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Suggested citation: Department of Health, 2010. National Antenatal Sentinel HIV and Syphilis Prevalence Survey in South Africa, 2009.

Prepared and obtainable free of charge from:

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Cluster: Health Information, Epidemiology, Evaluation and Research

EXECUTIVE SUMMARY



In the past two decades (1990 - 2009), the South African Department of Health has produced good sentinel surveillance data that assists in monitoring the HIV epidemic prevalence trends in the 15 - 49 years old female population. Using the Spectrum model, the 2009 the HIV prevalence in the adult population (aged 15-49) was estimated at 17.8%; or 5.63 million adults and children were with infected with HIV and AIDS. Of these, 5.3 million were adults aged 15 years and older, 3.3 million were females and 334000 were children. For 2009, and estimated 314 000 South Africans died of AIDS; of whom 284 000 were adults; there were approximately 1.95 million AIDS orphans. For 2009, an estimated 1.584 million South Africans aged 15 and older were in need of Anti Retroviral Therapy; approximately 158 000 children needed Anti Retroviral Therapy and estimated 214 000 mothers were in need of PMTCT.

The HIV epidemic is still one of the major challenges to the country's socio-economic development. However, the government, civil society, non-governmental organizations and international partners continue to commit themselves to fight this scourge. Since 1990, the South African National Department of Health has conducted unlinked and anonymous testing for HIV for a 1-month period per year at selected public health antenatal care sites.

The current administration has added new policies such as strategies to improve HIV counselling and testing uptake through the HCT campaign, ensuring that all children and pregnant HIV infected mothers have access to treatment and care and ensuring that people with CD4 counts of 350 become eligible for access to anti-retroviral therapy.

The South African HIV sentinel surveillance is the largest in the world with a sample size of 36 000 pregnant first bookers in October annually since 2006. These data have helped to map the epidemic and monitor HIV infection trends in the country and have served as an advocacy tool, resulting in the mobilization of partners, resources and development of innovative approaches by the national response to HIV and AIDS. The 2009 HIV survey is the 19th to be conducted in the country.

The South African antenatal clinic survey is conducted annually in October to obtain an estimate of the prevalence levels for that year. The estimated prevalence of HIV infections among pregnant women aged 15 - 49 and seeking care in public health clinics in South Africa has been stable over the last 4 years. The information from this survey will continue to be used as the primary source of data used by mathematical modellers to estimate the rate of new HIV infections (incidence) and HIV-associated deaths.

METHODOLOGY

HIV Prevalence

The 2009 survey was conducted in all 52 health districts. It involved collection of 32 861 intravenous blood samples from pregnant women at their first antenatal visit in 1 447 public health antenatal clinics (Primary Sampling Units (PSU)) over a 4-week period. The blood samples were screened using the Enzyme Linked Immuno Sorbent Assay (ELISA) test and the Rapid Plasma Reagin (RPR) card test.

Given that the sentinel sites were chosen on a probability proportional to size basis by district, the sampling period was fixed and the districts are self-weighting, the provincial prevalence estimates were simply calculated as the total of the results from the districts in the provinces. The national prevalence was weighted according to the total number of women aged 15 - 49 years in each province using the 2009 mid-year population estimates.

RESULTS

HIV prevalence trends

The overall national HIV prevalence among ante-natal women aged 15 - 49 years in the 2009 ANC survey, is estimated at 29.4% (95% CI: 28.7% – 30.2%). This is very close to the 2008 estimate which was 29.3% (95% CI: 28.5% – 30.1%).

The national estimate and provincial figures indicate a stable prevalence over the past four years.

Nationally, the HIV prevalence among women in the age group 30 - 34 years which constituted 14.5% of those who participated in the survey remains the highest; with a 1% increase in prevalence from 39.6% in 2007 to 40.4% in 2008 and to 41.5% in 2009.

In 2009, the HIV prevalence among the 15 - 24 year olds (which is the Millennium Development Goal 6, Target 7 indicator 18) remained the same, unchanged from the 2008 estimate of 21.7%. This MDG group constituted almost 50% (N = 16 367) of the survey population. There is a slight decrease in HIV prevalence among young women in the age group 15 - 19 years from 14.1% in 2008 to 13.7% in 2009 a decline of 0.4%, which is not statistically significant.

The age groups 15 - 19, 20 - 24 and 25-39 had a minute decrease in HIV prevalence whereas the older age groups showed more substantial increases. The HIV prevalence in the

35 - 39 year age groups has increased by 6 % in the last four years from 29.3% in 2006 to 32.4% in 2008 and to 35.4% in 2009.

The HIV prevalence among women under 30 years has continued to decline gradually since 2006 while the prevalence of the over 30% continued to increase. However, modelling suggests that most, if not all of the increases in recent years can be attributed to the increase in survival of those on ARVs.

The highest provincial HIV prevalence was recorded in KwaZulu-Natal which increased from 38.7% (95%CI 37.2% – 40.1%) in 2008 to 39.5% (95%CI: 38.1 – 41.0) in 2009. Provinces with 'higher' HIV prevalence estimates compared to 2008 are: Eastern Cape, Limpopo, Northern Cape, KwaZulu-Natal, and Western Cape. These small increases fell within the expected sampling variability. The provinces with 'lower' HIV prevalence estimates were: North West, Mpumalanga and Free State. Their estimates were also within the expected sampling variability.

There are still health districts which recorded HIV prevalence above 40%. In 2009, all five of these districts were located in KwaZulu-Natal with the highest estimate being recorded in uThukela (46.4%).

The district HIV epidemic is clearly heterogeneous, with prevalences ranging from a high of over 46.4% to a low of 0.0% (0/68) in Namaqua. When data are pooled over the four years this heterogeneity persists.

According to UNAIDS, the 2009 estimated national and provincial HIV prevalence in the general population, including children and those above 49 years, was as follows:

The National HIV prevalence in the general population for 2009 was 17.8%. The provincial HIV prevalence in the general population for 2009 was as follows: Eastern Cape = 18.5%; Free State = 19.5%; Gauteng = 16.6%; KwaZulu-Natal = 25.0 %; Limpopo = 13.8%; Mpumalanga = 21.8 %; North West = 19.2%; Northern Cape = 9.3% and Western Cape = 6.2%.

Syphilis prevalence trends

The 2009 estimated syphilis prevalence was 1.9% (95%CI: 1.7% - 2.1%) and remains unchanged from the 2008 estimate. Northern Cape still has the higher prevalence of 5.6% whilst the lowest was recorded in Limpopo at 0.3%.

CONCLUSION

The HIV prevalence of 29.4% in 2009 is in line with the prevalence observed in the three previous years.

There is however a need for in-depth epidemiological research on ecological correlations between the trends in HIV prevalence, incidence and mortality and further in-depth investigations on the heterogeneity of what the main drivers of the epidemic are, especially in districts that record more than 40% HIV prevalence.

This report provides a wealth of HIV prevalence and novel HIV incidence data and has presented the HIV distribution pattern at national, provincial and district level. It is hoped that government departments, civil society, non-governmental organisations, the private sector, community based organisations and international development partners will use this information as part of the collective response to stop new infections and provide care and support to those living with the HI virus and to ensure access to treatment for all South Africans in need, under the theme “I am responsible, we are responsible, South Africa is taking responsibility”.



In many countries in sub-Saharan Africa, including South Africa, the HIV epidemic poses one of the greatest health and developmental challenges. In this country particularly the epidemic is threatening reversal of post-*apartheid* developmental gains.

Although in the past four years the HIV prevalence in countries with a generalized epidemic has stabilised, albeit at high and unacceptable levels, it is encouraging to note the renewed commitment of our government and political will to face the epidemic squarely. Currently, there is robust political commitment across all spheres of government in the country. The commitment has gone beyond rhetoric by translating into actual resources with which to respond to the epidemic. For example, an additional R5.4 billion has been committed to support scale up of the ART treatment programme in the 2010-11 financial year. In addition, the government announced the revised guidelines for initiating HIV treatment to ensure better outcomes. These guidelines became effective in April 2010. Under the leadership of President Jacob Zuma, the national HIV Counselling and Testing (HCT) campaign was launched on 25 April 2010 targeting 15 million South Africans by June 2011. Premiers have followed suit by launching the campaign in their respective provinces.

The National Department of Health Strategic Plan (2010/11 – 2012/13) has a 10 Point Plan that seeks to create a well functioning health care system capable of producing improved health outcomes. 'Priority vii' seeks to accelerate the implementation of HIV & AIDS and STIs National Strategic Plan (2007-2011) and increase the focus on TB and other communicable diseases. In keeping with this, I have directed a review of the health service delivery platform. The purpose being to assess (i) the extent to which HIV and health service delivery platforms are integrated, (ii) the state of decentralisation and (iii) the human resource capacity and (iv) to achieve more with available resources. In 2009, government also moved swiftly to establish an independent secretariat for the South African National AIDS Council (SANAC) to coordinate the national HIV response. In the same vein, the Premiers have been directed to revamp their Provincial AIDS Councils (PACs). The NSP midterm review recommendations provide strategic guidance on strengthening the response coordinating structures and areas of special focus for maximum impact.

For an effective response, South Africa needs a solid evidence base. It is against this background, that the Department of Health (DOH) has annually released the HIV antenatal

surveillance reports to add to our knowledge of the state of the epidemic in South Africa. Considerable efforts have been undertaken to improve the precision of the prevalence

estimates through increasing sample size to 36,000 pregnant women. For the fourth time since 2006, the ANC survey has the district as the lowest unit of analysis. This means that all districts in the country have evidence with which to plan their responses.

A handwritten signature in black ink, appearing to read 'P. A. Motsoaledi', is positioned above the printed name.

DR. P. A. MOTSOALEDI

MINISTER OF HEALTH

AKNOWLEDGEMENTS



I would like to extend my appreciation to all nurses in the public health clinics for their continued dedicated support over the past 19 years in the implementation of this survey and collection and handling of blood specimens. Thanks also to the provincial survey co-ordinators: Ms. V. Poswayo and Mr. Z. Merile (EC), Mr. M. Toli (FS), Dr. M. Likibi (GP), Mr. S. Dlamini (KZN), Mr. E. Maimela (LP), Mr. M. Machaba (MP), Mr. M. Khumalo (NC), Ms. S. Malakane (NW), Dr. A. Dearham (WC), and their teams who spear-headed the coordination of the survey in the respective provinces and districts.

Gratitude is also extended to the testing laboratories and coordinators: Ms. Y. Gardee (PE), Mr. L. Hildebrand (Pelonomi), Mr. E. Maselesele (NICD), Mr. B. Singh (UKZN), Mr. T.J. Chephe and Mr. P. P. Phatudi (MEDUNSA), Ms. L. Booyens (Middleburg), Mr. B. Motlonye (Kimberley Hospital) and Mr. T. Stander (Stellenbosch University) and all staff at these laboratories and Dr. Adrian Puren (NICD).

Special thanks goes to the National Department of Health's coordinating team, in particular Dr. Thabang Mosala, Director Epidemiology and Surveillance, for her technical and managerial direction of the survey and compiling of this report; the Epidemiology and Surveillance Directorate staff, especially Ms. Manti Maifadi, for taking the lead in coordinating the survey, Mr. Lusizo Ratya for compiling the tables and the graphs. Ms. Mokgadi Thoka, Ms. Stephina Tshelane, Ms. Tebogo Maomela and Mr. Jacky Masemene for providing technical support visits to the provinces, Ms. Audrey Mbatha for compiling the GIS maps for this report and finally, to Ms. Corrie Nagel, Ms. Norah Moakamedi, Ms. Minda de Jong and Ms. Tinyiko Maluleke for their administrative support.

Special thanks to Mr. Calle Hedberg of HISP who developed the new DHIS Antenatal Survey data capturing tool, collated all the 9 provincial data, validated the laboratory data and produced a clean 2009 dataset. Finally, very special thanks to all the women who agreed to participate in the survey and made this report on HIV and Syphilis trends possible. The department also acknowledges and expresses gratitude for the technical support shared by the HIV Surveillance Expert Task Team members who advised and assisted in the analysis and interpretation of the results, namely: Prof. Carl Lombard (MRC), Prof. Rob Dorrington (UCT), Dr. Eleanor Gouws (UNAIDS), Mr. Henry Damisoni (UNAIDS), Dr. Heston Phillips (UNAIDS) and Prof. Thomas Rehle (HSRC).

MS. M.P. MATSOSO

DIRECTOR-GENERAL (HEALTH)

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ACRONYMS



AIDS	Acquired Immuno Deficiency Syndrome
ANC	Antenatal Care
ART	Anti-retroviral Therapy
BCC	Behavior change communication
BOD	Burden of disease
BSS	Behavioural Surveillance Survey
CAPRISA	Centre for the AIDS Programme of Research in South Africa.
CCMT	Comprehensive Care Management and Treatment
CI	95% Confidence Interval
DHIS	District Health Information System
DoH	Department of Health
EC	Eastern Cape Province
ELISA	Enzyme Linked Immuno Sorbet Assay
EPP	Estimation and Projection Package
FS	Free State Province
GA	Gauteng Province
HCW	Health Care Worker
HCT	HIV Counseling and Testing
HIER	Health Information, Evaluation, Epidemiology and Research
HIV	Human Immunodeficiency Virus
HSRC	Human Science Research Council
JSI	John Snow International
KZN	KwaZulu-Natal Province
LP	Limpopo Province
MDG	Millennium Development Goals
MEDUNSA	Medical University of South Africa
MP	Mpumalanga Province
MRC	Medical Research Council
NC	Northern Cape Province
NDOH	National Department of Health
NHC	National Health Council
NHLS	National Health Laboratory Service
NICD	National Institute for Communicable Diseases
NSP	National Strategic Plan
NW	North West Province
PCR	Polymerase Chain Reaction
PAC	Provincial AIDS Councils

PHC	Primary Health Care
PMTCT	Prevention of Mother-to-Child Transmission
PPS	Probability Proportional to Size
PSU	Primary Sampling Unit
Prya	Persons per year per annum
QA	Quality Assurance
RPR	Rapid Plasma Reagin (A screening test for syphilis)
SA	South Africa
SACEMA	South African Centre of Excellence in Epidemiological Modelling & Analysis
SANAC	South Africa National AIDS Council
StatsSA	Statistics South Africa
STI	Sexually Transmitted Infection
TB	Tuberculosis
UCT	University of Cape Town
UKZN	University of KwaZulu-Natal
UNAIDS	United Nations Joint Program on HIV & AIDS
UNGASS	United Nations General Assembly Special Session on HIV & AIDS
UNICEF	United Nations Children's Fund
UNISA	University of South Africa
USAID	United States Agency for International Development
VCT	Voluntary Counseling and Testing
WC	Western Cape Province
WHO	World Health Organisation

1. INTRODUCTION



Priority seven (VII) of the Department of Health National Strategic Plan 10 Point Plan is to accelerate the implementation of the HIV and AIDS and Sexually Transmitted Infections National Strategic Plan 2007 – 11 and increase focus on TB and Communicable Diseases. In January 2010, the South African Government adopted a new outcome-based approach to accelerate attainment of the objectives in the MTSF 2009 – 2014, the Ministry of Health will pay particular attention to four key areas, viz: 1. Increasing life expectancy at birth; 2. Combating HIV and AIDS;

This report presents the HIV epidemic trend prevalence estimate among antenatal women in the age group 15 - 49 years. The antenatal survey data are used in the UNAIDS EPP and Spectrum models to project estimation of:

- a) The number of HIV infected adults and children;
- b) The number of HIV infected adults above 15 years;
- c) HIV prevalence in adults (%) in the general population;
- d) The number of HIV infected female above 15 years;
- e) The number of HIV population - children;
- f) The number of annual AIDS deaths;
- g) The number of orphans due to AIDS;
- h) The number of annual adult AIDS associated deaths;
- i) The number of new adult HIV infections;
- j) The number of new children (paediatric) HIV infections;
- k) The number of adults (15+) needing ART;
- l) The number of children needing ART;
- m) The number of mothers needing PMTCT.

The history of the annual HIV antenatal prevalence survey in South Africa dates back to 1990. It was not until 1990 that data were routinely collected from women attending antenatal clinics (ANC) in selected sites across the country. Initially these sentinel surveys only allowed for national and provincial level estimates. Due to the differences between districts within provinces, with regard to population distribution, poverty levels, access to services etc; the need was identified to have information on the HIV prevalence at the district level. The programme was expanded from 400 sites in 1990 to 1 447 sites from 2006 targeting 36 000 pregnant women presenting for their first time on the current pregnancy; during the October month. These antenatal sites are located in both urban and rural areas and provide health services to urban, rural, semi-rural, townships, and informal settlements communities.

South Africa has gone through different phases of national HIV and AIDS response from widespread denial in the late 1980s to mid 1990s, adoption of a multisectoral policy in the 1997, and strong government leadership and political commitment since 2005, when cabinet approved the rollout of provision of anti-retroviral treatment (ART) to those who need them. Linking various interventions such as behaviour change communication (BCC) and HIV counselling and testing (HCT) with prevention of mother-to-child transmission (PMTCT) and antiretroviral therapy (ART) has created a continuum of prevention and care services.

The government, knowing that the war against the HIV and AIDS pandemic has yet to be won, will continue to lead the fight. One goal is to reduce new infections by 50% by 2011 and increase the PMTCT coverage using dual therapy to 100%. Other key programmes include blood safety, early diagnosis through the “know your status campaign” and prompt syndromic treatment of sexually transmitted infections (STIs), home-based care and support for the infected and affected, developing a strong link between TB and HIV programmes, and effective management of opportunistic diseases. Strengthening systems, developing capacity, and improving communication and flow of information have also been at the centre of the Ministry of Health’s priorities in the HIV, AIDS and STI’s National Strategic Plan.

1.1 THE GOAL OF ANTENATAL SURVEILLANCE

The purpose is to assess the HIV sero-prevalence amongst first time antenatal clinic attendees (seen as a particularly suitable “sentinel” group to represent most closely the HIV prevalence of the generally sexually active part of the population).

1.2 GENERAL OBJECTIVE

The general objective is to determine the distribution of HIV and syphilis infection among pregnant women attending public health antenatal clinics by **age, province** and **health district**.

1.2.1 Specific objectives are:

- To assess HIV and syphilis sero-prevalence among 15 - 49 year old women attending public sector antenatal clinics;
- To monitor HIV and syphilis trends over time among 15 - 49 year old women attending public antenatal clinics and;
- To generate data for use in estimation and projection of HIV sero-prevalence trends and impacts of AIDS in the general population.

