt that given the low prevalence a larger relative precision would be acceptable. For the Western Cape Province we felt that a 1% precision would be adequate for public health purposes. The upper limit of the 95% confidence interval will be around 3% and this equates a relative precision of 51%.

For the provinces with a higher expected prevalence we want a reasonable precision. In Gauteng province the incidence is estimated at 8.2% and therefore a higher precision is required to monitor this transmission. We argue that a 2% precision will be reasonable. The precision required and specified for the nine provinces thus vary from 1% to 2%. In general provinces with a higher prevalence will have a lower (better) relative precision. The relative precision implemented in each province is indicated in the table. The benefit of this is that better equity in sample size is achieved between provinces. Using this approach the largest sample in a province is 1800 (Gauteng) and the smallest 700 (Northern Cape) with a total sample size of 12,200 across all provinces (Appendix II).

Provincial Specific Sampling design features

Western Cape is the only province where the DOH is doing HIV antenatal surveys at the sub-district level in South Africa. The HIV antennal prevalence stratification of the Western Cape utilized the 2008 results of sub-districts compared to the district level information in all other provinces.

Eastern Cape has a large number of medium sized facilities (130-300 immunizations per annum) therefore requiring that a substantial number of these facilities be sampled. This would lead to an unfeasible sampling burden in this province. For this reason we oversampled facilities in the larger stratum and under sampled facilities in the smaller stratum. This oversampling fraction is 6%.

Mpumalanga was used the same sampling strategy described for the Eastern Cape Province. The oversampling fraction was 7%

Northern Cape has the largest geographical coverage in the country & has enormous distance between facilities. Hence, taking in to account our logistical capacity, decision was made to limit the number of facilities sampled in each of the stratum, and in compensation for the reduced number of facilities, the duration of time that will be spent in each facility for data collection is increased to a median number of 4 weeks.

Sampling Method

The following sampling methodology was planned:

1. Estimate HIV prevalence in each province
2. Specify the appropriate precision
3. Determine the sample size for estimating a proportion with specified precision for each province
4. Assume a design effect of 2 and double the sample size required to take into account the cluster sampling at the first stage
5. Allocate the sample size proportionally (population proportionate to size) between the strata (based on clinic/CHC size) in each province based on the 2007 immunization totals observed in the strata.
6. From the median clinic size in each stratum, using DHIS data, calculate the number of children expected in a fixed time period (e.g. three weeks). This number is then used to determine the number of clinics to be sampled in each stratum in each province to obtain the number of children.
7. Clinics are then randomly sampled proportional to size (PPSSYS) within each stratum using the detailed information of the sampling frame. The method operates under the with-replacement-type selection as described in Lehtonen (1994). This sampling method is implemented in excel. See Appendix 2A-I
8. The fixed median number of infants determined in (6) will be sampled in each facility leading to a self-weighting sample in each stratum.
9. The sampling strategy of infants within each facility will be decided on after the situational analysis. A sampling window of 3 weeks will be utilized to realize the required sample.

APPENDIX 2: Sampling

Table 3 - number of facilities needed to be sampled from each province to collect data within 3wks (4 weeks for Northern Cape) duration from each facility. Note DTP1 = 1st DTP

Appendix 2A: WESTERN CAPE

Strata	Total Annual DTPDTP#	Percentage	Sample Size Proportional	Median Yearly Clinic DTP1 Number	Media 3-week Clinic DTP1 Number	Number of Facilities to be Visited
Small clinics (< 130 DTPDTP1#)	4537					20
Medium size clinics (130-300 annual DTPDTP1#)	15953	17.85	250	192	11	23
Large size (annual DTPDTP1 #>300) but low prevalence clinics	62884	70.38	985	535	31	32
Large size (annual DTPDTP1 #>300) but high prevalence clinics	10517	11.77	165	857	49	3
Overall Total	89354	100	1400			58 (or 78 if small facilities are included)

Appendix 2B: EASTERN CAPE

Strata	Total Annual DTPDTP for the province	Percentage	Adjusted Percentage	Sample size proportional	Sample size adjusted proportional	Median yearly clinic DTP1 number	Median 3 week clinic DTP1 number	number of facilities need to be visited	Number of facilities that should be visited based on adjusted distribution
Small clinics (<130 DTPDTP1#)	25862							20	20
Medium size clinics (130-300 annual DTP1#)	41620	36.38	30	509	420	186.5	11	47	39
large size (Annual DTP1 #>300) but low prevalence clinics	41646	36.40	43	510	602	459	26	19	23
large size (Annual DTP1 #>300) but high prevalence clinics	31141	27	27	381	378	402	23	16	16
Overall Total	114407	100	100	1400	1400			83	78 (or 98 if small facilities are included)

Appendix 2C: FREE STATE

Strata	Total Annual DTP for the province	Percentage	Sample size proportional	Median yearly clinic DTP1 number	Median 3 week clinic DTP1 number	number of facilities need to be visited
Small clinics (<130 DTP1#)	4880					20
Medium size clinics (130-300 annual DTP1#)	14418	27.34%	355	201	12	31
large size (Annual DTP1 #>300) but high prevalence clinics	38326	72.66%	945	404	23	41
Overall Total	52744	100%	1300			72 (or 92 if small facilities are included)

Appendix 2D: GAUTENG

Strata	Total Annual DTP for the province	Percentage	Sample size proportional	Median yearly clinic DTP1 number	Median 3 week clinic DTP1 number	number of facilities need to be visited
Small clinics (<130 DTP1#)	1926					20
Medium size clinics (130-300 annual DTP1#)	15359	8.95%	161	237.5	14	12
Large size (Annual DTP1 #>300) but low prevalence clinics	33023	19.25%	347	549	32	11
Large size (Annual DTP1 #>300) but high prevalence clinics	123199	71.80%	1292	629	36	36
Overall Total	171581	100%	1800			59 (or 79 if small facilities are included)

Appendix 2E: KWAZULU-NATAL

Strata	Total Annual DTP for the province	Percentage	Sample size proportional	Median yearly clinic DTP1 number	Median 3 week clinic DTP1 number	number of facilities need to be visited
Small clinics (<130 DTP1#)	7365					20
Medium size clinics (130-300 annual DTP1#)	40070	20.84%	292	209	12	24
large size (Annual DTP1 #>300) but low prevalence clinics	6505	3.38%	47	536.5	31	2
large size (Annual DTP1 #>300) but high prevalence clinics	145661	75.77%	1061	483	28	38
Over all Total	192236	100%	1400			64 (or 84 if small facilities are included)

Appendix 2F: LIMPOPO

Strata	Total Annual DTP for the province	Percentage	Sample size proportional	Median yearly clinic DTP1 number	Median 3 week clinic DTP1 number	number of facilities need to be visited
Small clinics (<130 DTP1#)	7166					20
Medium size clinics (130-300 annual DTP1#)	41027	33.89%	474	206	12	40
large size (Annual DTP1 #>300) but low prevalence clinics	80048	66.11%	926	470.5	27	34
large size (Annual DTP1 #>300) but high prevalence clinics	0	0.00%	0		0	0
Over all Total	121075	100%	1400			74 (or 94 if small facilities are included)

Appendix 2G: MPUMALANGA

Strata	Total Annual DTP for the province	Percentage	Adjusted percentage	Sample size proportional	Sample size adjusted proportional	Median yearly clinic DTPDTP1 number	Median 3 week clinic DTPDTP1 number	number of facilities need to be visited	number of facilities need to be visited based on adjusted distribution
Small clinics (<130 DTP1#)	4545							20	
Medium size clinics (130-300 annual DTP1#)	20858	26.73%	20%	428	320	225	13	33	25
large size (Annual DTP1 #>300) but low prevalence clinics	0	0.00%		0	0	0	0	0	0
large size (Annual DTP1 #>300) but high prevalence clinics	57172	73.27%	80%	1172	1280	439	25	46	51
Overall Total	78030	100%	100%	1600	1600			79	76

Appendix 2H: NORTHERN CAPE

Strata	Total Annual DTP for the province	Percentage	Sample size proportional	Median yearly clinic DTP1 number	Median 4 week clinic DTP1 number	number of facilities need to be visited
Small clinics (<130 DTP1#)	2475					20
Medium size clinics (130-300 annual DTP1#)	7766	51.82%	363	207.5	16	23
large size (Annual DTP1 #>300) but low prevalence clinics	7221	48.18%	337	400	32	11
large size (Annual DTP1 #>300) but high prevalence clinics	0	0.00%	0		0	
Overall Total	14987	100%	700			34 (or 54 if small facilities are included)

Appendix 2I: NORTH WEST

Strata	Total Annual DTP for the province	Percentage	Sample size proportional	Median yearly clinic DTP1 number	Median 3 week clinic DTP1 number	number of facilities need to be visited
Small clinics (<130 DTP1#)	8758					20
Medium size clinics (130-300 annual DTP1#)	22925	34.26%	411	204.5	12	35
large size (Annual DTP1 #>300) but low prevalence clinics	24100	36.02%	432	413	24	18
large size (Annual DTP1 #>300) but high prevalence clinics	19887	29.72%	357	432.5	25	14
Over all Total	66912	100%	1200			67 (or 87 if small facilities are included)

List of selected clinics in each province for 2012-2013 survey

EASTERN CAPE

District	facility name (facility Code)	Sample size needed	Replacement year, reason
ec Alfred Nzo District Municipality	ec Dundee Clinic (1)	**11**	
ec Alfred Nzo District Municipality	ec Zulu Clinic (2)	**11**	
ec Alfred Nzo District Municipality	ec Mntwana Clinic (3)	**11**	
ec Amathole District Municipality	ec Gcaleka Clinic (7)	**11**	
ec Amathole District Municipality	ec Berlin Clinic (8)	**11**	
ec Amathole District Municipality	ec NU 12 Clinic (9)	**11**	
ec Amathole District Municipality	ec Ndabakazi Clinic (10)	**11**	
ec Amathole District Municipality	ec Braelyn Clinic (11)	**11**	
ec Amathole District Municipality	ec Nkanya Clinic (12)	**11**	
ec Amathole District Municipality	ec Cumakala 2 Clinic (13)	**11**	
ec Amathole District Municipality	ec Alphendale Clinic (14)	**11**	
ec Cacadu District Municipality	ec Kroonvale Clinic (21)	**11**	
ec Cacadu District Municipality	ec Pal 1 Clinic (22)	**11**	
ec Chris Hani District Municipality	ec Lahlangubo Clinic (Ngcobo) (23)	**11**	
ec Chris Hani District Municipality	ec Ntsimba Clinic (24)	**11**	
ec Chris Hani District Municipality	ec Whittlesea Clinic (25)	**11**	
ec Chris Hani District Municipality	ec Mjanyana Clinic (26)	**11**	
ec Chris Hani District Municipality	ec Tora Clinic (27)	**11**	
ec Chris Hani District Municipality	ec Qebe Clinic (28)	**11**	
ec Chris Hani District Municipality	ec New Rest Clinic (29)	**11**	
ec Chris Hani District Municipality	ec Elliot Clinic (30)	**11**	
ec Oliver Tambo District Municipality	ec Kanyayo (Bizana) Clinic (48)	**11**	
ec Oliver Tambo District Municipality	ec Lujizweni Clinic (49)	**11**	

District	facility name (facility Code)	Sample size needed	Replacement year, reason
ec Oliver Tambo District Municipality	ec Qobo Clinic (51)	**11**	
ec Oliver Tambo District Municipality	ec Mdyobe Clinic (52)	**11**	
ec Oliver Tambo District Municipality	ec Ndanya Clinic (53)	**11**	
ec Oliver Tambo District Municipality	ec Isilimela Gateway Clinic (54)	**11**	
ec Oliver Tambo District Municipality	ec Qaukeni Clinic (55)	**11**	
ec Oliver Tambo District Municipality	ec Phakamile Clinic (56)	**11**	
ec Oliver Tambo District Municipality	ec Kohlo Clinic (57)	**11**	
ec Oliver Tambo District Municipality	ec Nkumandeni Clinic (58)	**11**	
ec Oliver Tambo District Municipality	ec Nessie Knight Clinic (59)	**11**	
ec Ukhahlamba District Municipality	ec Ndofela Clinic (72)	**11**	
ec Ukhahlamba District Municipality	ec Barkly East Clinic (73)	**11**	
ec Ukhahlamba District Municipality	ec Upper Telle Clinic (74)	**11**	
ec Ukhahlamba District Municipality	ec Palmietfontein Clinic (75)	**11**	
ec Ukhahlamba District Municipality	ec Khayamnandi Clinic (76)	**11**	
ec Nelson Mandela Metropolitan Municipality	ec Central Clinic (Port Elizabeth) (79)	**11**	
ec Oliver Tambo District Municipality	ec Nolita Clinic (50)	**11**	Pilani was replaced with Nolita in 2010, and in 2011 sample was collected in Nolita. Remove Pilani add sample to Nolita.
	STRATUM 1	**429**	
ec Alfred Nzo District Municipality	ec Maluti CHC (4)	23	
ec Alfred Nzo District Municipality	ec Mount Ayliff PHC Clinic (5)	23	
ec Alfred Nzo District Municipality	ec Sipetu PHC Clinic (6)	23	
ec Oliver Tambo District Municipality	ec Lutshaya Clinic (60)	46	selected twice - one is for replacement of Mfundisweni - spend 3 weeks more in Lutshaya to collect the sample for replacement of Mfundisweni

District	facility name (facility Code)	Sample size needed	Replacement year, reason
ec Oliver Tambo District Municipality	ec Lusikisiki Village Clinic (Qaukeni) (61)	23	
ec Oliver Tambo District Municipality	ec Mfundisweni Clinic (62)	23	no babies visiting - mothers do not know it as immunising clinic because they did not have a fridge for a long time. Reported Pc -22 April 2013
ec Oliver Tambo District Municipality	ec Tombo CHC (63)	23	
ec Oliver Tambo District Municipality	ec Mthatha Gateway Clinic (64)	23	
ec Oliver Tambo District Municipality	ec Ngangelizwe CHC (65)	23	
ec Oliver Tambo District Municipality	ec St Elizabeth's PHC Clinic (66)	23	
ec Oliver Tambo District Municipality	ec Flagstaff Clinic (67)	23	
ec Oliver Tambo District Municipality	ec Holy Cross PHC Clinic (68)	23	
ec Oliver Tambo District Municipality	ec Nkozo Clinic (69)	23	
ec Oliver Tambo District Municipality	ec Stanford Terrace Clinic (70)	23	
ec Oliver Tambo District Municipality	ec St Patrick's PHC Clinic (71)	46	
	STRATUM 3	**391**	
ec Amathole District Municipality	ec Macibe Clinic (15)	26	
ec Amathole District Municipality	ec Idutywa CHC (16)	26	
ec Amathole District Municipality	ec Fezeka NU 3 Clinic (17)	26	
ec Amathole District Municipality	ec Butterworth Gateway Clinic (18)	26	
ec Amathole District Municipality	ec Pefferville Clinic (19)	26	
ec Amathole District Municipality	ec Nqamakwe CHC (20)	26	
ec Chris Hani District Municipality	ec Zwelakhe Dalasile Clinic (31)	26	
ec Chris Hani District Municipality	ec Kuyasa Clinic (32)	26	
ec Chris Hani District Municipality	ec Ngcobo PHC Clinic (33)	26	
ec Chris Hani District Municipality	ec Parkvale Clinic (34)	26	
ec Chris Hani District Municipality	ec Tembelihle Clinic (35)	26	
ec Nelson Mandela Metropolitan Municipality	ec Motherwell CHC (37)	26	
ec Nelson Mandela Metropolitan Municipality	ec Kwamagxaki Clinic (38)	26	

District	facility name (facility Code)	Sample size needed	Replacement year, reason
ec Nelson Mandela Metropolitan Municipality	ec Mabandla Clinic (39)	26	
ec Nelson Mandela Metropolitan Municipality	ec Walmer 14th Avenue Clinic (40)	26	
ec Nelson Mandela Metropolitan Municipality	ec Soweto Clinic (41)	26	only 16 babies immunised from November 2012 to January 2013 when looking at the registers. Reported PC - 22 April 2013; replaced by Bokleni
ec Eastern Cape Province	ec Bokleni Clinic replacement for c	26	replacement for Soweto clinic
ec Nelson Mandela Metropolitan Municipality	ec Park Centre Clinic (42)	26	
ec Nelson Mandela Metropolitan Municipality	ec Chatty Clinic (43)	26	
ec Nelson Mandela Metropolitan Municipality	ec Zwide Clinic (44)	26	
ec Nelson Mandela Metropolitan Municipality	ec Tshangana Clinic (45)	26	
ec Nelson Mandela Metropolitan Municipality	ec Motherwell NU 2 Clinic (46)	26	
ec Nelson Mandela Metropolitan Municipality	ec Kwadwesi Clinic (47)	26	
ec Ukhahlamba District Municipality	ec Empilisweni Clinic (77)	26	
	STRATUM 2	**624**	
	PROVINCE	**1444**	