1.2.2 The secondary objectives are:

- To estimate the **national, provincial and district** prevalence of HIV and syphilis infection among the adult population of 15 - 49 years in the country using pregnant women attending antenatal clinic in public health institutions as a proxy;
- To monitor trends over time for both HIV and syphilis prevalence in the country.
- To estimate and project the number of children infected with HIV;
- To estimate and project the number of men infected with HIV;
- To estimate and project the number those HIV infected persons who need to be initiated on HAART;
- To provide HIV prevalence data for policy planning, strategic HIV and AIDS programmes monitoring and evaluation of HIV and AIDS prevention and care activities;
- To measure the country's progress towards achieving the HIV MDG 6, Target 7, Goal 18.

The HIV prevalence results remain as one of the most important source of robust surveillance data to provide a basis for the projection estimation of the epidemic and measurement of HIV and AIDS impact in the general population.

2. METHODOLOGY



The twentieth National Antenatal Sentinel HIV and Syphilis Prevalence Survey in South Africa was conducted in all the nine provinces of the country using the standard unlinked and anonymous methodology (WHO/UNAIDS) in October 2009. The survey is used as a proxy to estimate the trend in the prevalence of HIV and syphilis among pregnant first bookers aged 15 - 49 years served in public health facilities. A total of 32 861 pregnant women participated in 2009 compared to 33 927 in 2008. The number of primary sampling units (PSU) were 1 457 selected from in all 52 health districts in South Africa.

2.1 SURVEY DESIGN

The national antenatal HIV and syphilis prevalence survey is an anonymous, unlinked, cross-sectional survey targeting 15 - 49 year old pregnant women attending antenatal clinics in the public health sector. Only first-time attendees are recruited, to minimize the chance of any woman being included more than once. Since 2006, this survey has expanded its sample population to target 36 000 pregnant women recruited from 1 457 clinics compared to 16 000 women recruited from 400 clinics in 2005. This has expanded geographic coverage considerably to include representativity in all 52 health districts in all the nine provinces and allow urban and rural divide.

2.2 SAMPLING

2.2.1 Sentinel population

This survey was conducted as an unlinked anonymous survey amongst pregnant women who attended public health antenatal clinic services for the first time during the current pregnancy. Pregnant women attending ANC services at public health facilities were used as the target population as they are sexually active, constitute an easily accessible and a stable population, and are more likely than other groups to be representative of the general population. In addition, they obtain ANC at facilities that routinely draw blood as part of routine medical services offered to this group. Choosing this population also provides information on potential maternal-to-child transmission rate and an estimate of paediatric HIV prevalence and incidence.

As only public health facilities are sampled, there is under representation of race groups other than African. In particular, the number of White and Indian subjects attending public health facilities was typically small. In future surveys it may be appropriate to specifically target the private sector.

2.2.2 Selection of study population

Inclusion criteria

- Pregnant women attending the antenatal clinic for the first time during their current pregnancy were eligible for inclusion.

Exclusion criteria

- Pregnant women who previously visited the clinic during the survey period (to avoid duplicate sampling).

No pregnant women were excluded from participation on the basis of their known HIV status.

2.2.3 Selection of sites

In the selection of survey sites, the basic goal is to select sites that will be representative of the area to be surveyed. The optimal method of site selection is to use the Probability Proportional to Size (PPS) method as this combines a random approach with a bias towards the larger clinics. If this approach is used, it makes the analysis easier as it introduces a “natural weighting” process. The geographic distribution of sentinel sites is shown in Figure 1.

The following are the criteria that were applied in selecting sites to be eligible for inclusion in the sample:

2.2.4 Selection of Primary Sampling Units (PSU)

- The clinic must be routinely drawing blood from attendees on the first visit of the current pregnancy and have facilities to store it at 4°C;
- The clinic should provide service to sufficient first time antenatal clinic attendees to ensure that a minimum of 20 subjects will be recruited over a period of a month;
- There must be transport arrangements in place that will allow for samples to be taken to a laboratory within 24 hours if there is no centrifuge in the facility or within 72 hours if the samples can be centrifuged on site;
- The clinic staff must be willing to cooperate and have the capacity to conduct the survey.
-

It should be noted that no other criteria was applied in selecting sites. In particular, sites were not selected specifically to monitor either high risk or low risk sub-population nor with the aim of monitoring interventions. This is adhered to limit bias and promote comparability by adhering strictly to the above criteria

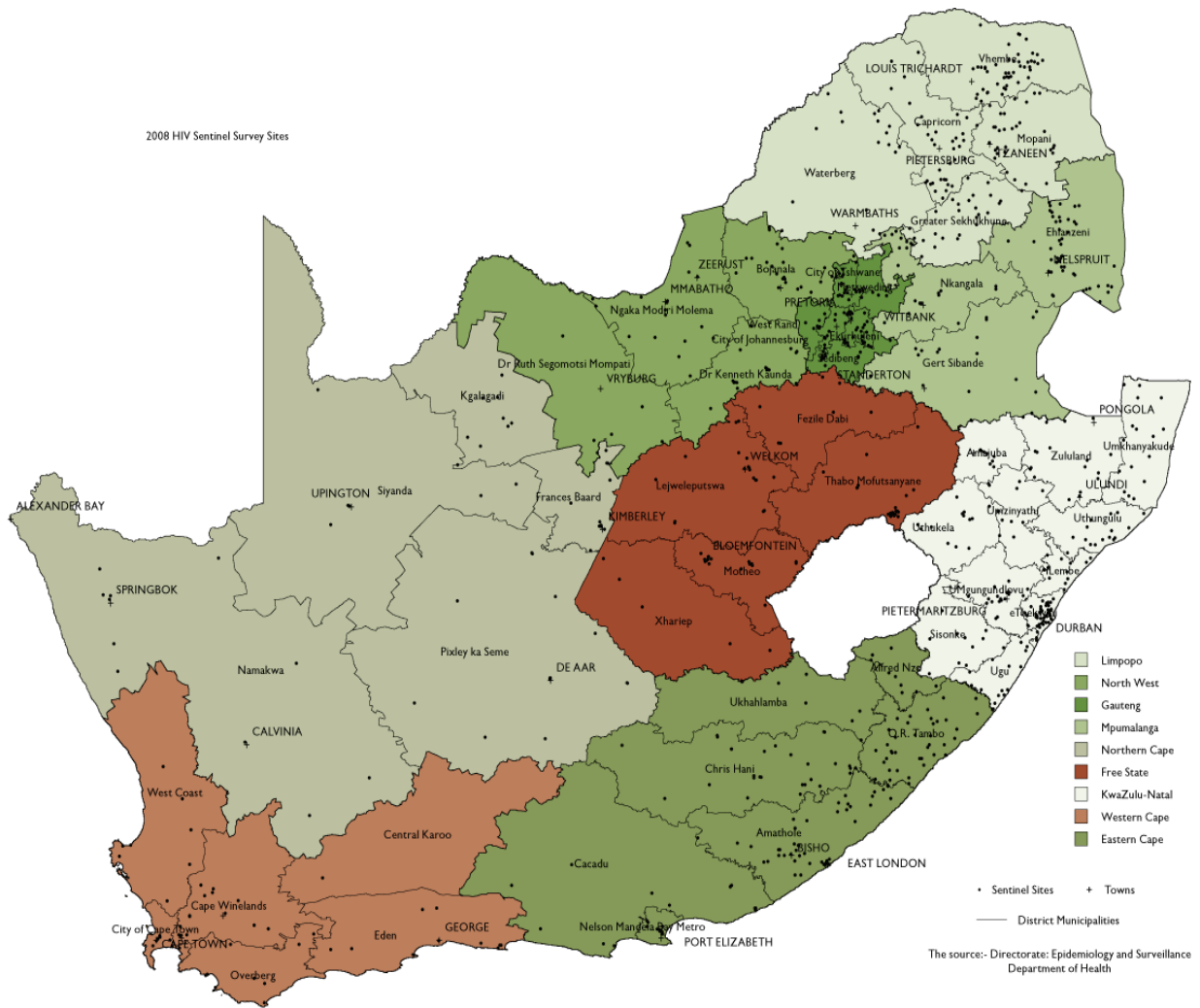


Figure 1: Geographical location of sentinel sites for the 2009 Antenatal HIV and Syphilis Prevalence Survey.

2.3 ETHICAL CONSIDERATIONS

Participation in the survey was voluntary, with informed consent for answering the questions on the forms and for collecting the blood samples. For reasons of confidentiality, testing was done on anonymous unlinked samples. A unique bar code was allocated to each of the participants and it is this number that was recorded on the form and also used for labelling the blood samples and linking laboratory results with demographic data. The bar code was used to link the demographic information with the lab results while maintaining anonymity of the survey participant.

2.4 SAMPLE COLLECTION

Full blood analysis for pregnant first bookers at the ANC was used as an entry point for HIV testing using anonymous unlinked procedures. One blood sample was taken by venous puncture and labelled with a bar code number of the individual pregnant woman and stored at 4°C. The demographic details of the participants, with the exception of any particulars from which it may be possible to ascertain the identity of a patient, were collected using a standardized collection form (Appendix A). The data collection form with the woman's demographic details was labelled with the same bar code number. At the close of each day the supervisors checked the forms against the blood samples for any mistakes and for completeness. The samples, together with the forms, were transported in a cooler box to the participating provincial laboratory where HIV and syphilis testing was done.

2.5 LABORATORY METHODS

2.5.1 Laboratory techniques

In accordance with the recommendations of the WHO on HIV screening for surveillance purposes, blood samples were tested with one ELISA (Abbot Axysm System for HIV-1 HIV-2) assay. The samples were also screened for active syphilis using the RPR test. Participating laboratories included the NHLS laboratories in Bloemfontein, Johannesburg, Kimberley, Middleburg, Port Elizabeth and Stellenbosch, MEDUNSA, and the Virology laboratory of the University of KwaZulu-Natal.

2.5.2 Laboratory quality assurance

Internal quality assurance was the responsibility of the individual laboratories. While most laboratories participate in external quality assurance programmes, for the purposes of this study the NICD was responsible for overall external quality assurance. The NICD compiled a battery of 20 HIV positive and negative sera which was sent to each participating lab to test. Results were sent back to the NICD. In addition, each lab compiled a batch of 20 sera comprising HIV positive and negative sera, including some "borderline" cases. These were forwarded to the NICD for confirmatory testing.

After completion of the survey the NICD produced a quality assurance report on the performance of the laboratories for HIV testing and University of Limpopo (Medunsa Campus) Microbiology Department for RPR testing.

2.6 QUALITY CONTROL OF FIELDWORK

District level monitoring to the sentinel sites was done weekly by a team from the district health office. Provincial coordinators also undertook provincial level monitoring and visited the sites in their province. The national team conducted supervisory visits to at least two districts per province. The main purpose of the visits, apart from showing moral support, was to monitor that the protocol is being adhered to by observing practices and reconciling the number of submitted specimens to the calculated expected number which is derived from the routine data collection. A monitoring checklist (Appendix B) was used to ensure that monitoring and supervision was standard for all sites.

2.7 DATA MANAGEMENT

Raw data were captured at provincial level, using the Antenatal HIV and Syphilis Prevalence Survey DHIS 1.4 Patient Module. This database is designed with range restrictions to ensure that data captured are not out of range. Extensive internal consistency checks against the original data capture form were done by each provincial coordinator to ensure the data are accurate. After data were entered, frequency tables were produced for each data element to identify missing or inconsistent values that may have originated from incorrect entry of data into the computer. Further data cleaning and validation was done at the national office.

To verify the results, data analysis was carried out by independent statisticians, actuarial scientists and epidemiologists from the NDoH and various other institutions. The analysis was mainly descriptive and focused on determining national, provincial, district and age group specific prevalence rates of HIV and syphilis.

2.7.1 Exclusions from analysis

The following entries were excluded from the analysis:

- Those which have no HIV status result
- Those where the age of the women was outside the range: 15 - 49 years
- Those with no age of the woman

2.7.2 Calculation of confidence intervals

For the 95% confidence intervals, the normal approximation to the binomial distribution was used. In a few cases where the sample size or prevalence was small, the exact binomial calculation was used and adjusted for the design effect of the domain.

2.7.3 Weighting

The national estimate was weighted according to the total number of women aged 15 - 49 years in the different provinces using the current STATSSA mid-year population estimates. Given that the sentinel sites were chosen on a probability proportional to size basis by district, the sampling period is fixed and the districts are self-weighting, the provincial prevalence estimates were simply calculated as the total of the results from the districts in the provinces.

2.8 EXTRAPOLATION OF HIV INFECTION TO THE GENERAL POPULATION

The Estimation and Projection Package (EPP) by UNAIDS was used to estimate and project adult HIV prevalence from surveillance data. After surveillance data from various sites and years showing HIV prevalence among pregnant women were fed into the model, the package fit the best epidemic curve, scaled to be consistent with estimates of the general population prevalence. Separate estimates and time trends were developed for each of the provinces, and combined within EPP to produce a national estimate for HIV prevalence and its trends over time. The resulting national estimated adult HIV prevalence was transferred to a demographic package (Spectrum: a computer modelling for demographic projections) to calculate the number of people infected and other variables, such as AIDS cases, AIDS deaths and other information.

Adjusting HIV prevalence curve using EPP

For South Africa:

1. Adjusting for race-based relative attendance rates at ANC:
 - Based on race-standardized prevalence.
2. Adjusting for the use of HIV prevalence among pregnant women:
 - Based on ratio of prevalence among adults in the general population and prevalence among pregnant women using data from national HSRC survey.

Required inputs in Spectrum are:

Country data

- Demographic data
- Adult prevalence / Incidence curve
- MTCT program description
- PMTCT coverage
- Adult ART coverage
- Child treatment coverage

Epidemiologic assumptions

- Effect of HIV on fertility
- Progression from infection to need for treatment and AIDS death
- Age distribution of infections
- Sex ratio of incidence
- Mother-to-child transmission rates by regimen and feeding options
- Effect of child treatment

2.9 *LIMITATIONS OF ANTENATAL SURVEILLANCE*

One of the limitations of ANC sentinel surveillance is the fact that women attending public health facilities are not representative of women in the general population. This is because, pregnant women who choose to attend public health facilities may have characteristics different from all pregnant women and, a substantial proportion of pregnant women, for various reasons, may not attend antenatal clinics. It is also known that men and women have different HIV-related risk behaviours and therefore may have different rates of infection. However, prevalence from pregnant women provides a useful indicator of change in prevalence over time.

3. RESULTS



3.1 DISTRIBUTION AND CHARACTERISTICS OF SURVEY POPULATION

3.1.1 Participation

Facility and Individual level

A total of 32 861 out of the targeted 36 000 pregnant women attending antenatal care (ANC) at selected public health facilities in the nine provinces in the country participated in survey during the month of October 2009. The sample population realization rate was 91.2%. The women were recruited from 1 447 Primary Sampling Units. The demographics characteristics of the sample population are presented in Table 1.

Table 1: Sampled population distribution by province, 2007 to 2009.

Province	2007		2008		2009	
	N	%	N	%	N	%
Eastern Cape	4 118	12.23	4 220	12.4	4 225	12.9
Free State	2 169	6.44	2 016	5.9	2 336	7.1
Gauteng	7 024	20.8	7 500	22.1	7 187	21.9
Kwa-ZuluNatal	6 920	20.5	6 985	20.5	6 744	20.5
Limpopo	3 748	11.1	3 908	11.5	3 412	10.4
Mpumalanga	2 332	6.9	2 224	6.5	2 049	6.2
North West	2 353	6.9	2 113	6.2	2 227	6.8
Northern Cape	1 191	3.5	1 113	3.2	1 002	3.0
Western Cape	3 830	11.3	3 848	11.3	3 679	11.2
Total	33 685	100.0	33 927	100.0	32 861	100.0

N = Realised sample size.

Distribution by age group

Age is an important risk factor, because it is central to monitoring the epidemic among the highly sexually active group. The HIV prevalence in the 15 - 24 years is crucial when reporting the outcome of the MDG 6, Target 7 Indicator 18. The age pattern of the women recruited in the survey was similar to the previous three surveys as shown in Table 2. About 50% of the respondents were young women aged 15 - 24 years, while 2.4% of the participants were women aged 35 years and above.

Table 2: Sampled population distribution by age group, 2007 to 2009.

Age in years	2007		2008		2009	
	N	%	N	%	N	%
<15	***	***	138	0.4	114	0.3
15 - 19	6 377	19.0	6 589	19.4	6 143	18.7
20 – 24	10 616	31.5	10 539	31.1	10 224	31.1
25 – 29	7 912	23.5	8 082	23.8	7 864	23.9
30 – 34	5 091	15.1	4 966	14.6	4 776	14.5
35 – 39	2 722	8.1	2 717	8.0	2 650	8.1
40 – 44	702	2.1	707	2.1	732	2.2
45 – 49	82	0.2	82	0.2	82	0.2
>49	***	***	5	0.0001	6	0.00
Not specified	182	0.5	102	0.3	270	0.8
Total	33 684	100.0	33 927	100.0	32 861	100.0

N = Realised sample size.

Distribution by race

The distribution by race of the women recruited in the 2009 survey was similar to the previous three surveys as shown in Table 3. Eighty eight percent of the survey participants were African women, while 8.5% were Coloured, Asians and Whites together barely accounted for 1% of the total tested. The number of Asians and Whites is too small to provide reliable estimates for these two population groups. However, the Coloured group have a large enough sample size for inference and estimation.

Table 3: Sampled population distribution by race participation in 2009.

Race	2007		2008		2009	
	N	%	N	%	N	%
African	30 255	89.9	30 502	89.9	29 062	88.4
Asian	103	0.3	149	0.4	185	0.6
Coloured	3 010	8.9	2 930	8.6	2 783	8.5
White	151	0.4	140	0.4	176	0.5
Not specified	166	0.5	206	0.7	655	2.0
Total	33 685	100.0	33 927	100	32 861	100.0

N = Realised sample size.

The number of pregnant women who participated in the survey by district in 2009 ranged from 68 in Namaqua Municipal district to 2 489 in the City of Johannesburg, as shown in Annexure 1.

3.2 NATIONAL HIV PREVALENCE TRENDS (1990 – 2009)

In 2009, the overall HIV prevalence amongst 15 - 49 years old pregnant first bookers served in the public health clinics was 29.4% (95% CI: 28.7% – 30.1%). The estimated national HIV prevalence amongst the women surveyed has remained stable over the past four years: 29.1% in 2006; 29.4% in 2007, 29.3% in 2008 and 29.4% in 2009. The trend in HIV prevalence from 1990 to 2009, together with confidence intervals since 1998, is shown in Figure 2.