FREE STATE

District	facility name (facility Code)	Sample size needed	No replacement done
fs Fezile Dabi District Municipality	fs Phahameng Clinic (Frankfort) (1)	12	
fs Fezile Dabi District Municipality	fs Phedisong Clinic (2)	12	
fs Fezile Dabi District Municipality	fs Philani Clinic (3)	12	
fs Fezile Dabi District Municipality	fs Rainbow Clinic (4)	12	
fs Fezile Dabi District Municipality	fs Thusanang Clinic (Sasolburg) (5)	12	
fs Fezile Dabi District Municipality	fs Seeisoville Clinic (6)	12	
fs Fezile Dabi District Municipality	fs Sedibeng sa Bophelo Clinic (7)	12	
fs Fezile Dabi District Municipality	fs Relebohile Clinic (Heilbron) (8)	12	
fs Fezile Dabi District Municipality	fs Sizabantu Clinic (9)	12	
fs Fezile Dabi District Municipality	fs Kgotso Clinic (10)	12	
fs Lejweleputswa District Municipality	fs Kamohelo Clinic (15)	12	
fs Lejweleputswa District Municipality	fs Winburg Clinic (16)	12	
fs Lejweleputswa District Municipality	fs Boithusong Clinic (17)	12	
fs Lejweleputswa District Municipality	fs Boshof Clinic (18)	12	
fs Lejweleputswa District Municipality	fs Tshwaraganang Clinic (Hertzogville) (19)	12	
fs Motheo District Municipality	fs Mmabana Clinic (32)	12	
fs Motheo District Municipality	fs National Hospital Gateway Clinic (33)	12	
fs Motheo District Municipality	fs Mokwena Clinic (34)	12	
fs Motheo District Municipality	fs Manyatseng Clinic (36)	12	
fs Thabo Mofutsanyane District Municipality	fs Mphatlalatsane Clinic (50)	12	
fs Thabo Mofutsanyane District Municipality	fs Monontsha Clinic (51)	12	
fs Thabo Mofutsanyane District Municipality	fs Leseding Clinic (52)	12	
fs Thabo Mofutsanyane District Municipality	fs Zamani Clinic (53)	12	
fs Thabo Mofutsanyane District Municipality	fs Phomolong Clinic (Ficksburg) (54)	12	
fs Thabo Mofutsanyane District Municipality	fs Hlohlolwane Clinic (55)	12	

District	facility name (facility Code)	Sample size needed	No replacement done
fs Thabo Mofutsanyane District Municipality	fs Masebabatso Clinic (56)	12	
fs Thabo Mofutsanyane District Municipality	fs Soetwater Clinic (57)	12	
fs Thabo Mofutsanyane District Municipality	fs Clocolan Clinic (58)	12	
fs Thabo Mofutsanyane District Municipality	fs Bakenpark Clinic (64)	12	
fs Thabo Mofutsanyane District Municipality	Nthabiseng Clinic (71)	12	
fs Motheo District Municipality	fs Fichardtpark Clinic (35)	12	
	STRATUM 1	**372**	
fs Fezile Dabi District Municipality	fs Bophelong Clinic (Kroonstad) (11)	23	
fs Fezile Dabi District Municipality	fs Harry Gwala Clinic (Sasolburg) (12)	23	
fs Fezile Dabi District Municipality	fs Parys Clinic (13)	23	
fs Fezile Dabi District Municipality	fs Rammulotsi Clinic (14)	23	
fs Lejweleputswa District Municipality	fs Bothaville Clinic (20)	23	
fs Lejweleputswa District Municipality	fs Kgotsong Clinic (Bothaville) (21)	23	
fs Lejweleputswa District Municipality	fs Phahameng Clinic (Bultfontein) (22)	23	
fs Lejweleputswa District Municipality	fs Kgotsong Clinic (Welkom) (23)	23	
fs Lejweleputswa District Municipality	fs Thabong Clinic (24)	23	
fs Lejweleputswa District Municipality	fs Hoopstad Clinic (25)	23	
fs Lejweleputswa District Municipality	fs Albert Luthuli Memorial Clinic (26)	23	
fs Lejweleputswa District Municipality	fs Khotalong Clinic (27)	23	
fs Lejweleputswa District Municipality	fs K-Maile Clinic (28)	23	
fs Lejweleputswa District Municipality	fs Theunissen Masilo Clinic (29)	23	
fs Lejweleputswa District Municipality	fs Welkom Clinic (30)	23	
fs Motheo District Municipality	fs Dr Pedro Memorial Clinic (37)	23	
fs Motheo District Municipality	fs Kagisanong Clinic (38)	23	
fs Motheo District Municipality	fs Batho Clinic (40)	23	
fs Motheo District Municipality	fs Maletsatsi Mabaso Clinic (41)	23	
fs Motheo District Municipality	fs Gaongalelwe Clinic (42)	23	

District	facility name (facility Code)	Sample size needed	No replacement done
fs Motheo District Municipality	fs Thusong Clinic (43)	23	
fs Motheo District Municipality	fs Molefi Tau Clinic (44)	23	
fs Motheo District Municipality	fs Chris de Wet Clinic (45)	23	
fs Motheo District Municipality	fs Thaba Nchu Clinic (46)	23	
fs Motheo District Municipality	fs Pule Sefatsa Clinic (48)	23	
fs Motheo District Municipality	fs Winnie Mandela Clinic (Botshabelo) (49)	23	
fs Thabo Mofutsanyane District Municipality	fs Phuthaditjhaba Clinic (59)	23	
fs Thabo Mofutsanyane District Municipality	fs Namahali Clinic (60)	23	
fs Thabo Mofutsanyane District Municipality	fs Meqheleng Clinic (61)	23	
fs Thabo Mofutsanyane District Municipality	fs Thusa Bophelo Clinic (62)	23	
fs Thabo Mofutsanyane District Municipality	fs Reitumetse Clinic (63)	23	
fs Thabo Mofutsanyane District Municipality	fs Riverside Clinic (65)	23	
fs Thabo Mofutsanyane District Municipality	fs Boiketlo Clinic (66)	23	
fs Thabo Mofutsanyane District Municipality	fs Rearabetswe Clinic (Petrus Steyn) (67)	23	
fs Thabo Mofutsanyane District Municipality	fs Bethlehem Clinic (68)	23	
fs Thabo Mofutsanyane District Municipality	fs Boitumelo Clinic (Senekal) (69)	23	
fs Xhariep District Municipality	fs Matlakeng Clinic (70)	23	
fs Motheo District Municipality	fs MUCPP CHC (39)	46	
fs Motheo District Municipality	fs Heidedal CHC Maternity (47)	46	
	STRATUM 3	**943**	
	Province	**1315**	

GAUTENG

Sub-district	facility name (facility Code)	Sample size needed	Replacement year, reason
gp Ekurhuleni North 2 Health sub-District	gp Northmead Clinic (9)	14	
gp Ekurhuleni South 1 Health sub-District	gp Elsburg Clinic (12)	14	
gp Emfuleni Local Municipality	gp Rus ter vaal Clinic (21)	14	
gp Emfuleni Local Municipality	gp Zone 14 Clinic (22)	14	
gp Johannesburg B Health sub-District	gp Riverlea Major Clinic (30)	14	
gp Johannesburg C Health sub-District	gp Florida Clinic (31)	14	
gp Johannesburg G Health sub-District	gp Sinethemba Clinic (42)	14	
gp Johannesburg G Health sub-District	gp Ennerdale Ext 8 Clinic (43)	14	
gp Kungwini Local Municipality	gp Bronkhorstspruit Clinic (46)	14	
gp Nokeng Tsa Taemane Local Municipality	gp Refilwe Clinic (47)	14	
gp Ekurhuleni East 3 Health sub-District	gp Joy Clinic (62)	14	Bapsfontein Clinic replaced with Joy in 2011
gp Tshwane Central Health sub-District	gp Pretorius Park Clinic (52)	14	2012 Being renovated - service shift to Phahameng Clinic
	STRATUM1	**168**	
gp Ekurhuleni East 1 Health sub-District	gp Simunye Clinic (Brakpan) (1)	36	
gp Ekurhuleni East 1 Health sub-District	gp First Avenue Clinic (3)	36	
gp Ekurhuleni East 1 Health sub-District	gp Tsakane Clinic (4)	36	
gp Ekurhuleni East 2 Health sub-District	gp Lethabong Clinic (5)	36	
gp Ekurhuleni East 2 Health sub-District	gp White City Clinic (6)	36	2012 Being renovated - service shift to Kwa-Themba Clinic
gp Ekurhuleni North 1 Health sub-District	gp Olifantsfontein Clinic (7)	36	
gp Ekurhuleni North 1 Health sub-District	gp Tembisa Main Clinic (8)	36	
gp Ekurhuleni South 1 Health sub-District	gp Katlehong North Clinic (13)	36	

Sub-district	facility name (facility Code)	Sample size needed	Replacement year, reason
gp Ekurhuleni South 1 Health sub-District	gp Germiston City Clinic(14)	36	
gp Ekurhuleni South 1 Health sub-District	gp Reiger Park Clinic (15)	36	
gp Ekurhuleni South 2 Health sub-District	gp Ramokonopi CHC (16)	36	
gp Ekurhuleni South 2 Health sub-District	gp Phenduka Clinic (17)	36	
gp Ekurhuleni South 2 Health sub-District	gp Dresser Clinic (18)	36	
gp Ekurhuleni South 2 Health sub-District	gp Palmridge Clinic (19)	36	
gp Ekurhuleni South 3 Health sub-District	gp Vosloorus Ext 28 Clinic (20)	36	
gp Emfuleni Local Municipality	gp Levai Mbatha CHC (23)	36	
gp Emfuleni Local Municipality	gp Johan Heyns CHC (24)	36	
gp Emfuleni Local Municipality	gp Sepei Motsoeneng Clinic (25)	36	
gp Midvaal Local Municipality	gp Randvaal Clinic (26)	36	
gp Midvaal Local Municipality	gp Midvaal CHC (27)	36	
gp Johannesburg A Health sub-District	gp Ebony Park / Kaalfontein Clinic (28)	36	
gp Johannesburg A Health sub-District	gp Bophelong (Region 2) Clinic (29)	36	
gp Johannesburg C Health sub-District	gp Siphumlile Clinic (32)	36	
gp Johannesburg C Health sub-District	gp Tshepisong Porta Cabin Clinic (33)	36	
gp Johannesburg D Health sub-District	gp Zola LA Clinic (34)	36	
gp Johannesburg D Health sub-District	gp Diepkloof LA Clinic (35)	36	
gp Johannesburg D Health sub-District	gp Meadowlands Zone 2 LA Clinic (36)	36	
gp Johannesburg D Health sub-District	gp Itireleng LA Clinic (37)	36	
gp Johannesburg D Health sub-District	gp Senaoane Clinic (38)	36	
gp Johannesburg F Health sub-District	gp Hillbrow CHC (39)	36	
gp Johannesburg F Health sub-District	gp Rosettenville Clinic (40)	36	
gp Johannesburg F Health sub-District	gp Joubert Park Clinic (41)	36	
gp Johannesburg G Health sub-District	gp Lenasia South Civic Centre Clinic (44)	36	

Sub-district	facility name (facility Code)	Sample size needed	Replacement year, reason
gp Johannesburg G Health sub-District	gp Stretford Clinic (45)	36	
gp Ekurhuleni South 1 Health sub-District	gp Boksburg North Clinic (61)	36	crystal clinic was replaced in 2010 with Boksburg, crystal was mobile clinic
gp Ekurhuleni East 1 Health sub-District	gp Phuthanang Clinic (2)	36	
	STRATUM3	**1296**	
gp Mogale City Local Municipality	gp Dr Ramirez Martinez Clinic (48)	34	
gp Mogale City Local Municipality	gp Mogale Clinic (49)	34	
gp Randfontein Local Municipality	gp ML Pessen Clinic (50)	34	
gp Randfontein Local Municipality	gp Mohlakeng CHC (51)	34	
gp Tshwane Central Health sub-District	gp Stanza Bopape II Clinic (53)	34	
gp Tshwane Central Health sub-District	gp East Lynne Clinic (54)	34	
gp Tshwane North Health sub-District	gp Soshanguve Block JJ Clinic (55)	34	
gp Tshwane North Health sub-District	gp Maria Rantho Clinic (56)	34	
gp Tshwane North Health sub-District	gp Rosslyn Clinic (57)	34	
gp Tshwane North Health sub-District	gp Jubilee Gateway Clinic (58)	34	
gp Nokeng Tsa Taemane Local Municipality	gp Kekanastad Clinic (59)	34	
gp Tshwane North Health sub-District	gp Temba CHC (60)	34	
	STRATUM2	**408**	
	PROVINCE	**1872**	

KZN

District	facility name (facility Code)	Sample size needed	Replacement year, reason
kz eThekwini Metropolitan Municipality	kz Luganda Clinic (4)	12	
kz eThekwini Metropolitan Municipality	kz Sydenham Heights Clinic (5)	12	
kz eThekwini Metropolitan Municipality	kz Zwelibomvu Clinic (6)	12	
kz eThekwini Metropolitan Municipality	kz Odidini Clinic (7)	12	
kz eThekwini Metropolitan Municipality	kz Magabheni Clinic (8)	12	
kz iLembe District Municipality	kz Mpumelelo Clinic (23)	12	
kz iLembe District Municipality	kz Mbekaphansi Clinic (25)	12	
kz Sisonke District Municipality	kz Mntungwana Clinic (28)	12	
kz Ugu District Municipality	kz Gcilima Clinic (30)	12	
kz Ugu District Municipality	kz Philani Clinic (32)	12	
kz uMgungundlovu District Municipality	kz Maguzu Clinic (35)	12	
kz uMgungundlovu District Municipality	kz Esigodini Clinic (36)	12	
kz Umkhanyakude District Municipality	kz KwaMbuzi Clinic (41)	12	
kz Umkhanyakude District Municipality	kz Ophondweni Clinic (42)	12	
kz Umkhanyakude District Municipality	kz Makhathini Clinic (43)	12	
kz Umzinyathi District Municipality	kz Glenridge Clinic (44)	12	

District	facility name (facility Code)	Sample size needed	Replacement year, reason
kz Uthukela District Municipality	kz Driefontein Clinic (47)	12	
kz Uthukela District Municipality	kz Limehill Clinic (48)	**24**	sample size from limehill increased to 24 for 2012 survey. limehill should be visited for non consecuative 6 weeks. The second 3 week is for replacement of Nhlabine clinic which was a quiet clinic and was agreed to be replaced
kz Uthungulu District Municipality	kz Cinci Clinic (51)	12	
kz Uthungulu District Municipality	kz Ntuze Clinic (55)	12	
kz Uthungulu District Municipality	kz Ntumeni Clinic (57)	12	
kz Zululand District Municipality	kz Khambi Clinic (60)	12	
kz Zululand District Municipality	kz Ophuzana Clinic (61)	12	
	STRATUM 1	**288**	
kz Umzinyathi District Municipality	kz Gunjana Clinic (45)	31	
kz Umzinyathi District Municipality	kz Charles Johnson Memorial Gateway Clinic (46)	31	
	STRATUM2	**62**	
kz Amajuba District Municipality	kz Emfundweni Clinic (1)	28	
kz Amajuba District Municipality	kz Madadeni 5 Clinic (2)	28	
kz Amajuba District Municipality	kz Osizweni 1 Clinic (3)	28	
kz eThekwini Metropolitan Municipality	kz Umlazi AA Clinic (9)	28	
kz eThekwini Metropolitan Municipality	kz Chatsworth Township Centre Clinic (10)	28	
kz eThekwini Metropolitan Municipality	kz Shallcross Clinic (11)	28	
kz eThekwini Metropolitan Municipality	kz Halley Stott Clinic (12)	28	
kz eThekwini Metropolitan	kz Umlazi D Clinic (13)	28	