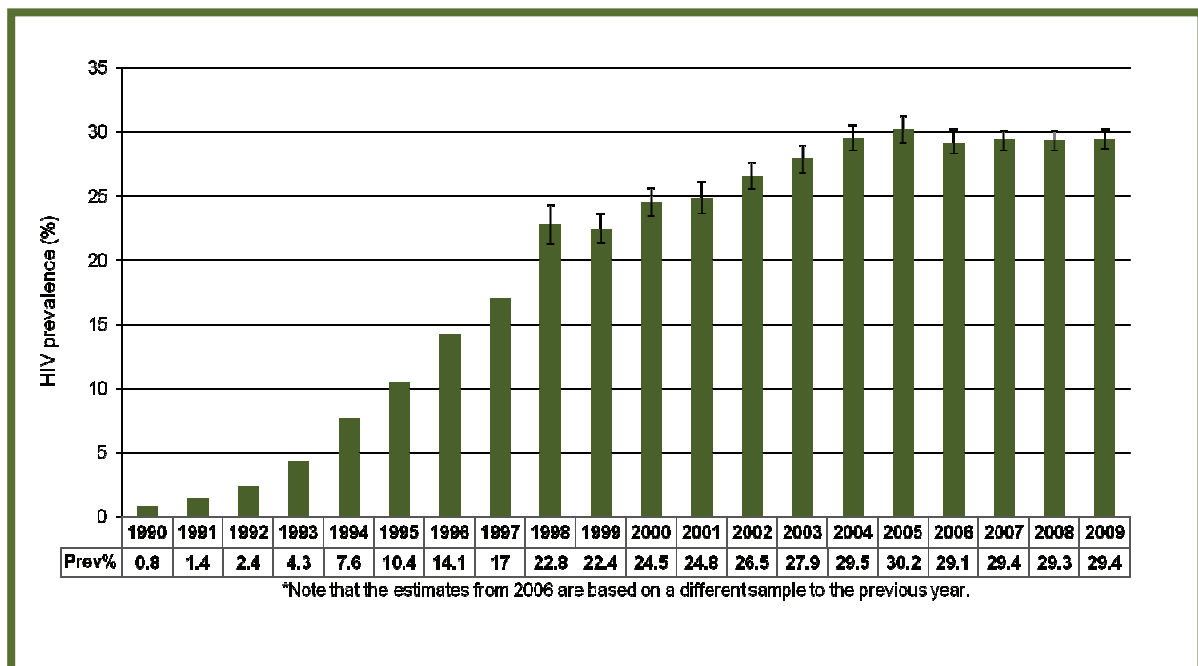


Figure 2: HIV prevalence trends among antenatal women, South Africa 1990 to 2009.

There is no significant change in the overall national HIV prevalence amongst South African pregnant women between 2006 and 2009, when looking at temporal trends. Findings from last four year's survey confirm this pattern of stabilization with regards to the overall number of persons living with HIV in South Africa.

3.3 HIV PREVALENCE BY AGE

Nationally, the HIV prevalence among women in the age group 30 - 34 years remains the highest with a 1.1% increase in prevalence from 40.4% in 2008 to 41.5% in 2009. This age group constituted 14.5% of the sampled survey population.

In 2009, the HIV prevalence among the 15 - 24 years old (which is the Millennium Development Goal 6, Target 7 indicator 18) remained unchanged from the 2008 estimate of 21.7%. This MDG group constituted almost 50% (N = 16 367) of survey population. There is a slight decrease in HIV prevalence among young women in the age group 15 - 19 years from 14.1% in 2008 to 13.7% in 2009 a decline of 0.4%.

The age groups 15 - 19, 20 - 24 and 25 - 39 show a small decrease in HIV prevalence whereas the older age groups show some substantial increase. The HIV prevalence in the age group 35 - 39 years has increased by 6.0% in the last four years from 29.3% in 2006 to 32.4% in 2008 and 35.4% in 2009.

The HIV prevalence among women under 30 years has continued to decline gradually since 2006 while the prevalence of the over 30s continues to increase. However, modelling suggests that most, if not all of the increase in recent years can be attributed to the increase in survival of those on ARVs (Table 4 and Figure 3)

Table 4: HIV prevalence among antenatal women by age group, South Africa, 2007 to 2009.

Age group	2007			2008			2009		
	N	% Prev.	95% CI	N	% Prev.	95% CI	N	% Prev.	95% CI
*15 - 24	16 986	22.1	21.5 – 22.8	17 065	21.7	21.0 – 22.3	16 367	21.7	20.9 – 22.5
15 -19	6 373	13.1	12.2 – 14.0	6 563	14.1	13.1 – 15.0	6 143	13.7	12.9 – 14.7
20 – 24	10 613	28.0	26.9 – 29.1	10 502	26.9	25.9 – 27.9	10 224	26.6	25.6 – 27.6
25 – 29	7 907	37.5	36.2 – 38.8	8 051	37.9	36.4 – 39.3	7 864	37.1	35.8 – 38.4
30 – 34	5 090	39.6	38.0 – 41.2	4 465	40.4	38.7– 42.0	4 776	41.5	39.9 – 43.1
35 – 39	2 721	33.0	31.1 – 34.9	2 712	32.4	30.5 – 34.3	2 650	35.4	33.5 – 37.3
40 – 44	702	22.2	19.1 – 25.7	702	23.3	20.3 – 26.6	732	25.6	22.5 – 29.0
45 – 49	82	20.6	13.2 – 30.7	82	17.6	10.7 – 27.7	82	23.9	15.8 – 34.6

* The age group 15 – 24 years is an indicator for gal 6 of the Millennium Development Goals (MDG)

N = Realised sample size. ; CI= Confidence Interval

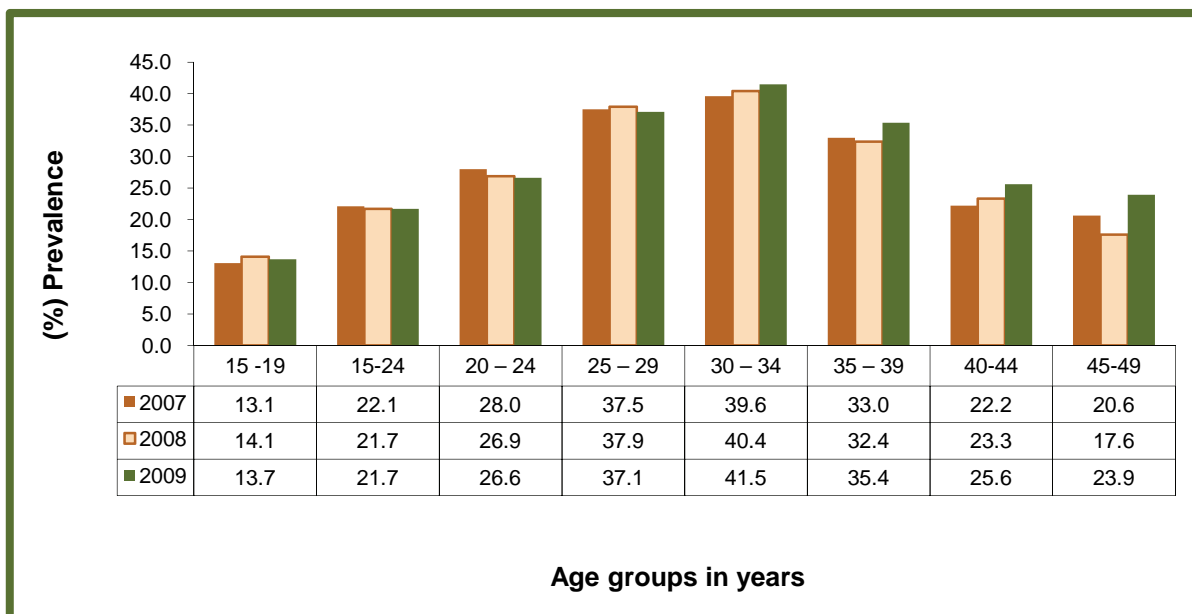


Figure 3: HIV Prevalence trends among antenatal women by age group, South Africa, 2007 to 2009.

3.4 HIV PREVALENCE BY PROVINCE

The highest HIV prevalence was recorded in KwaZulu-Natal which has increased from 38.7% (CI: 37.2% – 40.1%) in 2008 to 39.5% in 2009 (95%CI: 38.1% – 41.0%). Provinces with ‘higher’ HIV prevalence estimate compared to 2008 are: Eastern Cape, Limpopo, Northern Cape, KwaZulu-Natal, and Western Cape. These small increases fall within the expected sampling variability. The provinces with ‘lower’ HIV prevalence estimate are: North West, Mpumalanga and Free State. Their estimates are also within the expected sampling variability.

The results still show that the highest HIV prevalences are located on the North-Eastern parts, and the lowest prevalences in the Western parts of the country. KwaZulu-Natal has the highest HIV prevalence followed by Mpumalanga and Free State with overall prevalences greater than 30.0%. North West, Limpopo, Gauteng and the Eastern Cape have prevalences between 20.0% and 30.0% and only Northern Cape and Western Cape are the only provinces that have HIV prevalences of below 20.0% (Table 5 and Figure 4 and 5).

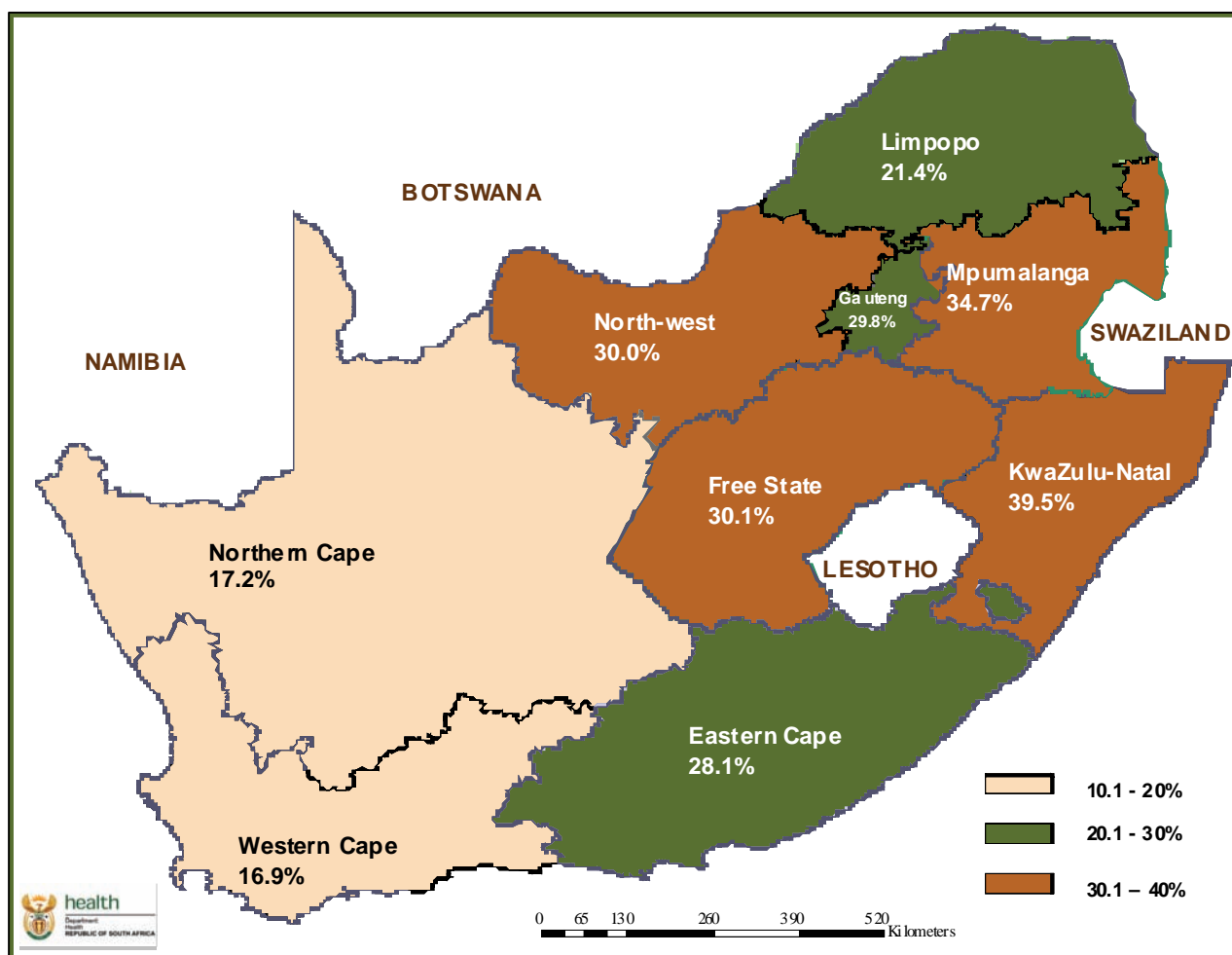


Figure 4: HIV prevalence among antenatal women by province, SA, 2009.

Table 5: HIV prevalence among antenatal women by province, 2007 to 2009.

	2007		2008		2009		
	% Prev	95% CI	% Prev	95% CI	N	% Prev	95% CI
SA	29.4	28.5 – 30.1	29.3	28.5 – 30.1	9 595	29.4	28.7 – 30.2
EC	28.8	26.9 – 30.7	27.6	25.6 – 29.6	1 186	28.1	26.1 – 30.1
FS	31.5	29.1 – 34.1	32.9	30.5 – 35.3	703	30.1	28.1 – 32.1
GA	30.5	29.2 – 31.9	29.9	28.4 – 31.2	2 141	29.8	28.6 – 31.1
KZN	38.7	37.2– 40.2	38.7	37.2 – 40.1	2 665	39.5	38.1 – 41.0
LP	20.4	18.9 – 21.9	20.7	19.1 – 22.4	729	21.4	19.7 – 23.1
MP	34.6	32.1 – 37.1	35.5	33.1 – 37.8	710	34.7	32.5 – 36.9
NW	30.6	28.6 – 32.8	31.0	28.8 – 33.3	667	30.0	27.5 – 32.6
NC	16.5)	13.9 – 19.6	16.2	13.7 – 18.9	172	17.2	14.3 – 20.5
WC	15.3	12.2 – 18.9	16.1	12.6 – 20.2	622	16.9	13.8 – 20.5

N = Realised sample size; CI= Confidence Interval.

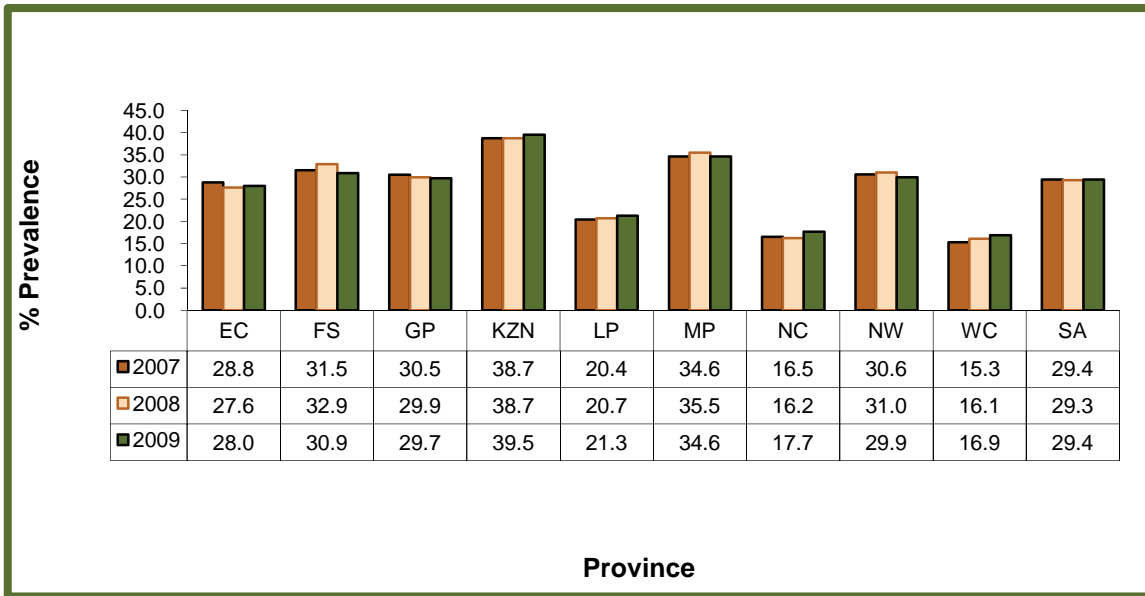


Figure 5: HIV prevalence trends among antenatal women by province, South Africa, 2007 to 2009.

3.4.1 HIV PREVALENCE BY DISTRICT, 2009

The HIV epidemic by district is clearly heterogeneous, with prevalence ranging from a high of over 46.4% to a low of 0.0% (0/68) in Namaqua (Figure 6 and 7). When data are pooled over four years this heterogeneity persists, see Figure 8a-d. The colour coding shown, reflects the intensity of the HIV prevalence among the pregnant women in the 52 health districts.

Five health districts recorded HIV prevalences above 40% in 2009, all of them located in KwaZulu-Natal, with the highest estimate of 46.4% recorded in Uthukela. Thirty per cent (14) of the districts recorded HIV prevalences between 30% and 40%. Five were located in KwaZulu-Natal, three in Mpumalanga, two in Gauteng and Free State and one in North West and Eastern Cape. Twenty-two (42.3%) health districts in the country recorded HIV prevalences between 20.0% and 30.0%. Six located in Eastern Cape, four in Gauteng, three in North West, Free State and Limpopo; one in KwaZulu-Natal, Northern Cape and Western Cape. Only 17% (9) of the 52 health districts recorded prevalence between 10% and 20%. Four were located in Western Cape, three located in the Northern Cape and two in Limpopo. Namaqua district in the Northern Cape and West Coast district in the Western Cape recorded the lowest district HIV prevalence in the country.

The HIV prevalence distribution among antenatal women by district, in, 2006, 2007, 2008 and 2009, is presented in Figure 8a-d.