District	facility name (facility Code)	Sample size needed	Replacement year, reason
Municipality			
kz eThekwini Metropolitan Municipality	kz Rydalvale Clinic (14)	28	Clinic is now called New KwaMashu CHC and has moved to a new location 2012 - reported meeing 04/03/2013.
kz eThekwini Metropolitan Municipality	kz Ntshongweni Clinic (15)	28	
kz eThekwini Metropolitan Municipality	kz Tongaat CHC (16)	28	
kz eThekwini Metropolitan Municipality	kz Inanda C CHC (17)	28	
kz eThekwini Metropolitan Municipality	kz Fredville Clinic (18)	28	
kz eThekwini Metropolitan Municipality	kz Cato Manor Clinic (19)	28	
kz eThekwini Metropolitan Municipality	kz Mpumalanga Clinic (20)	28	
kz eThekwini Metropolitan Municipality	kz Amaoti Clinic (21)	28	
kz iLembe District Municipality	kz Sundumbili CHC (22)	28	
kz iLembe District Municipality	kz Groutville Clinic (24)	28	
kz Sisonke District Municipality	kz Kokstad LA Clinic (26)	28	
kz Ugu District Municipality	kz Thembalesizwe Clinic (29)	28	
kz Ugu District Municipality	kz Harding Clinic (31)	28	
kz Ugu District Municipality	kz Dududu Clinic (33)	28	
kz uMgungundlovu District Municipality	kz Gomane Clinic (34)	28	
kz uMgungundlovu District Municipality	kz East/Boom CHC (37)	28	

District	facility name (facility Code)	Sample size needed	Replacement year, reason
kz uMgungundlovu District Municipality	kz Imbalenhle CHC (38)	28	
kz uMgungundlovu District Municipality	Northdale	28	eastwood clinic replaced with Nortdale clinic in 2010, facility was not cooperative
kz Umkhanyakude District Municipality	kz Macabuzela Clinic (40)	28	
kz Uthukela District Municipality	kz Emmaus Gateway Clinic (49)	28	
kz Uthukela District Municipality	kz AE Haviland Memorial Clinic (50)	28	
kz Uthungulu District Municipality	kz Ndundulu Clinic (53)	28	
kz Uthungulu District Municipality	kz Thokozani Clinic (56)	28	
kz Uthungulu District Municipality	kz Ensingweni Clinic (58)	28	
kz Uthungulu District Municipality	kz Ndlangubo Clinic (59)	28	
kz Zululand District Municipality	kz Njoko Clinic (62)	28	
kz Zululand District Municipality	kz Mabedlane Clinic (63)	28	
kz Zululand District Municipality	kz Itshelejuba Gateway Clinic (64)	28	
kz Uthungulu District Municipality	kz KwaMbonambi Clinic (54)	28	Ntambana Clinic replaced with KwaMbonambi clinic in 2010 , it was dangerous to visit the facility (in hijaking area)
kz Sisonke District Municipality	KZ st Margaret PHC clinic (27)	28	Matatiele clinic moved to EC, is replaced by st margaret PHC
	STRATUM3	**1064**	
	Province	**1414**	

LIMPOPO

Sub-district	facility name (facility Code)	Sample size needed	Replacement year, reason
lp Blouberg Local Municipality	lp Alldays Clinic (1)	12	
lp Lepelle-Nkumpi Local Municipality	lp Boschplaats Clinic (2)	12	
lp Molemole Local Municipality	lp Dendron Clinic (3)	12	
lp Blouberg Local Municipality	lp Indermark Clinic (4)	12	
lp Polokwane Local Municipality	lp Makotopong Clinic (5)	12	
lp Polokwane Local Municipality	lp Mamushi Clinic (6)	12	
lp Polokwane Local Municipality	lp Sebayeng Clinic (7)	12	
lp Polokwane Local Municipality	lp Soetfontein Clinic (8)	12	
lp Greater Marble Hall Local Municipality	lp Moganyaka Clinic (16)	12	
lp Elias Motsoaledi Local Municipality	lp Motetema Clinic (17)	12	
lp Fetakgomo Local Municipality	lp Nkoana Clinic (18)	12	
lp Greater Tubatse Local Municipality	lp Penge Hospital/CHC (19)	12	
lp Fetakgomo Local Municipality	lp Phasha Clinic (20)	12	
lp Elias Motsoaledi Local Municipality	lp Roossenekal Clinic (21)	12	
lp Fetakgomo Local Municipality	lp Seroka Clinic (22)	12	
lp Greater Letaba Local Municipality	lp Duiwelskloof Gateway Clinic (28)	12	
lp Greater Tzaneen Local Municipality	lp Julesburg CHC (29)	12	
lp Greater Letaba Local Municipality	lp Lebaka Clinic (30)	12	
lp Maruleng Local Municipality	lp Mabins Clinic (31)	12	
lp Greater Letaba Local Municipality	lp Mamaila Clinic (32)	12	
lp Greater Letaba Local Municipality	lp Middelwater Clinic (33)	12	
lp Greater Tzaneen Local Municipality	lp Muhlaba Clinic (34)	12	
lp Greater Tzaneen Local Municipality	lp Nyavana Clinic (35)	12	
lp Greater Letaba Local Municipality	lp Shotong Clinic (36)	12	

Sub-district	facility name (facility Code)	Sample size needed	Replacement year, reason
lp Maruleng Local Municipality	lp Turkey Clinic (37)	12	
lp Maruleng Local Municipality	lp Willows Clinic (38)	12	
lp Mutale Local Municipality	lp Folovhodwe Clinic (43)	12	
lp Thulamela Local Municipality	lp Kulani clinic (44)	12	
lp Makhado Local Municipality	lp Levubu Clinic (45)	12	
lp Makhado Local Municipality	lp Masakona Clinic (46)	12	
lp Makhado Local Municipality	lp Matsa Clinic (47)	12	
lp Musina Local Municipality	lp Musina Clinic (48)	12	
lp Mutale Local Municipality	lp Rambuda Clinic (49)	12	
lp Thulamela Local Municipality	lp Tshaulu Clinic (50)	12	
lp Makhado Local Municipality	lp Tshikuwi Clinic (51)	12	
lp Makhado Local Municipality	lp Vhambelani Maelula Clinic (52)	12	
lp Lephalale Local Municipality	lp Marapong Clinic (64)	12	
lp Mogalakwena Local Municipality	lp Mokamole Clinic (65)	12	
lp Thabazimbi Local Municipality	lp Thabazimbi Clinic (66)	12	2012 Service shifted to Regorogile Clinic-Sister confirmed no babies at facility. Thambazimbi called Regorogile by locals.
lp Mogalakwena Local Municipality	Ga-Madiba clinic (63)	12	lp Mahwelereng 2 Clinic replaced with Ga-Madiba in 2011 due to service shift
	STRATUM 1	**480**	
lp Polokwane Local Municipality	lp Buitestraat CHC (9)	54	sample size from buitestraat increased to 54 for 2012 survey.buitestraat should be visited for non consecuative 6 weeks. The second 3 week is for replacement of Makgato clinic which is a quite clinic and agreed to be replaced

Sub-district	facility name (facility Code)	Sample size needed	Replacement year, reason
lp Polokwane Local Municipality	lp Nobody Clinic (10)	27	
lp Polokwane Local Municipality	lp Perskebult Clinic (11)	27	
lp Molemole Local Municipality	lp Ramokgopa Clinic (12)	27	
lp Polokwane Local Municipality	lp Moletjie Clinic (13)	27	
lp Polokwane Local Municipality	lp Dikgale Clinic (14)	27	
lp Molemole Local Municipality	lp Makgato Clinic (15)	27	Send request Selam to re-sample reason small clinic. 27 Feb 2013.
lp Makhudutamaga Local Municipality	lp Tshehlwaneng Clinic (23)	27	
lp Elias Motsoaledi Local Municipality	lp Hlogotlou CHC (24)	27	
lp Makhudutamaga Local Municipality	lp Klipspruit Clinic (25)	27	
lp Makhudutamaga Local Municipality	lp Jane Furse Gateway Clinic (26)	27	Replace with Dhumarazi Clinc replacement service shifted.
lp Greater Tubatse Local Municipality	lp Burgersfort CHC (27)	27	
lp Greater Tzaneen Local Municipality	lp Shivulani Clinic (39)	27	
lp Greater Giyani Local Municipality	lp Mapayeni Clinic (40)	27	
lp Greater Tzaneen Local Municipality	lp Nkowankowa CHC (41)	27	
lp Greater Giyani Local Municipality	lp Shiluvana CHC (42)	27	
lp Makhado Local Municipality	lp Marseilles Clinic (53)	27	
lp Makhado Local Municipality	lp Tshino Clinic (54)	27	
lp Thulamela Local Municipality	lp Shikundu Clinic (55)	27	
lp Thulamela Local Municipality	lp Vhufuli Tshitereke Clinic (56)	27	
lp Thulamela Local Municipality	lp Malamulele Clinic (57)	27	
lp Makhado Local Municipality	lp Vyeboom Clinic (58)	27	
lp Makhado Local Municipality	lp Rabali Clinic (59)	27	
lp Makhado Local Municipality	lp Mbokota Clinic (60)	27	
lp Makhado Local Municipality	lp Bungeni CHC (61)	27	
lp Thulamela Local Municipality	lp William Eddie CHC (62)	27	

Sub-district	facility name (facility Code)	Sample size needed	Replacement year, reason
lp Lephalale Local Municipality	lp Seleka Clinic (67)	27	
lp Mogalakwena Local Municipality	lp Mahwelereng 1 Clinic (68)	27	
lp Mogalakwena Local Municipality	lp Rebone Clinic (69)	27	
lp Mogalakwena Local Municipality	lp Mahwelereng Zone 2 Clinic (70)	27	
lp Modimolle Local Municipality	lp Vaalwater Clinic (71)	27	
lp Mogalakwena Local Municipality	lp Mosesetjane Clinic (72)	27	
lp Mogalakwena Local Municipality	lp Potgietersrus/Mogalakwena Clinic (73)	27	
lp Bela-Bela Local Municipality	lp Warmbaths Clinic (74)	27	
	STRATUM 2	**945**	
	Province	**1425**	

MPUMALANGA

District	facility name (facility Code)	Sample size needed	Replacement year, reason
mp Ehlanzeni District Municipality	mp Murhotso Clinic (1)	13	
mp Ehlanzeni District Municipality	mp Tekwane Clinic (2)	13	
mp Ehlanzeni District Municipality	mp Jeppes Reef Clinic (3)	13	
mp Ehlanzeni District Municipality	mp Sikhwahlane Clinic (4)	13	
mp Ehlanzeni District Municipality	mp Gutshwa Clinic (5)	13	
mp Ehlanzeni District Municipality	mp White River Clinic (6)	13	
mp Ehlanzeni District Municipality	mp Phiva Clinic (7)	13	
mp Gert Sibande District Municipality	mp Lothair/Silindile Clinic (38)	13	
mp Gert Sibande District Municipality	mp Ezamokuhle Clinic (39)	13	
mp Gert Sibande District Municipality	mp Trichardt Clinic (40)	13	
mp Gert Sibande District Municipality	mp Davel Clinic (42)	13	
mp Gert Sibande District Municipality	mp MS Msimanga Clinic (43)	13	
mp Nkangala District Municipality	mp Boekenhouthoek Clinic (58)	13	
mp Nkangala District Municipality	mp Gemsbokspruit Clinic (59)	13	
mp Nkangala District Municipality	mp Siyathuthuka Clinic (60)	13	
mp Nkangala District Municipality	mp Diphalane (Pankop) CHC (61)	13	
mp Nkangala District Municipality	mp Nokaneng CHC (62)	13	
mp Nkangala District Municipality	mp Kwaggafontein A Clinic (63)	13	
mp Nkangala District Municipality	mp Marapyane CHC (64)	13	
mp Nkangala District Municipality	mp Kwazamokuhle Clinic (65)	13	
mp Nkangala District Municipality	mp Empilweni Clinic (66)	13	
mp Nkangala District Municipality	mp Vaalbank Clinic (67)	13	
mp Gert Sibande District Municipality	mp Wakkerstroom Clinic (37)	13	
mp Gert Sibande District Municipality	mp Iswepe Clinic (38)**(41)**	13	
	STRATUM 1	**312**	

District	facility name (facility Code)	Sample size needed	Replacement year, reason
mp Ehlanzeni District Municipality	mp Clau Clau Clinic (8)	**50**	this is sampled twice, the second sample is replacement for Kriel- spend 6 non consecuative weeks in this clinic. kriel was closed , replacement done in 2012.
mp Ehlanzeni District Municipality	mp Orinoco Clinic (9)	25	
mp Ehlanzeni District Municipality	mp Barberton Clinic (10)	25	
mp Ehlanzeni District Municipality	mp Maviljan Clinic (11)	25	
mp Ehlanzeni District Municipality	mp Mthimba Clinic (12)	25	
mp Ehlanzeni District Municipality	mp Brooklyn Clinic (13)	25	
mp Ehlanzeni District Municipality	mp Gottenburg Clinic (14)	25	
mp Ehlanzeni District Municipality	mp Casteel Clinic (15)	25	
mp Ehlanzeni District Municipality	mp Mangweni CHC (16)	25	
mp Ehlanzeni District Municipality	mp Naas CHC (17)	25	
mp Ehlanzeni District Municipality	mp Tonga Block B Clinic (18)	25	
mp Ehlanzeni District Municipality	mp Phola-Nzikasi CHC (19)	25	
mp Ehlanzeni District Municipality	mp Hazyview Clinic (20)	25	
mp Ehlanzeni District Municipality	mp M'Africa CHC (21)	25	
mp Ehlanzeni District Municipality	mp Kanyamazane CHC (22)	25	
mp Ehlanzeni District Municipality	mp Middelplaas Clinic (23)	25	
mp Ehlanzeni District Municipality	mp Xanthia Clinic (24)	25	
mp Ehlanzeni District Municipality	mp Welverdiend Clinic (25)	25	
mp Ehlanzeni District Municipality	mp Belfast Clinic (Bushbuckridge) (26)	25	
mp Ehlanzeni District Municipality	mp Oakley Clinic (27)	25	
mp Ehlanzeni District Municipality	mp Cottondale Clinic (28)	25	
mp Ehlanzeni District Municipality	mp Eziweni Clinic (29)	25	
mp Ehlanzeni District Municipality	mp Thulamahashe CHC (30)	25	
mp Ehlanzeni District Municipality	mp Msogwaba Clinic (32)	25	

District	facility name (facility Code)	Sample size needed	Replacement year, reason
mp Ehlanzeni District Municipality	mp Kamhlushwa Clinic (33)	25	
mp Ehlanzeni District Municipality	mp Calcutta Clinic (34)	25	
mp Ehlanzeni District Municipality	mp Schoemansdal Clinic (35)	25	
mp Gert Sibande District Municipality	mp Nhlazatshe Clinic (44)	25	
mp Gert Sibande District Municipality	mp Amsterdam CHC (45)	25	
mp Gert Sibande District Municipality	mp Emthonjeni Clinic (46)	25	
mp Gert Sibande District Municipality	mp Ermelo Clinic (47)	25	
mp Gert Sibande District Municipality	mp Sakhile Clinic (48)	25	
mp Gert Sibande District Municipality	mp Secunda Clinic (49)	25	
mp Gert Sibande District Municipality	mp Tjakastad Clinic (52)	25	
mp Gert Sibande District Municipality	mp Lebohang CHC (54)	**25**	
mp Gert Sibande District Municipality	mp Sead Clinic (55)	25	
mp Gert Sibande District Municipality	mp Amersfoort Clinic (57)	25	
mp Nkangala District Municipality	mp Seabe CHC (69)	25	
mp Nkangala District Municipality	mp Tweefontein H Clinic (70)	25	
mp Nkangala District Municipality	mp Mhluzi Clinic (71)	25	
mp Nkangala District Municipality	mp Moloto CHC (73)	25	
mp Nkangala District Municipality	mp KwaMhlanga Clinic (74)	25	
mp Nkangala District Municipality	mp Tweefontein M Clinic (75)	25	
mp Gert Sibande District Municipality	mp Ethande Clinic (50)	25	
mp Gert Sibande District Municipality	mp Derby/Rustplaas Clinic(51)	25	
mp Gert Sibande District Municipality	mp Driefontein New Stands CHC (53)	25	
mp Nkangala District Municipality	mp Siyabuswa CHC (72)	50	
mp Gert Sibande District Municipality	mp Embalenhle CHC (56)	38	Wesselton Clinic removed- service shifted to Embalenhle sample size of 13 added for Wesselton.