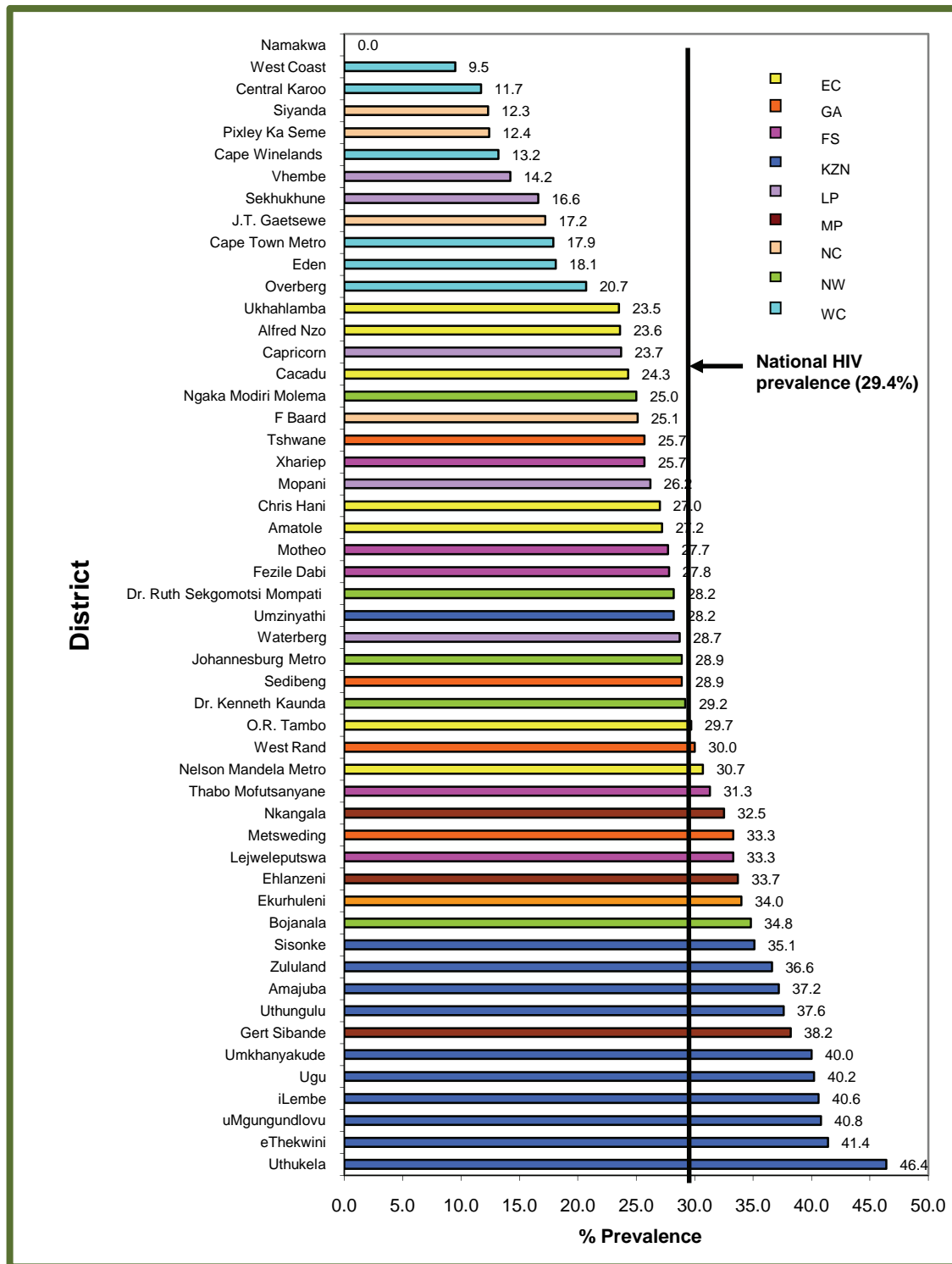


Figure 6: HIV prevalence among antenatal women by district, South Africa, 2009. There were no pregnant women out of the 68 sampled found to be HIV infected in the Namaqua district. The sample size from this district was too small to make any inference in this particular district; however, prevalence in this district in the past three years has remained the lowest at below 10%.

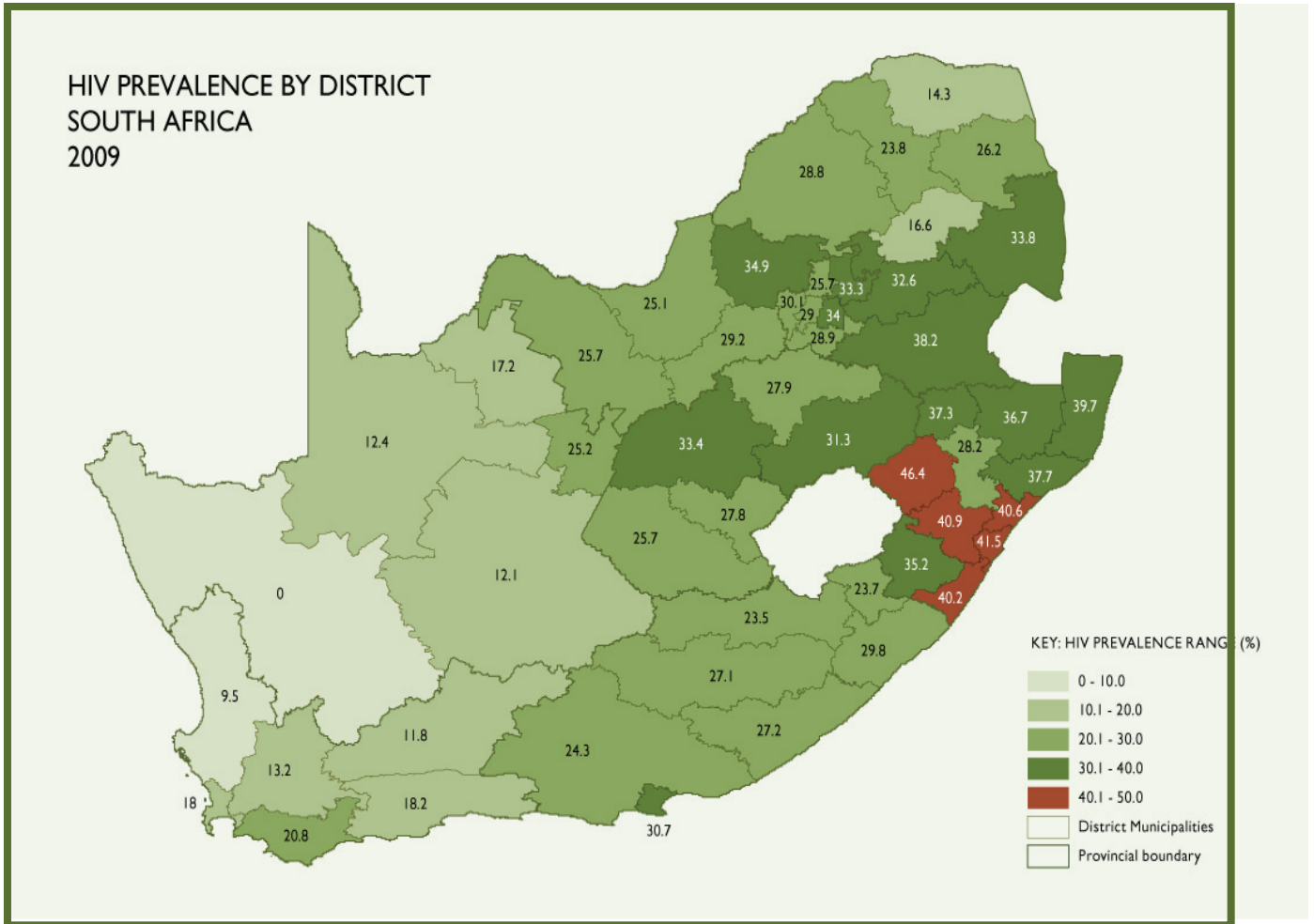


Figure 7: HIV prevalence by district among 15 – 49 year old pregnant women, South Africa, 2009.

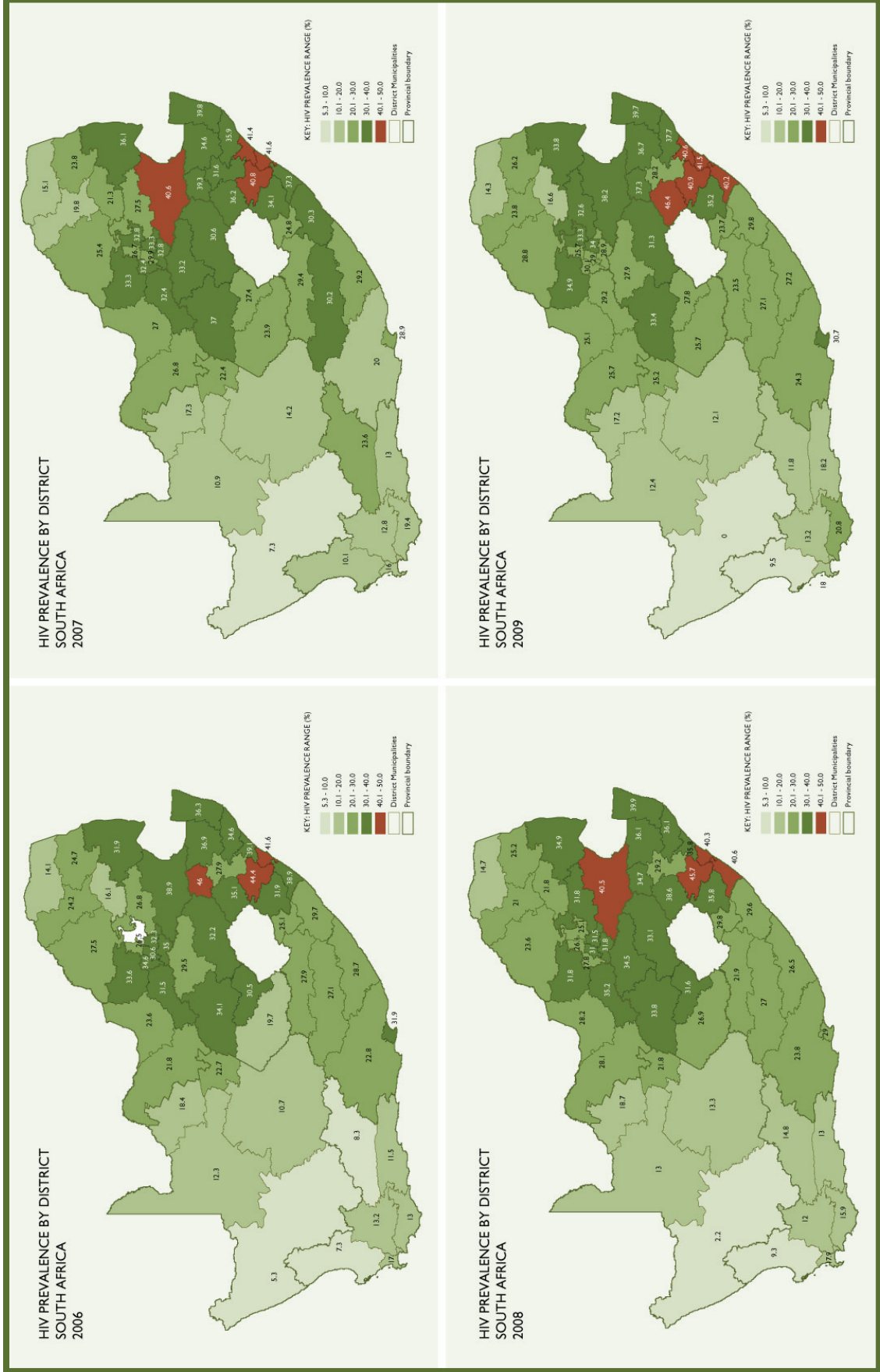


Figure 8a-d: HIV prevalence by district among 15-49 years antenatal women in 2006, 2007, 2008 and 2009.

3.5 HIV PREVALENCE TRENDS BY INDIVIDUAL PROVINCE

For each province, comparison of the provincial and district HIV prevalences are reported from 2007 to 2009. Due to the smaller sample size in some districts the sampling error is much larger than at the provincial level. Therefore changes of 4% in either direction between the years within a district can be expected due to chance, if the sample size was less than 500, and even greater for smaller sample sizes.

3.5.1 EASTERN CAPE PROVINCE

In 2009, the Eastern Cape provincial HIV prevalence amongst 15 - 49 antenatal women was 28.1% (95% CI: 26.1% – 30.1%). The overall HIV provincial prevalence in this province has increased from 27.6% in 2008 to 28.1% in 2009 (Figure 9). The recent trends in district prevalence rates are presented in Table 6.

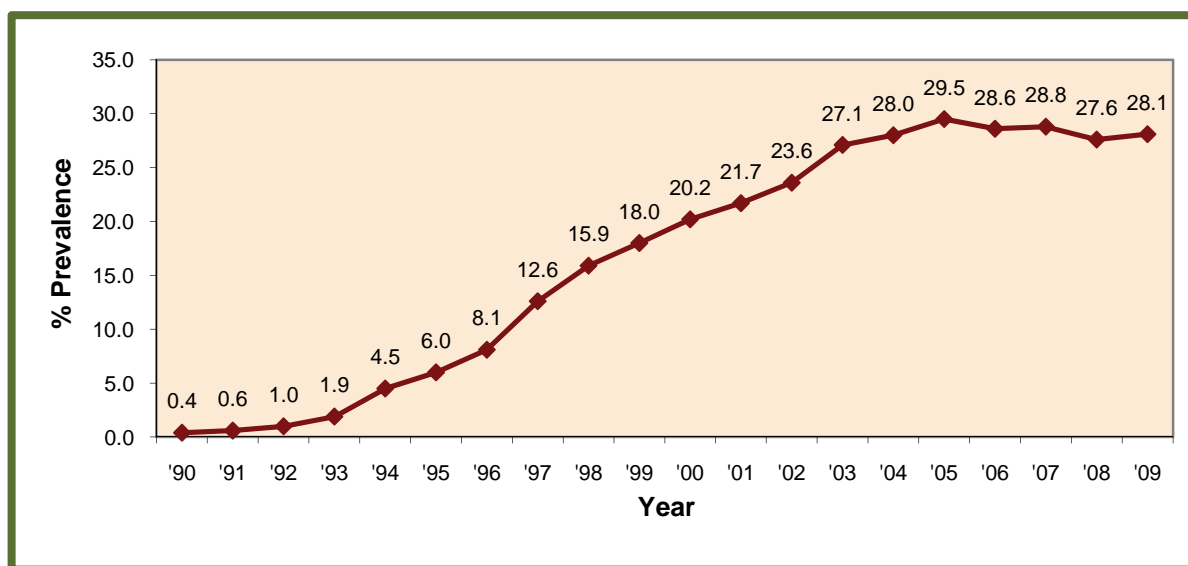


Figure 9: HIV prevalence epidemic curve among antenatal women, Eastern Cape from 1990 to 2009.

Table 6: HIV prevalence among antenatal women by district in the Eastern Cape, 2007 to 2009.

	2007			2008			2009			
	N ₁	% Prev.	95% CI	N ₁	% Prev.	95% CI	N ₁	N ₂	% Prev.	95% CI
Provincial	4 118	28.8	26.9 - 30.7	4 216	27.6	25.6 – 29.6	4 225	1 186	28.1	26.1 – 30.1
Alfred Nzo	189	24.8	20.9 – 29.3	201	29.8	22.3 – 38.6	186	44	23.7	16.3 – 33.0
Amatole	1 058	29.2	26.5 – 32.0	1 128	26.5	23.0 – 30.3	1 116	304	27.2	24.5 – 30.2
Cacadu	269	20.0	15.2 – 26.0	281	23.8	17.7 – 31.2	255	62	24.3	16.4 – 34.5
Chris Hani	572	30.2	26.2 – 34.5	529	27.0	22.9 – 31.5	491	133	27.1	23.1 – 31.4
N.M.M.	770	28.9	22.8 – 35.9	795	29.0	23.4 – 35.4	785	241	30.7	24.0 – 38.4
O.R. Tambo	1 036	30.3	26.6 – 34.2	1 063	29.6	26.2 – 33.2	1 192	355	29.8	27.1 – 32.6
Ukhahlamba	224	29.4	24.3 – 35.1	219	21.9	15.2 – 30.5	200	47	23.5	16.0 – 33.2

N = Realised sample size; N₂ = Number of HIV positive women in the sample; CI= Confidence Interval.

As might be expected substantial year on year changes are observed in the districts with smaller sample sizes (Alfred Nzo, Cacadu, and Ukhahlamba).

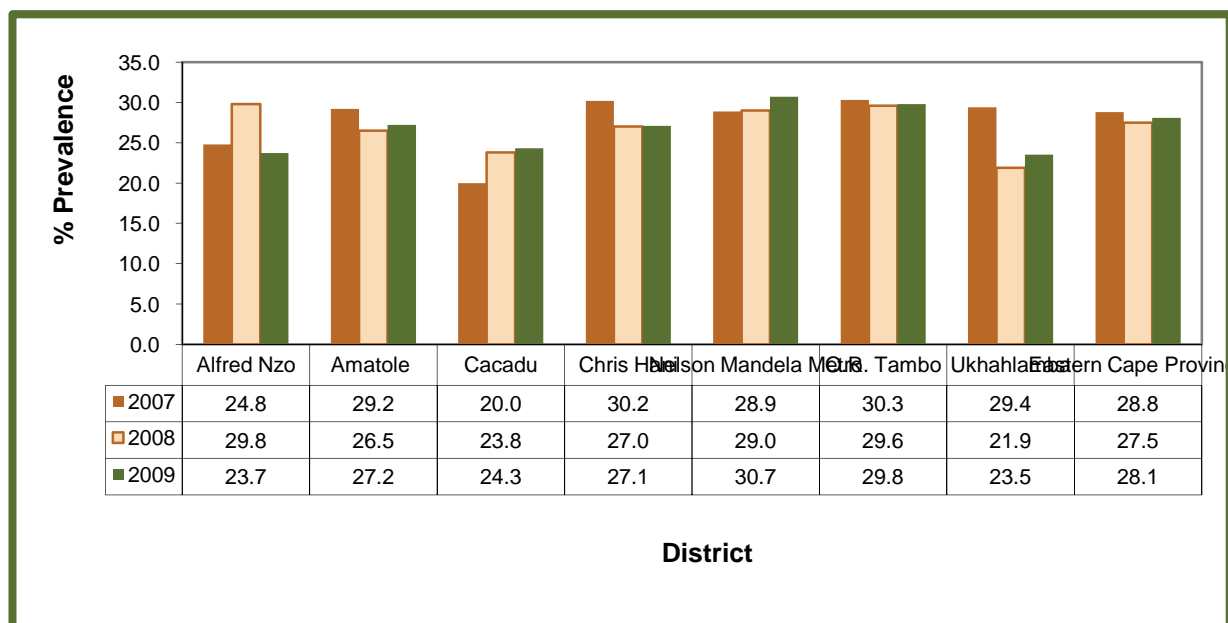


Figure 10: HIV prevalence trends among antenatal women by district, Eastern Cape, 2007 to 2009.