District	facility name (facility Code)	Sample size needed	Replacement year, reason
mp Ehlanzeni District Municipality	mp Agincourt CHC	25	replacement for Moreipuso clinic which was difficult to reach - replaced in 2012
	STRATUM 3	**1288**	
	Province	**1600**	

NORTHERN CAPE

District	Sub-district	facility name (facility Code)	Sample size needed	No replacement done
nc Frances Baard District Municipality	nc Dikgatlong Local Municipality	nc Mataleng Clinic (1)	16	
nc Frances Baard District Municipality	nc Magareng Local Municipality	nc Pholong Clinic (2)	16	
nc Frances Baard District Municipality	nc Magareng Local Municipality	nc Ikhutseng Clinic (3)	16	
nc Frances Baard District Municipality	nc Sol Plaatje Local Municipality	nc Kimberley City Clinic (4)	16	
nc Frances Baard District Municipality	nc Sol Plaatje Local Municipality	nc Phuthanang Clinic (5)	16	
nc Frances Baard District Municipality	nc Sol Plaatje Local Municipality	nc Greenpoint Clinic (6)	16	
nc Frances Baard District Municipality	nc Dikgatlong Local Municipality	nc Delportshoop (13)	16	
nc Frances Baard District Municipality	nc Phokwane	nc Pampierstad (14)	16	
nc Kgalagadi District Municipality	nc Ga-Segonyana Local Municipality	nc Wrenchville Clinic (15)	16	
nc Namakwa District Municipality	nc Hantam Local Municipality	nc Calvinia Clinic (16)	16	
nc Namakwa District Municipality	nc Nama Khoi Local Municipality	nc Komaggas Clinic (17)	16	
nc Pixley ka Seme District Municipality	nc Renosterberg Local Municipality	nc Petrusville Clinic (18)	16	
nc Pixley ka Seme District Municipality	nc Siyancuma Local Municipality	nc Bongani Clinic (L Adams) (19)	16	
nc Pixley ka Seme District Municipality	nc Siyancuma Local Municipality	nc Griekwastad (Helpmekaar) CHC (20)	16	
nc Pixley ka Seme District Municipality	nc Siyancuma Local Municipality	nc Breipaal Clinic (21)	16	
nc Pixley ka Seme District Municipality	nc Siyathemba Local Municipality	nc Prieska Clinic (22)	16	
nc Pixley ka Seme District Municipality	nc Thembelihle Local Municipality	nc Hopetown Clinic (23)	16	

District	Sub-district	facility name (facility Code)	Sample size needed	No replacement done
nc Pixley ka Seme District Municipality	nc Ubuntu Local Municipality	nc Victoria West Clinic (24)	16	
nc Pixley ka Seme District Municipality	nc Umsobomvu Local Municipality	nc Lowryville Clinic (25)	16	
nc Siyanda District Municipality	nc !Khara Hais Local Municipality	nc Upington Clinic (27)	16	
nc Siyanda District Municipality	nc !Khara Hais Local Municipality	nc Progress Clinic (28)	16	
nc Siyanda District Municipality	nc Kai !Garib Local Municipality	nc Keimoes Clinic (32)	16	
nc Siyanda District Municipality	nc Tsantsabane Local Municipality	nc Postmasburg Clinic (33)	16	
		STRATUM 1	**368**	
nc Frances Baard District Municipality	nc Sol Plaatje Local Municipality	nc Ritchie Clinic (7)	32	
nc Frances Baard District Municipality	nc Sol Plaatje Local Municipality	nc Ma-Doyle Clinic (8)	32	
nc Frances Baard District Municipality	nc Sol Plaatje Local Municipality	nc Betty Gaetsewe Clinic (9)	32	
nc Frances Baard District Municipality	nc Sol Plaatje Local Municipality	nc Galeshewe Day Hospital (10)	32	
nc Frances Baard District Municipality	nc Sol Plaatje Local Municipality	nc Beaconsfield Clinic (12)	32	
nc Pixley ka Seme District Municipality	nc Umsobomvu Local Municipality	nc Kuyasa Clinic (26)	32	
nc Siyanda District Municipality	nc !Khara Hais Local Municipality	nc Lingelethu Clinic (Pabalello) (29)	32	
nc Siyanda District Municipality	nc !Khara Hais Local Municipality	nc Louisvaleweg Clinic (30)	32	
nc Siyanda District Municipality	nc !Khara Hais Local Municipality	nc Sarah Strauss Clinic (31)	32	
nc Frances Baard District Municipality	nc Sol Plaatje Local Municipality	nc Dr Torres Clinic (11)	64	
		STRATUM 2	**352**	
		Province	**720**	

NORTH WEST

District	facility name (facility Code)	Sample size needed	No replacement done
nw Bojanala Platinum District Municipality	nw Reagile Clinic (1)	12	
nw Bojanala Platinum District Municipality	nw Swartruggens Clinic (2)	12	
nw Bojanala Platinum District Municipality	nw Koster Gateway Clinic (3)	12	
nw Bojanala Platinum District Municipality	nw Madibeng Clinic (4)	12	
nw Bojanala Platinum District Municipality	nw Kgabalatsane Clinic (5)	12	
nw Bojanala Platinum District Municipality	nw Moretele CHC (7)	12	
nw Bojanala Platinum District Municipality	nw Sandfontein Clinic (10)	12	
nw Bojanala Platinum District Municipality	nw Motlhabe CHC (11)	12	
nw Bojanala Platinum District Municipality	nw Tlaseng Clinic (13)	12	
nw Bojanala Platinum District Municipality	nw Karlien Park Clinic (14)	12	
nw Bojanala Platinum District Municipality	nw Anna Legoale Clinic (19)	12	
nw Bojanala Platinum District Municipality	nw Maubane Clinic (20)	12	
nw Bojanala Platinum District Municipality	nw Rabokala Clinic (21)	12	
nw Bojanala Platinum District Municipality	nw Madidi Clinic (Kleinfontein) (22)	12	
nw Bojanala Platinum District Municipality	nw Hoekfontein Clinic (23)	12	
nw Bojanala Platinum District Municipality	nw Thulwe Clinic (24)	12	
nw Bophirima District Municipality	nw Utlwanang CHC (27)	12	
nw Central District Municipality	nw Magogwe Clinic (31)	12	
nw Central District Municipality	nw Setlopo Clinic (32)	12	
nw Central District Municipality	nw Tshunyane Clinic (33)	12	
nw Central District Municipality	nw Rapulana Clinic (34)	12	
nw Central District Municipality	nw Khunotswana Clinic (40)	12	
nw Central District Municipality	nw Borakalalo CHC (41)	12	
nw Central District Municipality	nw Tswelelopele CHC (42)	12	
nw Central District Municipality	nw Disaneng Clinic (44)	12	

District	facility name (facility Code)	Sample size needed	No replacement done
nw Central District Municipality	nw Madibogopan Clinic (45)	12	
nw Central District Municipality	nw Ratlou CHC (46)	12	
nw Central District Municipality	nw Vriesgewacht Clinic (47)	12	
nw Central District Municipality	nw Coligny CHC (48)	12	
nw Frances Baard District Municipality	nw Mammutla Clinic (49)	12	
nw Southern District Municipality	nw Tswelelang 1 Clinic (50)	12	
nw Southern District Municipality	nw Leeudoringstad CHC (51)	12	
nw Southern District Municipality	nw Tigane CHC (52)	12	
nw Southern District Municipality	nw Top City Clinic (55)	12	
nw Southern District Municipality	nw Promosa Clinic (56)	12	
nw Southern District Municipality	nw Potchefstroom Gateway Clinic (57)	12	
nw Southern District Municipality	nw Ventersdorp Gateway Clinic (61)	12	
	STRATUM 1	**444**	
nw Bophirima District Municipality	nw Taung Gateway Clinic (25)	23	
nw Bophirima District Municipality	nw Morokweng CHC (26)	23	
nw Central District Municipality	nw Blydeville Clinic (30)	23	
nw Central District Municipality	nw Montshioa Stadt CHC (35)	23	
nw Central District Municipality	nw Montshioa Town Clinic (36)	23	
nw Central District Municipality	nw Mafikeng Gateway Clinic (37)	23	
nw Central District Municipality	nw Unit 9 CHC (38)	23	
nw Central District Municipality	nw Gelukspan Gateway Clinic (39)	23	
nw Central District Municipality	nw Lehurutshe Clinic (43)	23	
nw Central District Municipality	nw Lonely Park Clinic (63)	23	
nw Central District Municipality	Bodibe 2 (67)	23	
nw Central District Municipality	Bodibe Clinic (68)	23	
nw Central District Municipality	Letsopa Clinic (69)	23	
nw Central District Municipality	Setlagole Clinic (70)	23	
nw Bophirima District Municipality	Dryharts Clinic (65)	23	