Alfred Nzo district prevalence has decreased from 29.8% in 2008 to 23.7 % in 2009 (Table 6 and Figure 10). Ukhahlamba district showed an increase from 21.9% in 2008 to 23.5% in 2009. In 2009, Nelson Mandela Metropole was the only district to record a prevalence above 30% in 2009 (Figure 11).

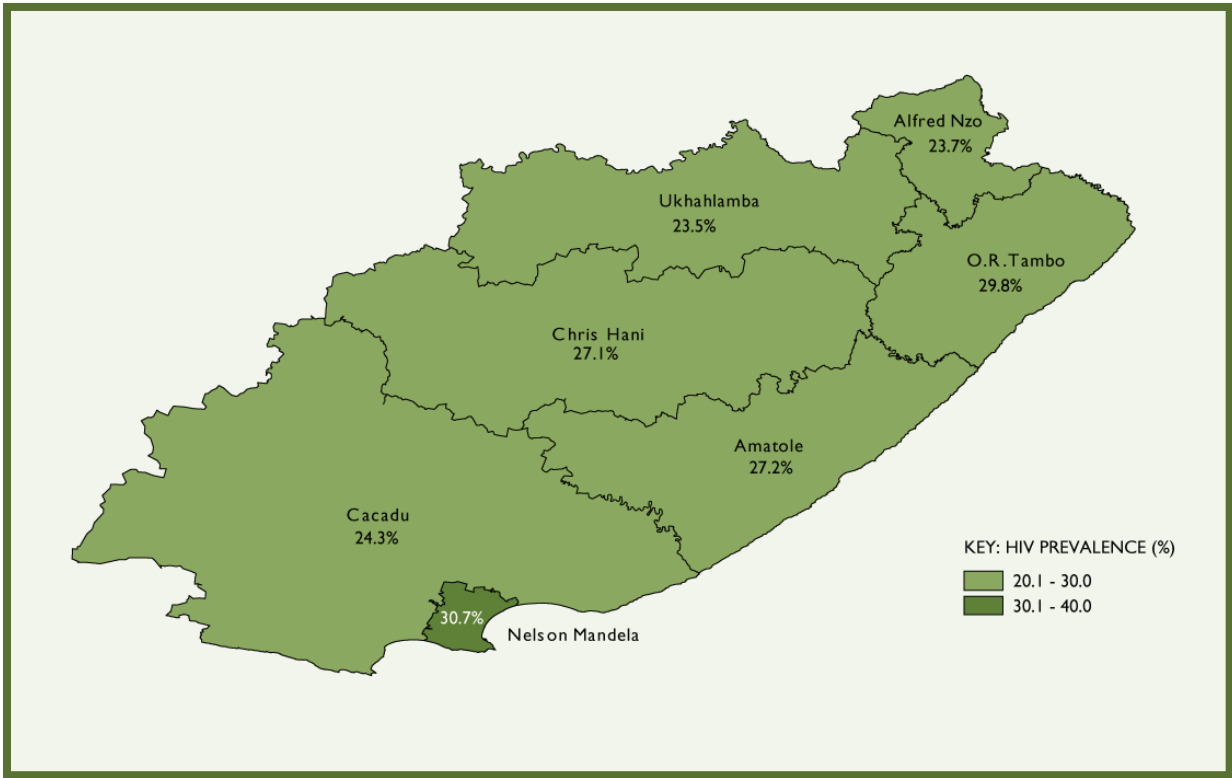


Figure 11: HIV prevalence distribution among antenatal women by district, Eastern Cape, 2009

3.5.2 FREE STATE PROVINCE

In 2009, the Free State provincial HIV prevalence amongst 15 - 49 antenatal women was 30.1% (95% CI: 28.1% – 32.1%), which is a decrease of 2.8 % from the previous year (Figure 12).

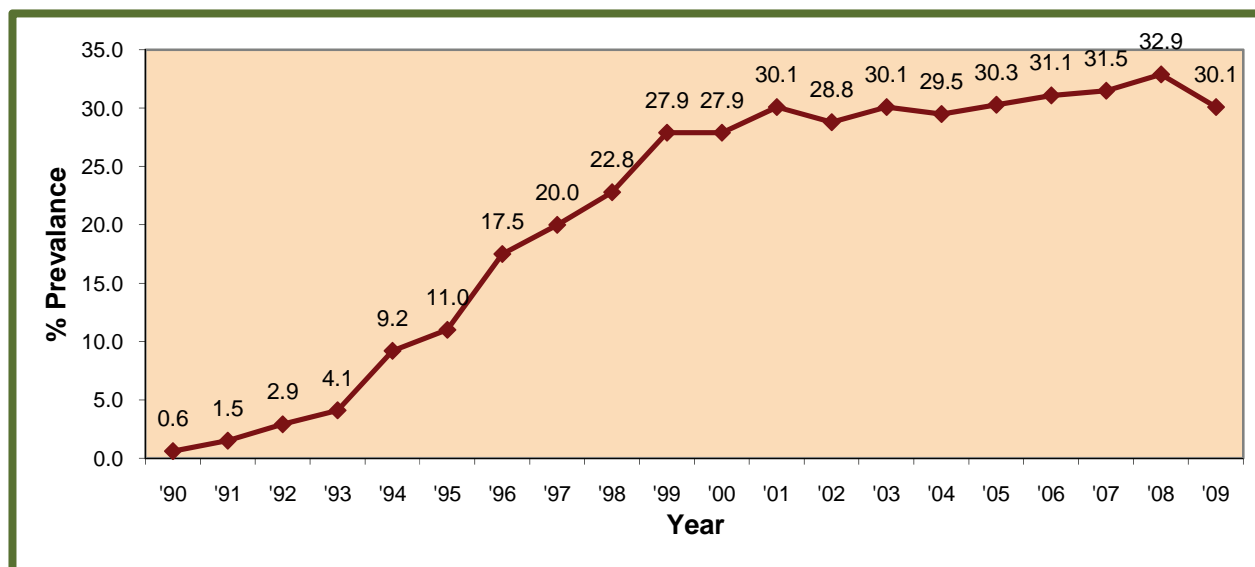


Figure 12: HIV prevalence epidemic curve among antenatal women, Free State, 1990 to 2009.

Table 7: HIV prevalence among antenatal women by district, in the Free State, 2007 to 2009.

	2007			2008			2009			
	N ₁	% Prev.	95% CI	N ₁	% Prev.	985% CI	N ₁	N ₂	% Prev.	985% CI
Provincial	2 167	31.5	29.1 - 34.1	2 016	32.9	30.5 – 35.4	2 336	703	30.1	28.1 – 32.1
Fezile Dabi	355	33.2	26.9 – 40.1	336	34.5	29.7 – 39.6	416	116	27.9	24.5 – 31.5
Lejweleputswa	578	37.0	32.5 - 41.7	571	33.8	29.2 – 38.6	611	204	33.4	29.3 – 37.87
Motheo	565	27.4	23.4 – 31.8	486	31.6	26.6 – 37.1	601	167	27.8	23.7 – 32.2
Thabo Mofutsanyana	548	30.6	25.9 - 35.8	519	33.1	28.9 – 37.6	603	189	31.3	27.9 – 35.1
Xhariep	121	23.9	16.9 – 32.7	104	26.9	16.8 – 40.0	105	27	25.7	16.4 – 37.9

N = Realised sample size; N₂ = Number of HIV positive women in the sample; CI= Confidence Interval.

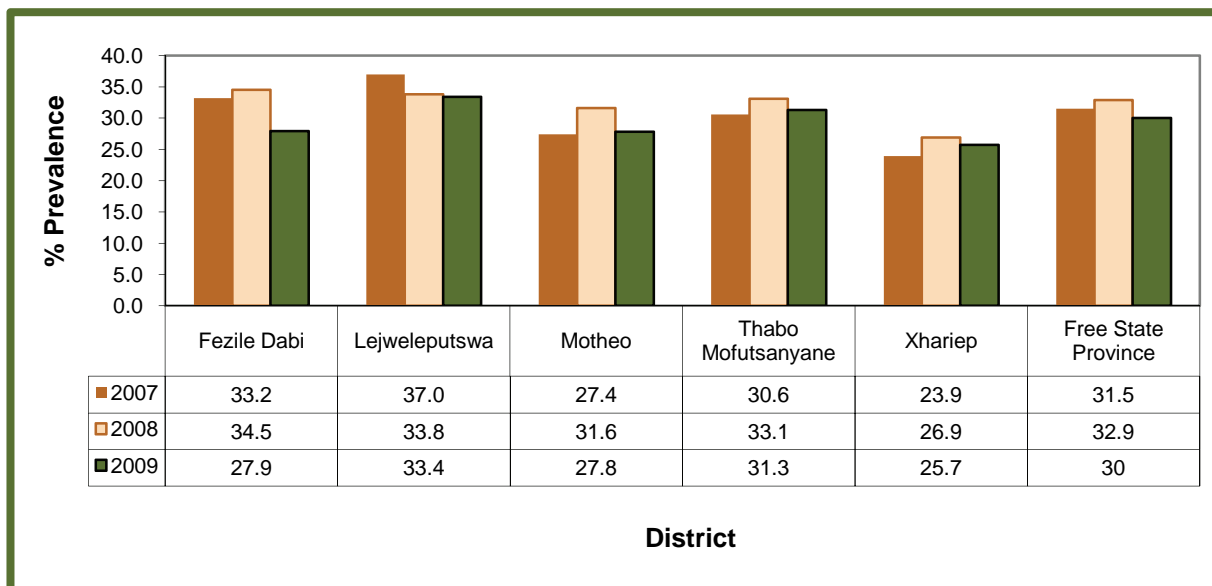


Figure 13: HIV prevalence trends among antenatal women by district, Free State, 2007 to 2009.

In 2009 only two out of the five districts in the Free State recorded prevalence above 30% (Table 7 and Figure 13). All districts of the Free State province recorded a decrease in HIV prevalence. Fezile Dabi recorded a substantial decrease from 34.5% in 2008 to 27.9% in 2009 in 6.6%, followed by Motheo with a decrease of almost 4%, a decrease by 0.4% from 2008 to 2009 in Lejweleputswa. Xhariep HIV prevalence has decreased from 26.9% in 2008 to 25.7% in 2009 (Figure 13).

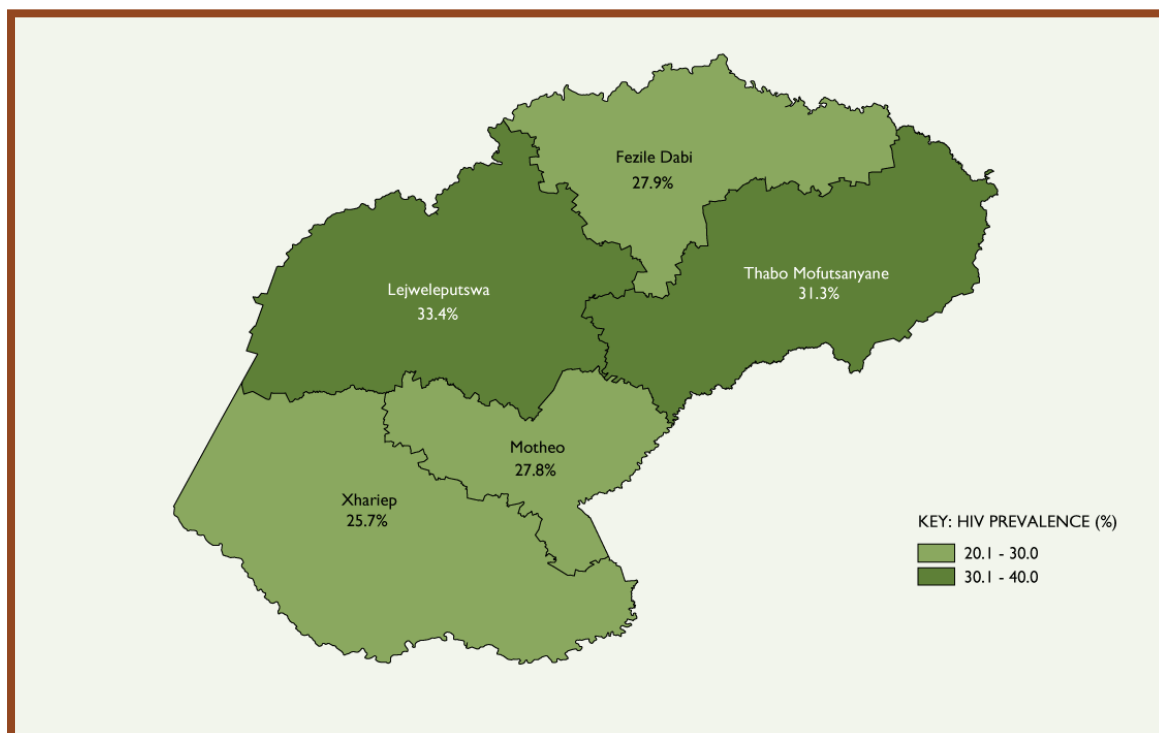


Figure 14: HIV prevalence distribution among antenatal women by district, Free State, 2009.

3.5.3 GAUTENG PROVINCE

In 2009, the Gauteng provincial HIV prevalence amongst 15 - 49 antenatal women was 29.8% (95% CI: 28.6% – 31.1%). The overall prevalence in Gauteng has stabilizing around 30.0% in the past 3 years (Figure 15).

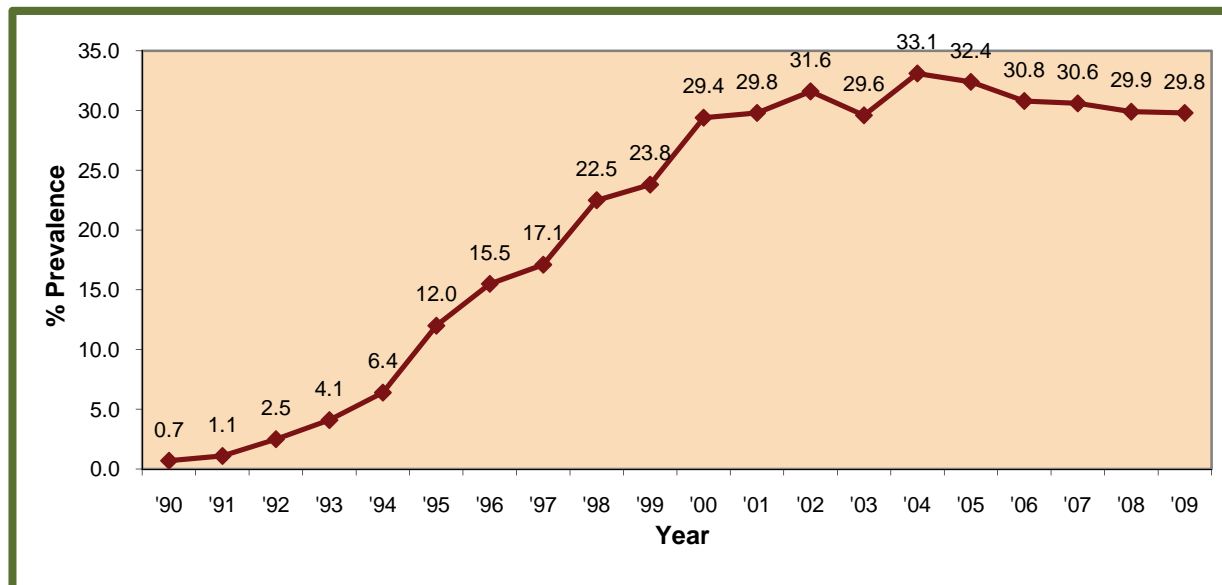


Figure 15: HIV prevalence epidemic curve among antenatal women, Gauteng, 1990 to 2009.

There is evidence that the overall HIV prevalence in Gauteng province has remained level from 2007 to 2009. The highest HIV prevalence of 34.0% was recorded in Ekurhuleni, followed by Metsweding with a prevalence of 33.3%. Ekurhuleni, West Rand and Metsweding districts have shown an HIV prevalence increase of 2.5%, 2.3% and 8.2% respectively (Table 8 and Figure 16). All the health districts in Gauteng recorded HIV prevalence above 25% among 15-49 year old women. The distribution of HIV prevalence by district in Gauteng province is shown in Figure 17.

Table 8: HIV prevalence among antenatal women by district in the Gauteng, 2007 to 2009.

	2007			2008			2009			
	N ₁	% Prev.	95% CI	N ₁	% Prev.	95% CI	N ₁	N ₂	% Prev.	95% CI
Provincial	7 018	30.5	29.2 - 31.9	7 497	29.9	28.5 – 31.2	7 187	2 141	29.8	28.6 – 31.1
City of JHB	2 627	29.9	27.7 – 32.1	2425	31.0	28.7 – 33.4	2 489	721	29.0	27.0 – 31.0
Ekurhuleni	1 791	33.3	31.0 – 35.8	2006	31.5	28.7 – 34.7	1 896	645	34.0	31.5 – 36.7
Metsweding	70	32.8	20.1 - 48.7	131	25.1	16.9 – 35.6	120	40	33.3	24.9 – 43.0
Sedibeng	530	32.8	28.7 – 37.1	740	31.8	28.7 – 35.1	667	193	28.9	25.9 – 32.2
Tshwane	1 497	26.7	23.5 – 30.1	1639	26.1	23.2 – 29.2	1 466	377	25.7	23.1 – 28.6
West Rand	503	32.4	28.4 – 36.6	556	27.8	23.7– 32.4	549	165	30.1	26.2 – 34.3

N = Realised sample size; N₂ = Number of HIV positive women in the sample; CI= Confidence Interval.

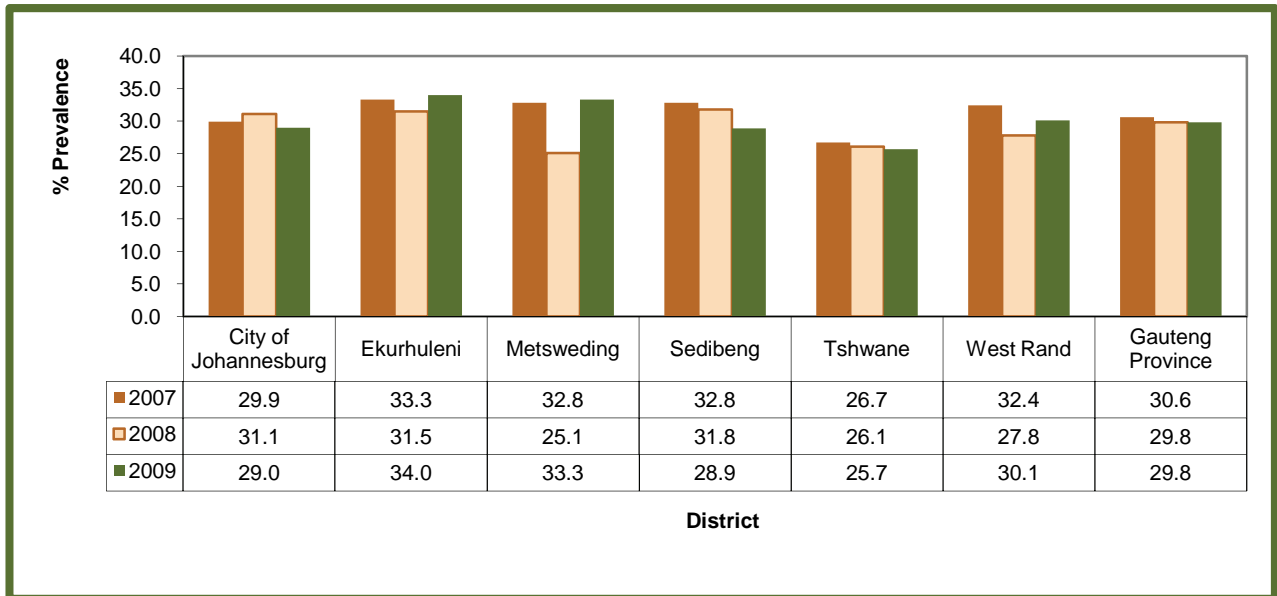


Figure 16: HIV prevalence trends among antenatal women by district, Gauteng, 2007 to 2009.

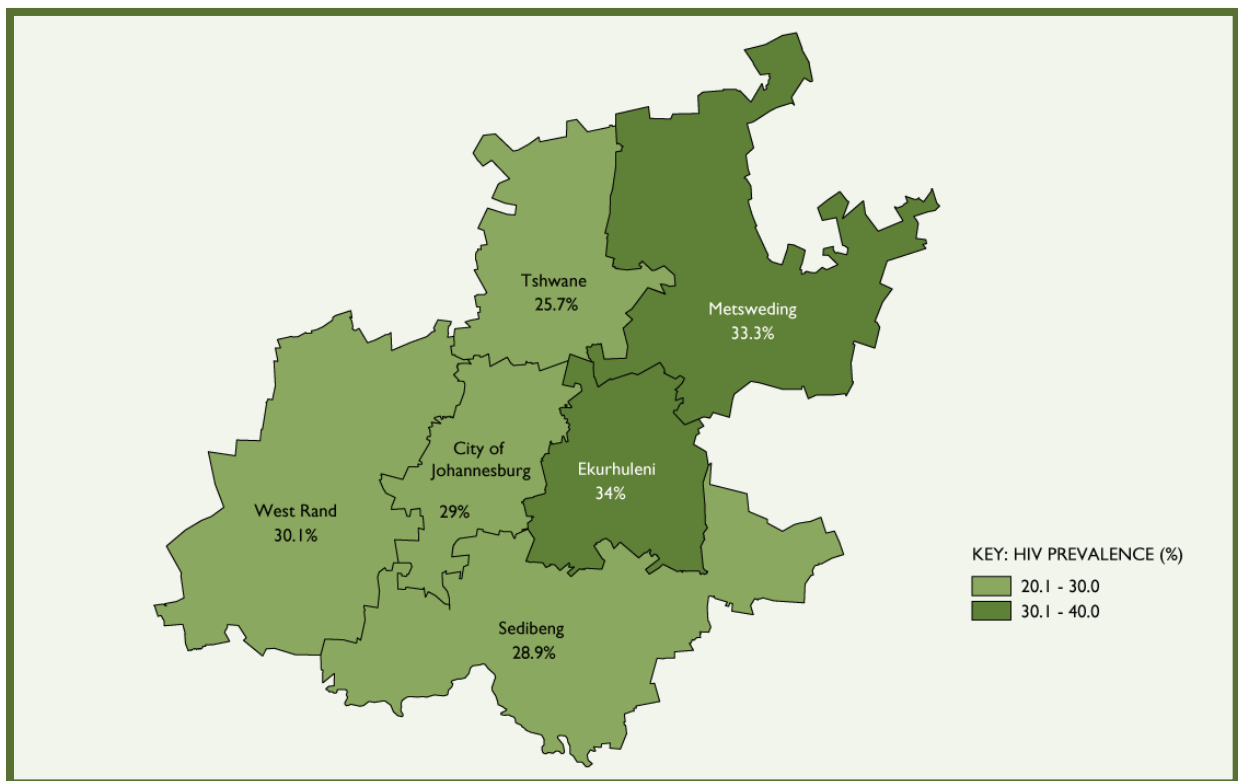


Figure 17: HIV prevalence distribution among antenatal women by district, Gauteng, 2009

3.5.4 KWAZULU-NATAL PROVINCE

In 2009, the KwaZulu-Natal provincial HIV prevalence amongst 15 - 49 year antenatal women was 39.5% (95%CI: 38.1% – 41.0%). KwaZulu-Natal has consistently recorded the highest prevalence since 1990. The epidemic curve shows an increase of 0.9% from 2008 to 2009 (Figure 18).

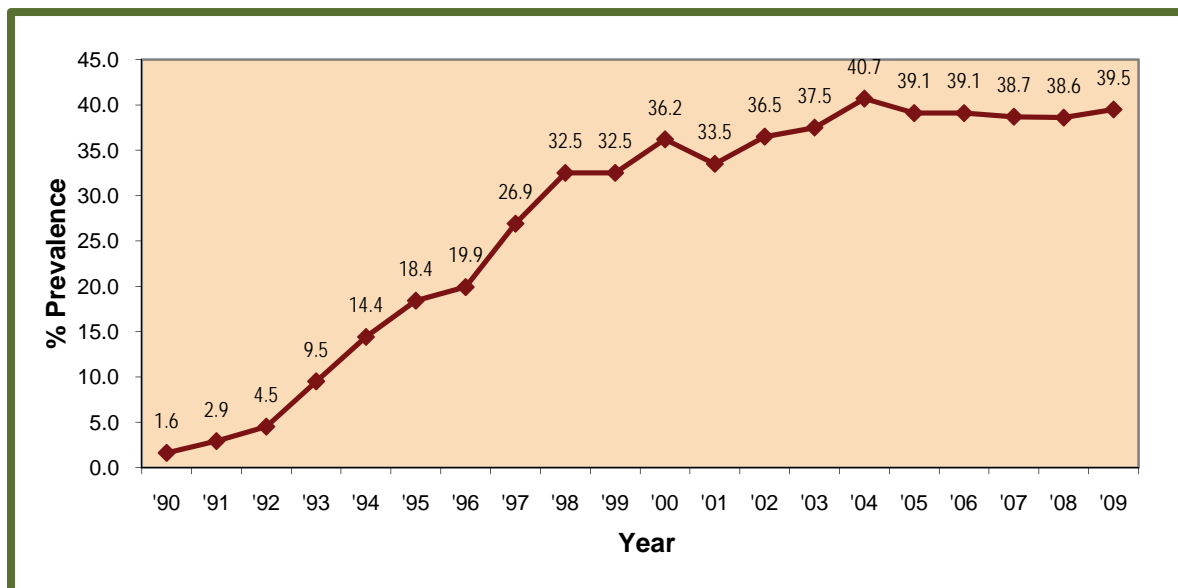


Figure 18: HIV prevalence epidemic curve among antenatal women, KwaZulu-Natal, 1990 to 2009.

In 2008, three districts showed prevalence rates above 40%, while in 2009 five districts in KwaZulu-Natal viz: Ugu, Uthukela, eThekwini, ILembe and again Umgungundlovu record HIV prevalence estimate above 40%. The highest HIV prevalence estimate in this province (46.4%) was recorded in Uthukela. Uniquely, one district (Umzinyathi) in KwaZulu-Natal recorded HIV prevalence below 30% (Table 9 and Figure 19). The distribution of HIV prevalence by district in KZN is shown in Figure 20.

Table 9: HIV prevalence among antenatal women by district, in KwaZulu-Natal, 2007 to 2009.

	2007			2008			2009			
	N ₁	% Prev.	95% CI	N ₁	% Prev.	95% CI	N ₁	N ₂	% Prev.	95% CI
Prov.	6 918	38.7	37.2 – 40.2	6 963	38.7	37.2 – 40.1	6 744	2 665	39.5	38.1 – 41.0
Ama	404	39.3	34.3 – 44.6	420	34.7	29.2 – 40.7	410	153	37.3	33.3 – 41.6
Sis	328	34.1	29.3 – 39.2	343	35.8	31.6 – 40.3	324	114	35.2	29.3 – 41.6
Ugu	512	37.3	32.1 – 42.7	507	40.6	36.9 – 44.3	435	175	40.2	36.0 – 44.6
Umk	407	39.8	34.3 – 45.5	413	39.9	34.8 – 45.3	396	157	39.7	33.1 – 46.6
Umz	338	31.6	26.2 – 37.6	339	29.2	23.7 – 35.2	340	96	28.2	22.2 – 35.1
UTh	452	36.2	29.5 – 43.6	450	38.6	32.6 – 45.0	444	206	46.4	41.1 – 51.8
Utk	567	35.9	31.0 – 41.2	641	36.1	31.4 – 41.2	597	225	37.7	33.0 – 42.6
Zul	580	34.6	30.0 – 39.5	587	36.1	31.8 – 40.5	586	215	36.7	30.4 – 43.5
eTh	2 217	41.6	39.3 – 43.9	2 153	40.3	37.6 – 43.0	2 140	887	41.5	38.9 – 44.0
ILe	417	41.4	34.8 – 48.4	424	35.8	30.7 – 41.3	421	171	40.6	36.5 – 44.9
uMg	696	40.8	35.6 – 46.1	686	45.7	42.1 – 49.4	651	266	40.9	36.2 – 45.7

N = Realised sample size; N₂ = Number of HIV positive women in the sample; CI= Confidence Interval.

Ama: Amajuba; Sis: Sisonke; Umk: Umkhanyakude; Umz: Umzinyathi; UTh: Uthungulu; Utk: Uthukela; Zul: Zululand; eTh: eThekwini; iLe: iLembe; uMg: uMgungundlovu

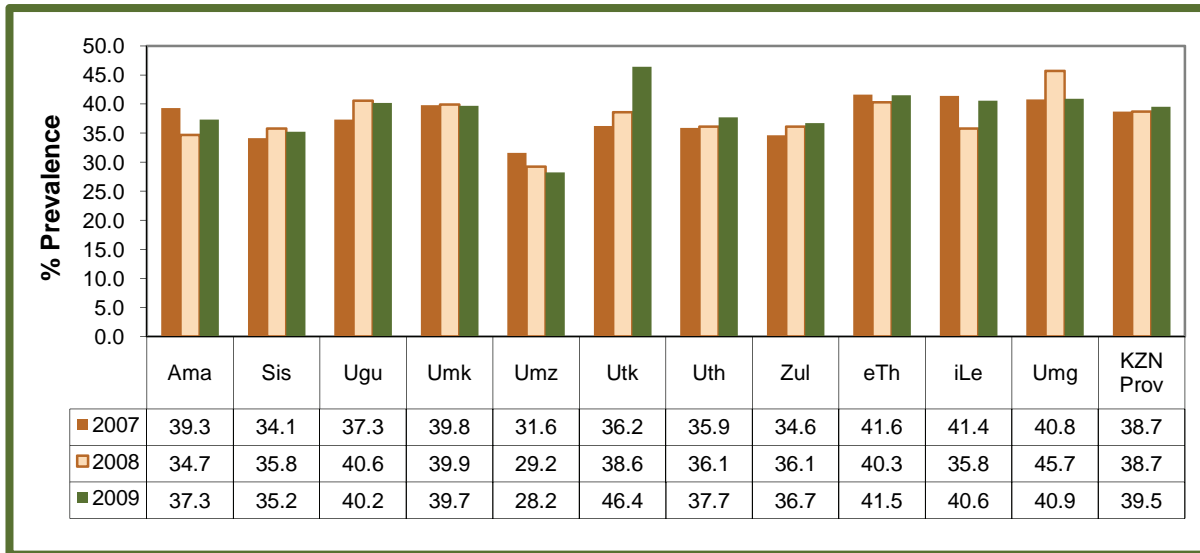


Figure 19: HIV prevalence trends among antenatal women by district, KwaZulu-Natal, 2007 to 2009.

Ama: Amajuba; Sis: Sisonke; Umk: Umkhanyakude; Umz: Umzinyathi; UTh: Uthungulu; Utk: Uthukela; Zul: Zululand; eTh: eThekweni; iLe: iLembe; uMg: uMgungundlovu

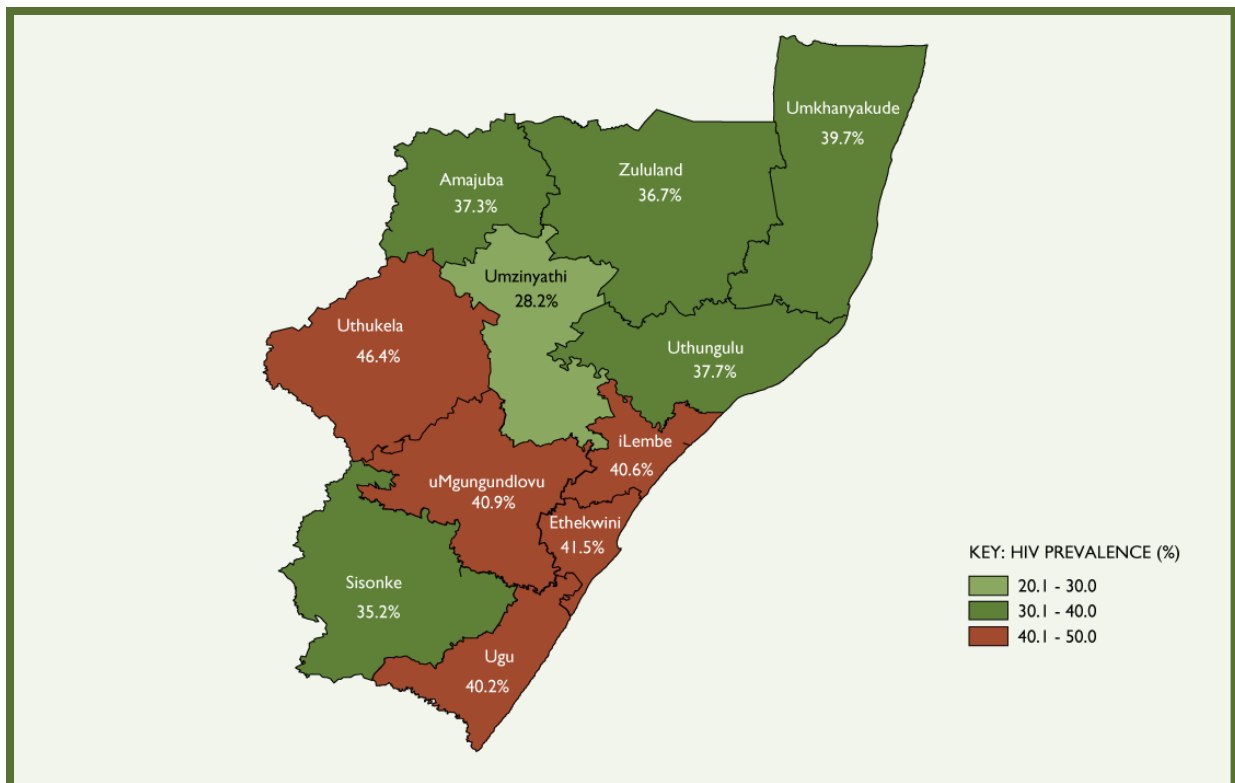


Figure 20: HIV prevalence distribution among antenatal women by district, KwaZulu-Natal, 2009.

3.5.5 LIMPOPO PROVINCE

In 2009, the Limpopo provincial HIV prevalence amongst 15-49 antenatal women was 21.4% (95% CI: 19.7% – 23.1%). The overall provincial HIV prevalence in Limpopo increased by 0.7% from 2008 to 2009 (Figure 21).

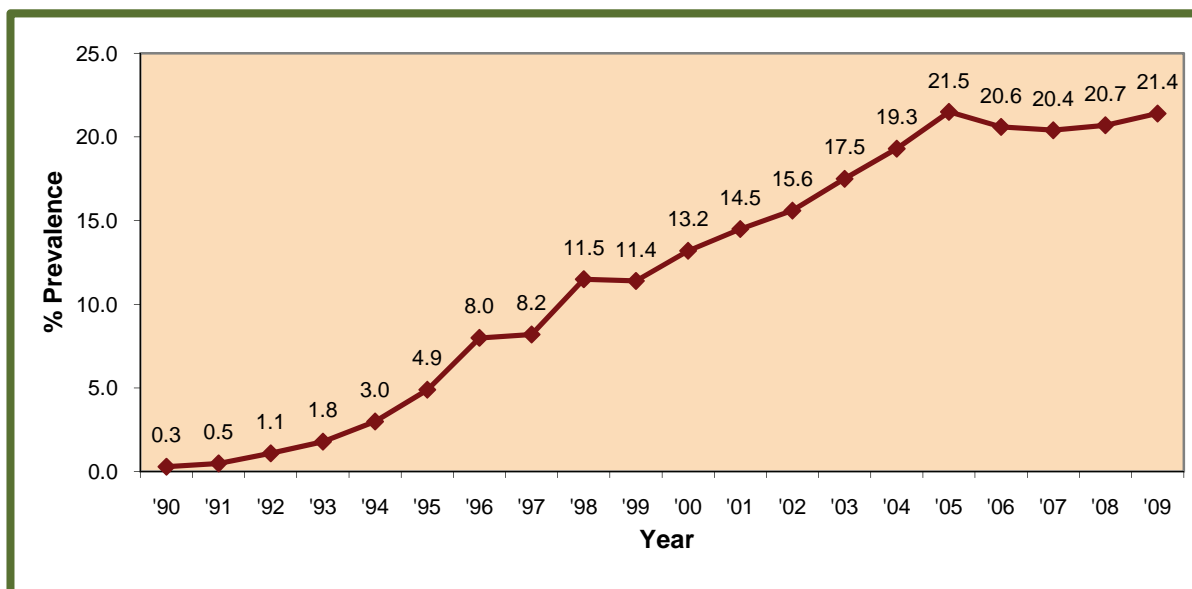


Figure 21: HIV prevalence epidemic curve among antenatal women, Limpopo, 1990 to 2009.