District	facility name (facility Code)	Sample size needed	No replacement done
nw Bophirima District Municipality	Mamusa CHC (66)	23	
	STRATUM 2	**368**	
nw Bojanala Platinum District Municipality	nw Letlhabile CHC (6)	25	
nw Bojanala Platinum District Municipality	nw Ga-Motla Clinic (8)	25	
nw Bojanala Platinum District Municipality	nw Makapanstad CHC (9)	25	
nw Bojanala Platinum District Municipality	nw Bakubung Clinic (12)	25	
nw Bojanala Platinum District Municipality	nw Classic House Clinic (15)	25	
nw Bojanala Platinum District Municipality	nw Hartebeesfontein Clinic (16)	25	
nw Bojanala Platinum District Municipality	nw Kana Clinic (17)	25	
nw Bojanala Platinum District Municipality	nw Tlhabane CHC (18)	25	
nw Southern District Municipality	nw Alabama Clinic (53)	25	
nw Southern District Municipality	nw Orkney Town Clinic (54)	25	
nw Southern District Municipality	nw Boiki Thlapi CHC (58)	25	
nw Southern District Municipality	nw Potchefstroom Clinic (59)	25	
nw Southern District Municipality	nw Steve Tshwete Clinic (60)	25	
nw Southern District Municipality	nw JB Marks Clinic (62)	25	
nw Southern District Municipality	Grace Mokgomo CHC (71)	25	
nw Bojanala Platinum District Municipality	Rustenburg Gateway Clinic (64)	25	
	STRATUM 3	**400**	
	Province	**1212**	

WESTERN CAPE

District	facility name (facility Code)	Sample size needed	Replacement year & reason
wc Cape Winelands District Municipality	wc Cogmanskloof Clinic (1)	11	
wc Cape Winelands District Municipality	wc Happy Valley Clinic (2)	11	
wc Cape Winelands District Municipality	wc Rawsonville Clinic (3)	11	
wc Cape Winelands District Municipality	wc Touws River Clinic (4)	11	
wc Cape Winelands District Municipality	Wellington Clinic (58)	11	hospital street replaced with wellington CDC in 2010 , it was a hospital
wc Cape Winelands District Municipality	wc Aan-het-Pad Clinic (6)	11	
wc Cape Winelands District Municipality	wc Klapmuts Clinic (7)	11	
wc Central Karoo District Municipality	wc Nieuveldpark Clinic (9)	11	
wc City of Cape Town Metropolitan Municipality	wc Sir Lowry's Pass Clinic (10)	11	
wc City of Cape Town Metropolitan Municipality	wc Fish Hoek Clinic (16)	11	
wc City of Cape Town Metropolitan Municipality	wc Westlake Clinic (17)	11	
wc City of Cape Town Metropolitan Municipality	wc Spencer Road Clinic (24)	11	
wc Eden District Municipality	wc New Horizon Clinic (43)	11	
wc Eden District Municipality	wc Parkdene Clinic (45)	11	
wc Eden District Municipality	wc Ladismith (Nissenville) Clinic (46)	11	
wc Eden District Municipality	wc Bongolethu Clinic (48)	11	
wc Eden District Municipality	wc Kwanokathula Clinic	11	Plettenberg Bay Clinic - service shifted replaced with Kwanokathula 2012
wc Overberg District Municipality	wc Hermanus Clinic (49)	11	
wc Overberg District Municipality	wc Caledon Clinic (51)	11	

District	facility name (facility Code)	Sample size needed	Replacement year & reason
wc West Coast District Municipality	wc Lutzville Clinic (53)	11	
wc West Coast District Municipality	wc Darling Clinic (56)	11	
wc West Coast District Municipality	wc Moorreesburg CHC (57)	11	
wc Central Karoo District Municipality	wc Beaufort West Constitution Street Clinic (8)	11	
	STRATUM 1	**253**	
wc City of Cape Town Metropolitan Municipality	wc Ikwezi Clinic (12)	31	
wc City of Cape Town Metropolitan Municipality	wc Wesbank Clinic (Oostenberg) (13)	31	
wc City of Cape Town Metropolitan Municipality	wc Brackenfell Clinic (14)	31	
wc City of Cape Town Metropolitan Municipality	wc Wallacedene Clinic (15)	31	
wc City of Cape Town Metropolitan Municipality	wc Lotus River Clinic (18)	31	
wc City of Cape Town Metropolitan Municipality	wc Hout Bay Main Road Clinic (19)	31	
wc City of Cape Town Metropolitan Municipality	wc Claremont Clinic (20)	31	
wc City of Cape Town Metropolitan Municipality	wc Retreat Clinic (21)	31	
wc City of Cape Town Metropolitan Municipality	wc Strandfontein Clinic (22)	31	
wc City of Cape Town Metropolitan Municipality	wc Masiphumelele Clinic (23)	31	
wc City of Cape Town Metropolitan Municipality	wc Langa Clinic (25)	31	
wc City of Cape Town Metropolitan Municipality	wc Nyanga Clinic (30)	31	

District	facility name (facility Code)	Sample size needed	Replacement year & reason
wc City of Cape Town Metropolitan Municipality	wc Hanover Park Clinic (31)	31	
wc City of Cape Town Metropolitan Municipality	wc Vuyani Clinic (32)	31	
wc City of Cape Town Metropolitan Municipality	wc Silvertown Clinic (33)	31	
wc City of Cape Town Metropolitan Municipality	wc Tafelsig Clinic (34)	31	
wc City of Cape Town Metropolitan Municipality	wc Phumlani Clinic (35)	31	
wc City of Cape Town Metropolitan Municipality	wc Mzamomhle Clinic (36)	31	
wc City of Cape Town Metropolitan Municipality	wc Eastridge Clinic (37)	31	
wc City of Cape Town Metropolitan Municipality	wc Valhalla Park Clinic (38)	31	
wc City of Cape Town Metropolitan Municipality	wc Vanguard CHC (39)	31	
wc City of Cape Town Metropolitan Municipality	wc Kasselsvlei Clinic (40)	31	
wc City of Cape Town Metropolitan Municipality	wc St Vincent Clinic (41)	31	
wc City of Cape Town Metropolitan Municipality	wc Ravensmead Clinic (42)	31	
wc Eden District Municipality	wc Alma CHC (47)	31	
wc Overberg District Municipality	wc Zwelihle Clinic (50)	31	
wc Overberg District Municipality	wc Grabouw CHC (52)	31	
wc West Coast District Municipality	wc Diazville Clinic (54)	31	
wc West Coast District Municipality	wc Hanna Coetzee Clinic (55)	31	

District	facility name (facility Code)	Sample size needed	Replacement year & reason
wc City of Cape Town Metropolitan Municipality	wc Dr Ivan Toms Clinic (59)	31	Mufelni replaced with Ivan tomes in 2010, Service shift
wc City of Cape Town Metropolitan Municipality	wc Guguletu Clinic (29)	62	spend non consecuative 6 weeks
	STRATUM 2	**992**	
wc City of Cape Town Metropolitan Municipality	wc Zakhele Clinic (26)	49	
wc City of Cape Town Metropolitan Municipality	wc Nolungile Clinic (27)	49	
wc City of Cape Town Metropolitan Municipality	wc Luvuyo Clinic (28)	49	
	STRATUM 3	**147**	
	Province	**1392**	