Table 10: HIV prevalence among antenatal women by district, Limpopo, 2007 to 2009.

	2007			2008			2009			
	N ₁	% Prev.	95% CI	N ₁	% Prev.	95% CI	N ₁	N ₂	% Prev.	95% CI
Provincial	3 748	20.4	18.9 – 21.9	3 833	20.7	19.1 – 22.5	3 412	729	21.4	19.7 – 23.1
Capricorn	919	19.8	16.6 – 23.3	885	21.0	18.4 – 23.8	887	211	23.8	20.8 – 27.1
Mopani	655	23.8	20.4 – 27.6	710	25.2	21.2 – 29.6	698	183	26.2	21.8 – 31.2
Sekhukhune	772	21.3	18.8 – 24.2	788	21.8	18.4 – 25.6	493	82	16.6	13.5 – 20.3
Vhembe	922	15.1	13.2 – 17.4	951	14.7	12.5 – 17.2	903	120	14.3	11.4 – 17.8
Waterberg	480	25.4	21.3 – 29.9	499	23.6	18.2 – 30.1	431	124	28.8	23.4 – 34.8

N = Realised sample size; N₂ = Number of HIV positive women in the sample; CI= Confidence Interval.

The Capricorn district carries the heaviest HIV Burden among 15 to 49 years old pregnant women, with an HIV prevalence estimate of 23.8%. Two districts in Limpopo, i.e. Sekhukhune and Vhembe, still record HIV prevalence estimate below 20% and the remaining three districts recorded HIV prevalence estimate below 27%.

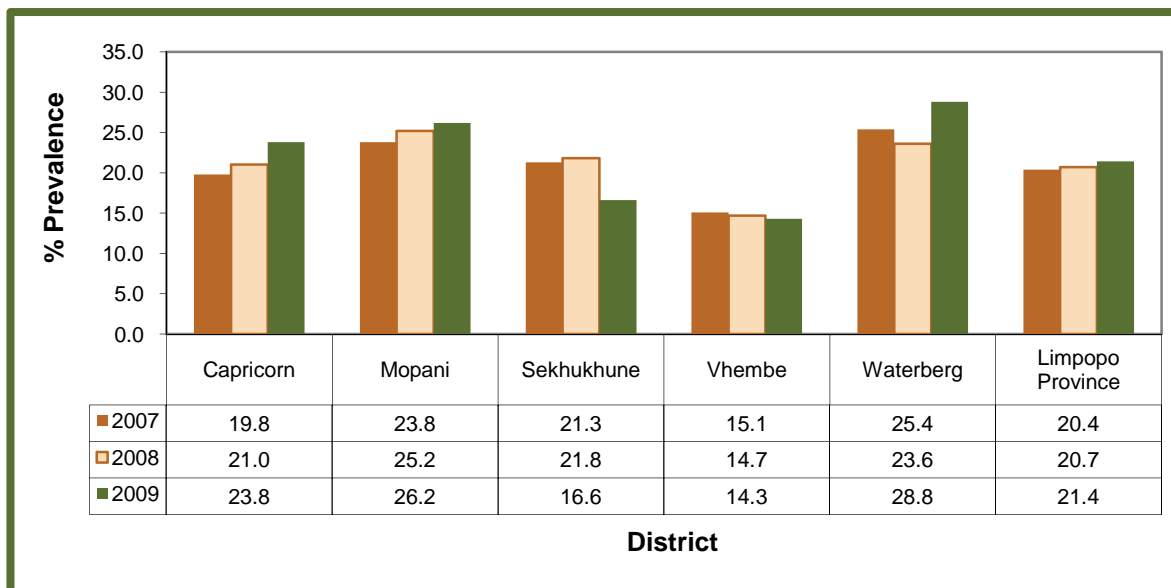


Figure 22: HIV prevalence trends among antenatal women by district, Limpopo, 2007 to 2009.

The Capricorn and Mopani districts have shown a steady increase in HIV prevalence over the last three years with an increase of 2.8% and 1.0% respectively from 2008 to 2009. The Waterberg district HIV prevalence has increased substantially by 5.2% from 23.6% in 2008 to 28.8% in 2009. The only district that has showed a decline in HIV prevalence estimate is Sekhukhune from 21.8% in 2007 to 16.6 in 2009 (Table 10 and Figure 22). The prevalence in the Vhembe district has remained consistently at or below 15%. The HIV prevalence distribution by district in Limpopo is shown in Figure 23.

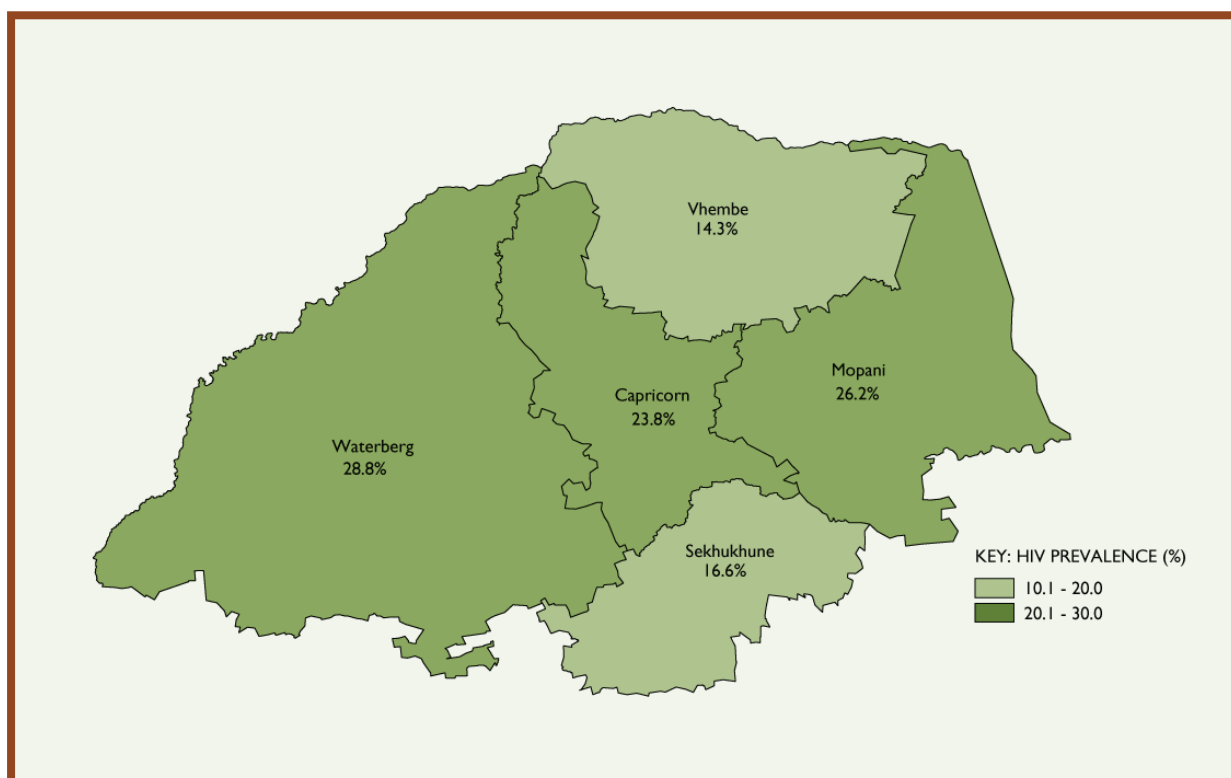


Figure 23: HIV prevalence distribution among antenatal women by district, Limpopo, 2009.

3.5.6 MPUMALANGA PROVINCE

In 2009, the Mpumalanga provincial HIV prevalence amongst 15-49 year antenatal women was 34.7% (95% CI: 32.5% – 36.9%). The overall provincial HIV prevalence estimate has declined by 0.8% from 2008 to 2009. The Mpumalanga HIV epidemic curve from 1990 to 2009 is shown in Figure 24 below.

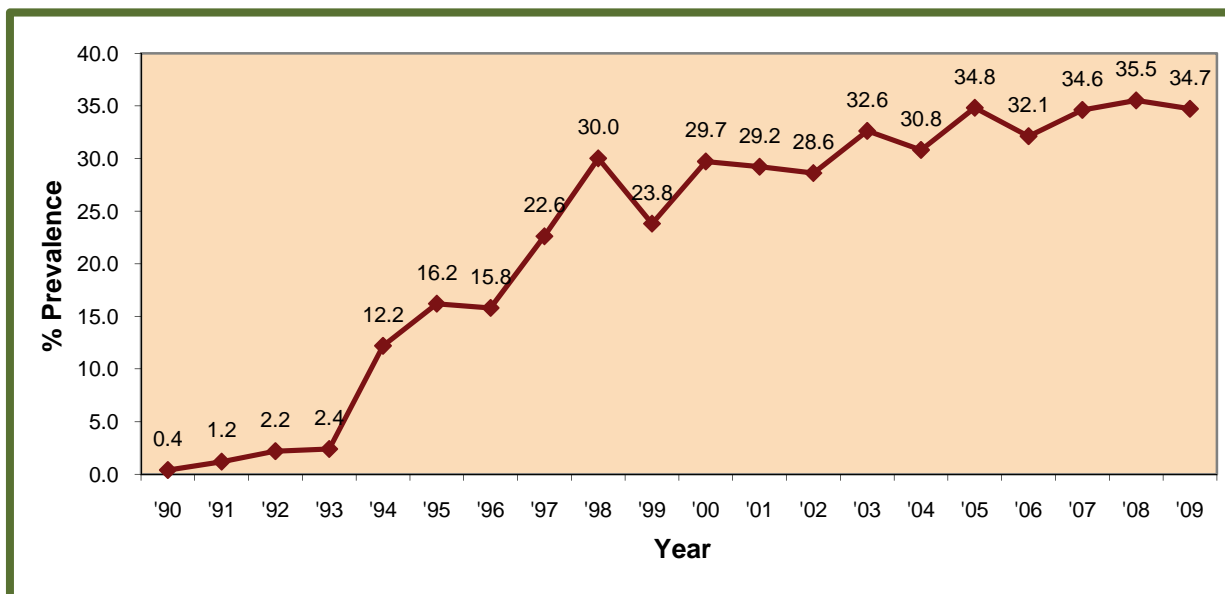


Figure 24: HIV prevalence epidemic curve among antenatal women, Mpumalanga, 1990 to 2009.

Two districts in Mpumalanga, viz., Ehlanzeni and Gert Sibande recorded a decline in HIV prevalence of 1.1% and 2.3% decrease respectively from 2008 to 2009. Nkangala district HIV prevalence increased by 0.8% (Table 11 and Figures 25 & 26).

Table 11: HIV prevalence among antenatal women by district, Mpumalanga, 2007 to 2009.

	2007			2008			2009			
	N ₁	% Prev.	95% CI	N ₁	% Prev.	95% CI	N ₁	N ₂	% Prev.	95% CI
Provincial	2 332	34.6	32.1 – 37.1	2 224	35.5	33.1 – 37.8	2 049	710	34.7	32.5 – 36.9
Ehlanzeni	1 061	36.1	32.5 – 39.9	1 027	34.9	31.4 – 38.6	921	311	33.8	30.1 – 37.6
Gert Sibande	564	40.6	37.3 – 43.9	560	40.5	36.4 – 44.8	560	214	38.2	34.7 – 41.9
Nkangala	707	27.5	24.0 – 31.4	637	31.8	27.7 – 36.2	568	185	32.6	29.1 – 36.3

N = Realised sample size; N₂ = Number of HIV positive women in the sample; CI= Confidence Interval.

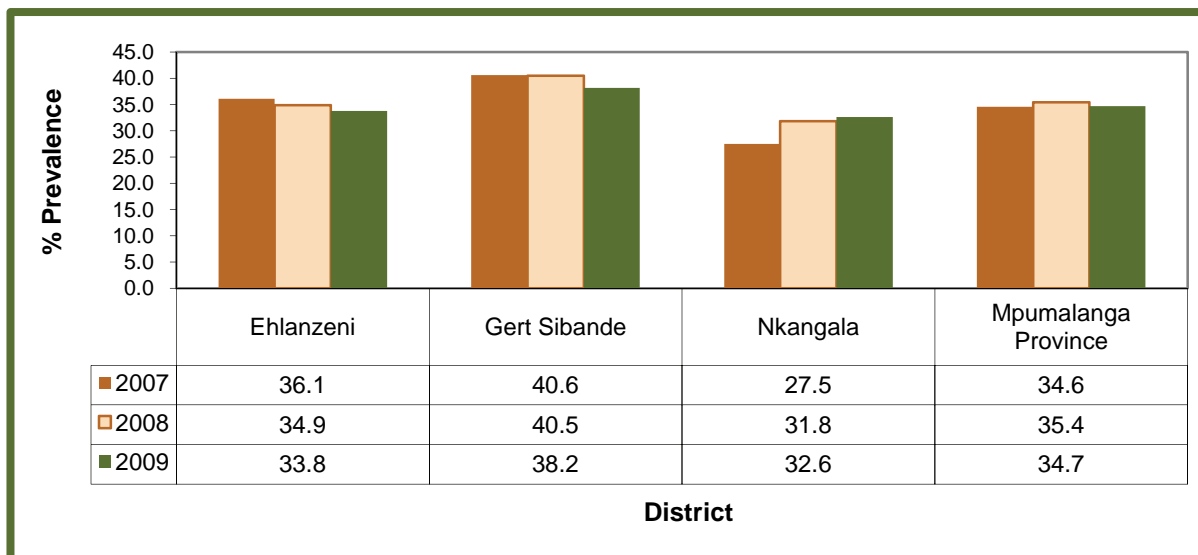


Figure 25: HIV prevalence trends among antenatal women by district, Mpumalanga, 2007 to 2009.

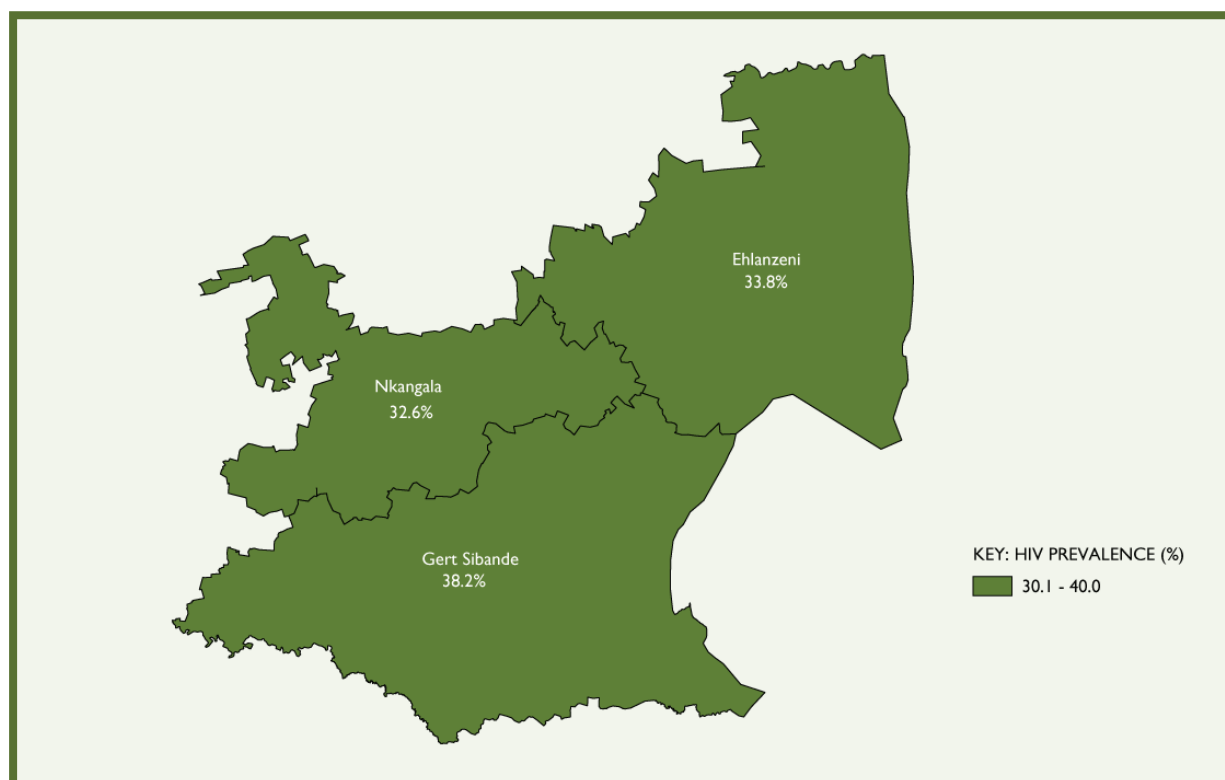


Figure 26: HIV prevalence distribution among antenatal women by district, Mpumalanga, 2009

The HIV prevalence estimates recorded in all three districts is between 30% and 40% and is presented in Figure 25 above.

3.5.7 NORTH-WEST PROVINCE

In 2009, the North-West provincial HIV prevalence amongst 15-49 antenatal women was 30.0% (95% CI: 27.5% – 32.6 %). The HIV prevalence in this province has declined slightly by 1.0% from 31.0% in 2008 to 30.0% in 2009 (Figure 27).

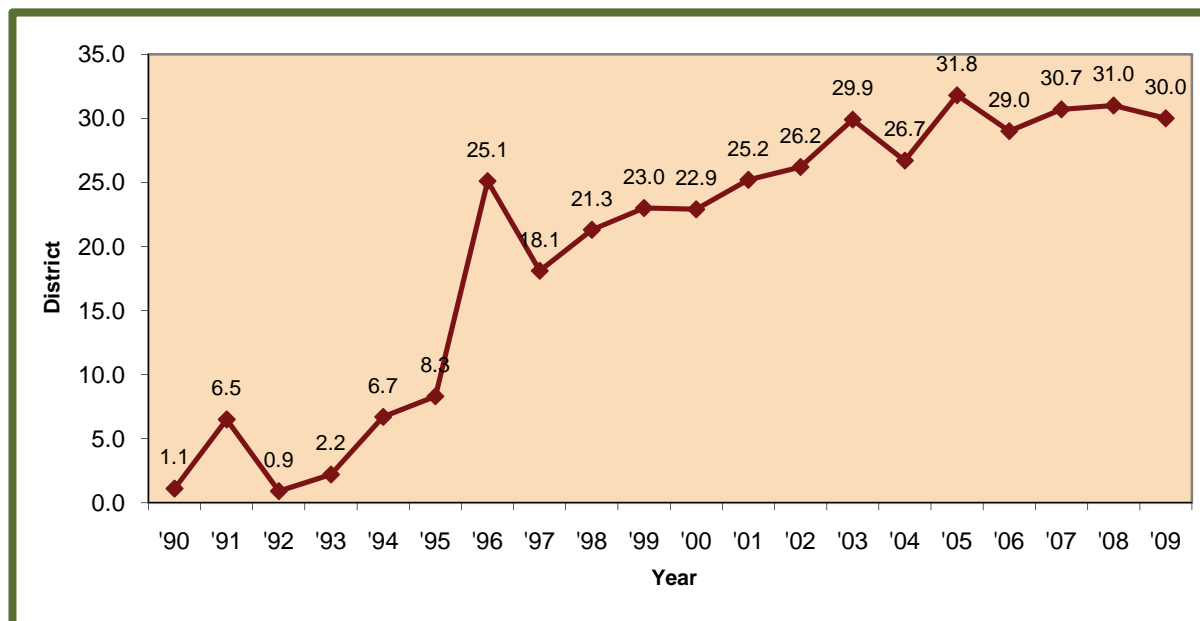


Figure 27: HIV prevalence epidemic curve among antenatal women, North West, 1990 to 2009.

Table 12: HIV prevalence among antenatal women by district, North West, 2007 to 2009.

	2007			2008			2009			
	N ₁	% Prev.	95% CI	N ₁	% Prev.	95% CI	N ₁	N ₂	% Prev.	95% CI
Provincial	2 349	30.6	28.6 – 32.8	2112	31.0	28.8 – 33.3	2 227	667	30.0	27.5 – 32.6
Bojanala	903	33.3	30.1 – 36.6	810	31.8	28.2 – 35.6	892	311	34.9	31.1 – 38.8
Dr. R.S. Mompoti	357	26.8	21.4 – 33.1	337	28.1	23.5 – 33.3	346	89	25.7	20.5 – 31.8
Ngaka M Molema	544	27.0	24.3 – 29.9	539	28.2	24.0– 32.8	527	132	25.1	20.6 – 30.1
Dr. K. Kaunda	545	32.4	27.5 – 37.8	426	35.2	30.3 – 40.4	462	135	29.2	22.4 – 37.1

N = Realised sample size; N₂ = Number of HIV positive women in the sample; CI= Confidence Interval.

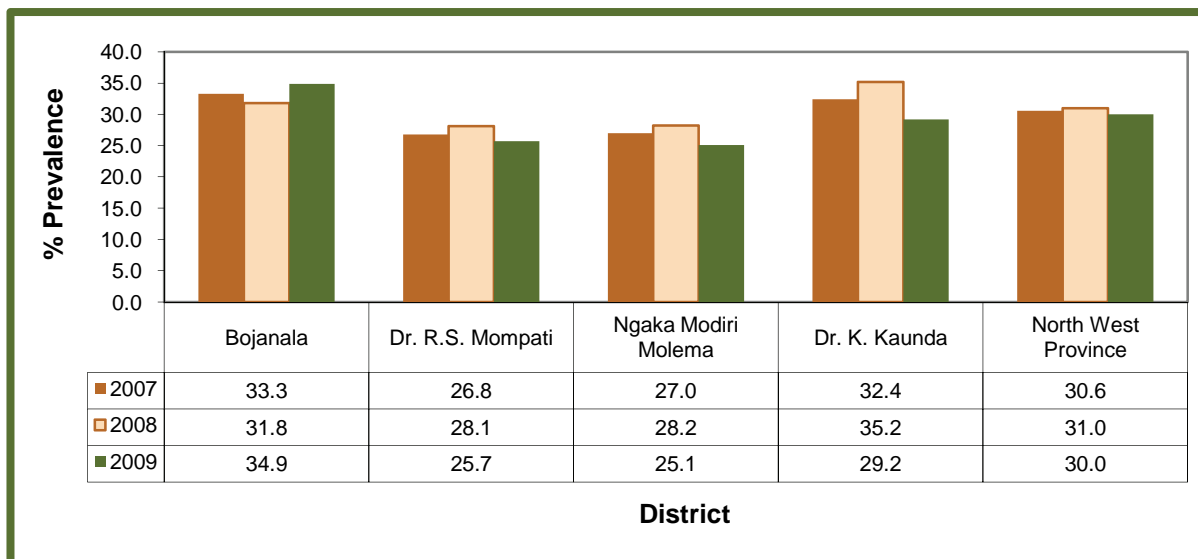


Figure 28: HIV prevalence trends among antenatal women by district, North West, 2007 to 2009.

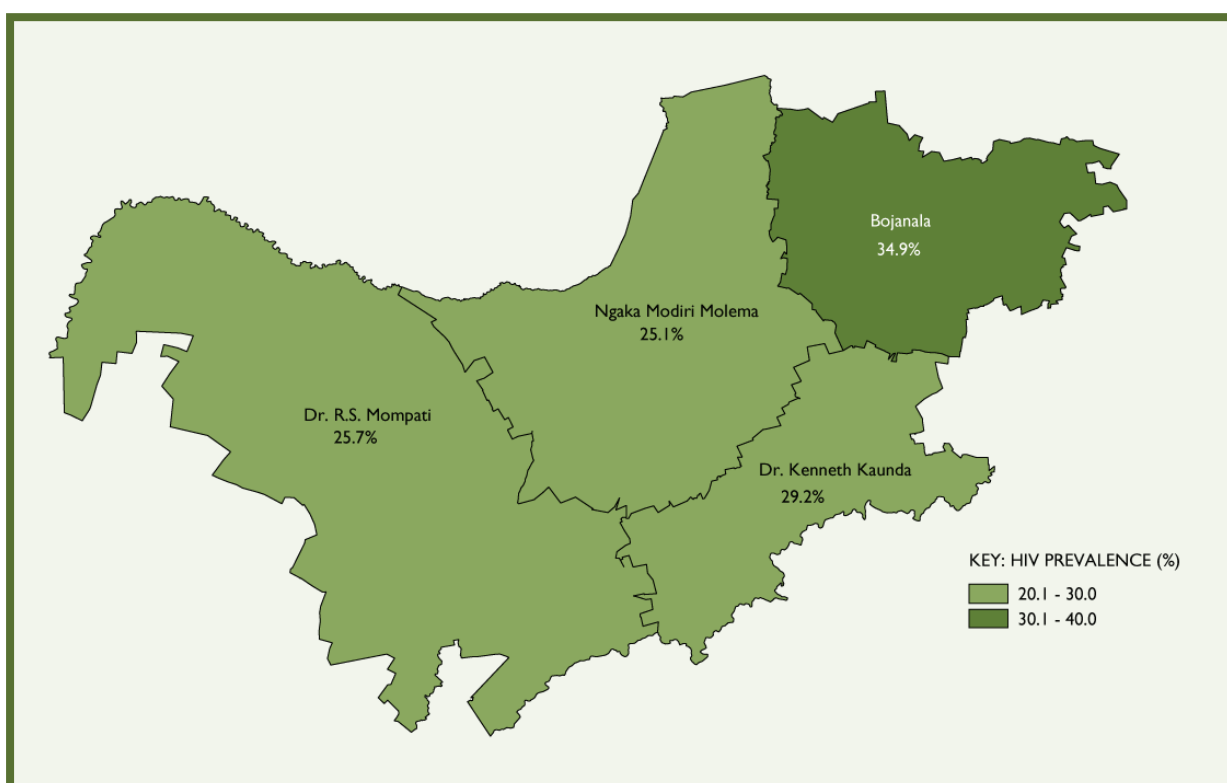


Figure 29: HIV prevalence distribution among antenatal women by district, North West, 2009

Findings of the 2009 survey show that Bojanala district has recorded the highest HIV prevalence and is the only district that has shown an increase in HIV prevalence estimate from 31.8% in 2008 to 34.9% in 2009 (Table 12 and Figures 28 and 29).

3.5.8 NORTHERN CAPE PROVINCE

In 2009, the Northern Cape provincial HIV prevalence amongst 15-49 antenatal women was 17.2% (95% CI: 14.3% – 20.4%). The overall provincial HIV prevalence estimate has slightly increased by 1% from in 2008 to 2009 (Figure 30).

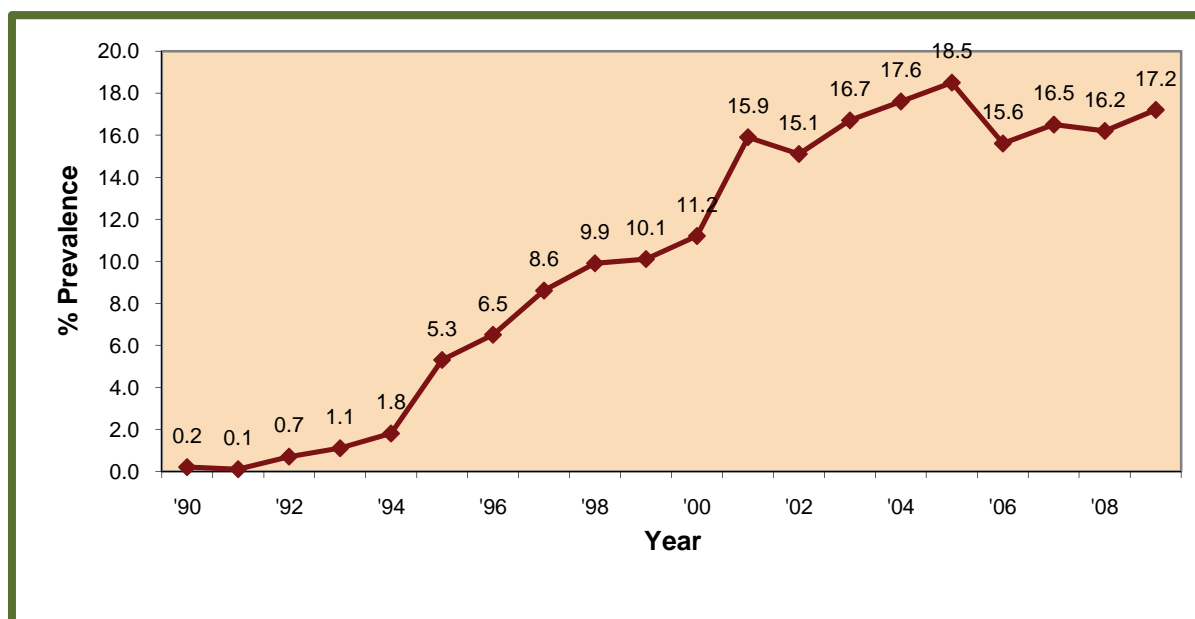


Figure 30: HIV prevalence epidemic curve among antenatal women, Northern Cape, 1990 to 2009.

There were no pregnant women out of the 68 sampled found to be HIV infected in the Namaqua district. The sample size from this district is too small to make any inference in this particular district; however, prevalence in this district in the past three years has remained the lowest at below 10%.

Table 13: HIV prevalence among antenatal women by district, Northern Cape, 2007 to 2009.

	2007			2008			2009			
	N ₁	% Prev.	95% CI	N ₁	% Prev.	95% CI	N ₁	N ₂	% Prev.	95% CI
Provincial	1 190	16.5	13.9 – 19.6	1 111	16.2	13.8 – 18.9	1 002	172	17.2	14.3 – 20.4
F. Baard	442	22.4	18.3 – 27.0	389	21.8	18.2 – 26.0	385	97	25.2	20.1 – 31.1
J. T. Gaetsewe	179	17.3	11.9 – 24.5	171	18.7	14.5 – 23.8	157	27	17.2	12.3 – 23.6
Namaqua	82	7.3	4.1 – 12.4	89	2.2	0.5 – 8.8	68	0	0.0	0.0 – 7.1
Pixley ka Seme	232	14.2	8.8 – 22.1	255	13.3	8.2 – 20.8	206	25	12.1	7.2 – 19.7
Siyanda	255	10.9	7.7 – 15.3	207	13.0	8.4 – 19.5	186	23	12.4	8.9 – 17.0

N = Realised sample size; N₂ = Number of HIV positive women in the sample; CI= Confidence Interval.

Frances Baard again has recorded the highest HIV prevalence estimate of 25.2% in 2009 compared to 21.8% in 2008 in the province, and increase by 3.4% from the previous year (Table 13 and Figure 31). Interestingly, this province recorded the highest syphilis prevalence

among all the other provinces in the past 4 years (see section on syphilis results). This requires further epidemiological investigation to determine the cause of this apparent inconsistency.

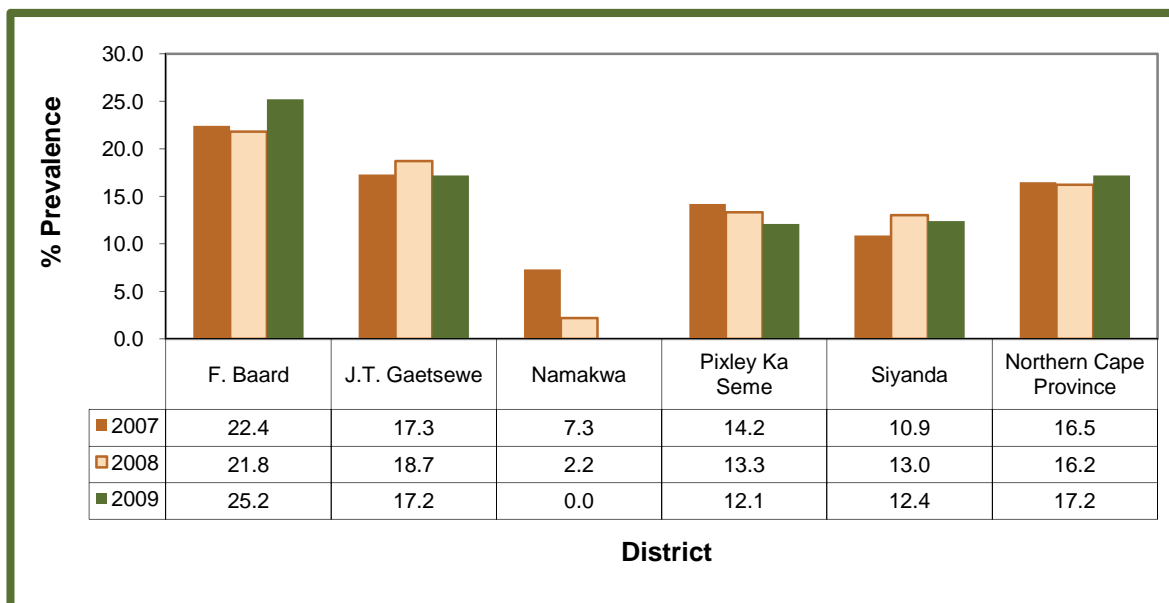


Figure 31: HIV prevalence trends among antenatal women by district, Northern Cape, 2007 to 2009.

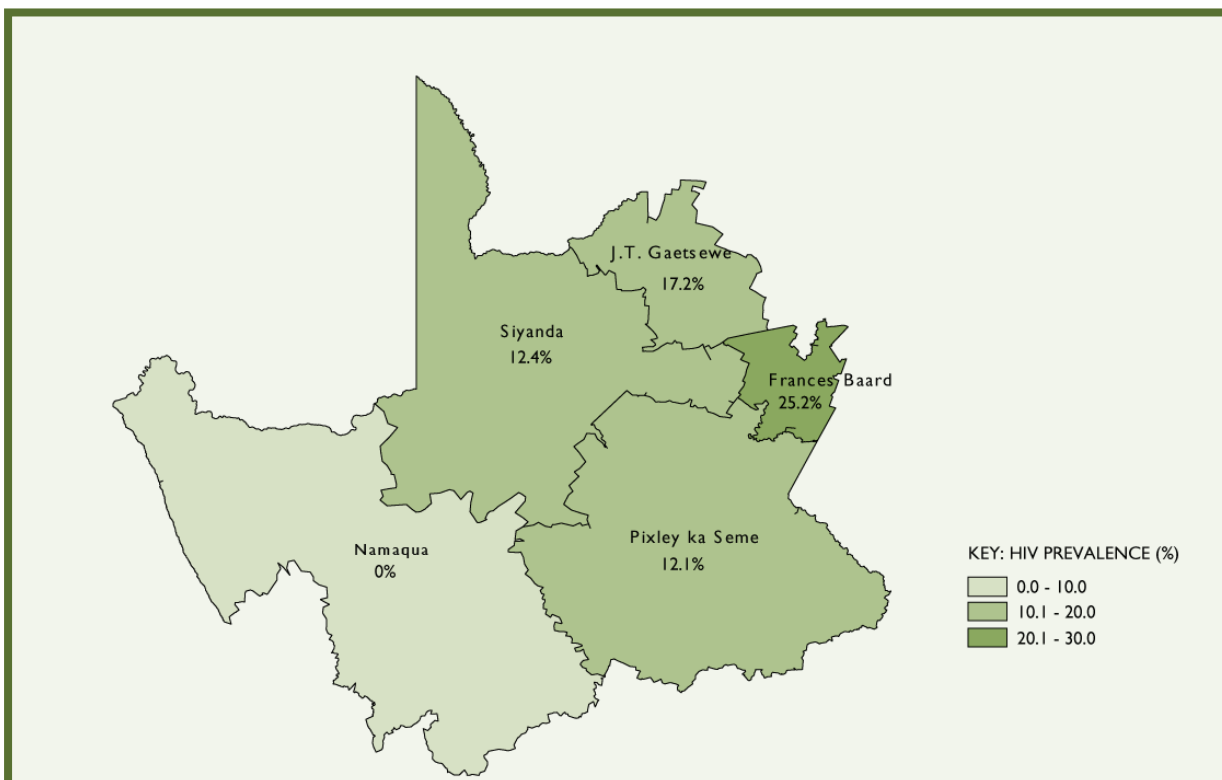


Figure 32: HIV prevalence distribution among antenatal women by district, Northern Cape, 2009.

Three out of the five health districts in the Northern Cape recorded HIV prevalence rates below 20 per cent and only one between 20 to 30%. J.T. Gaetsewe, Pixley Ka Seme and Siyanda HIV prevalence decreased by 1.5%, 1.2% and 0.6% respectively from 2008 to 2009.

The HIV prevalence has increased slightly from 21.8% to 25.1 in Frances Baard from 2008 to 2009 (Figure 31).

3.5.9 WESTERN CAPE PROVINCE

In 2009, the Western Cape provincial HIV prevalence amongst 15 - 49 antenatal women was 16.9% (95% CI: 13.8% – 20.5%). The overall HIV prevalence increased from 15.3% in 2007 to 16.9% in 2009 (Figure 33).

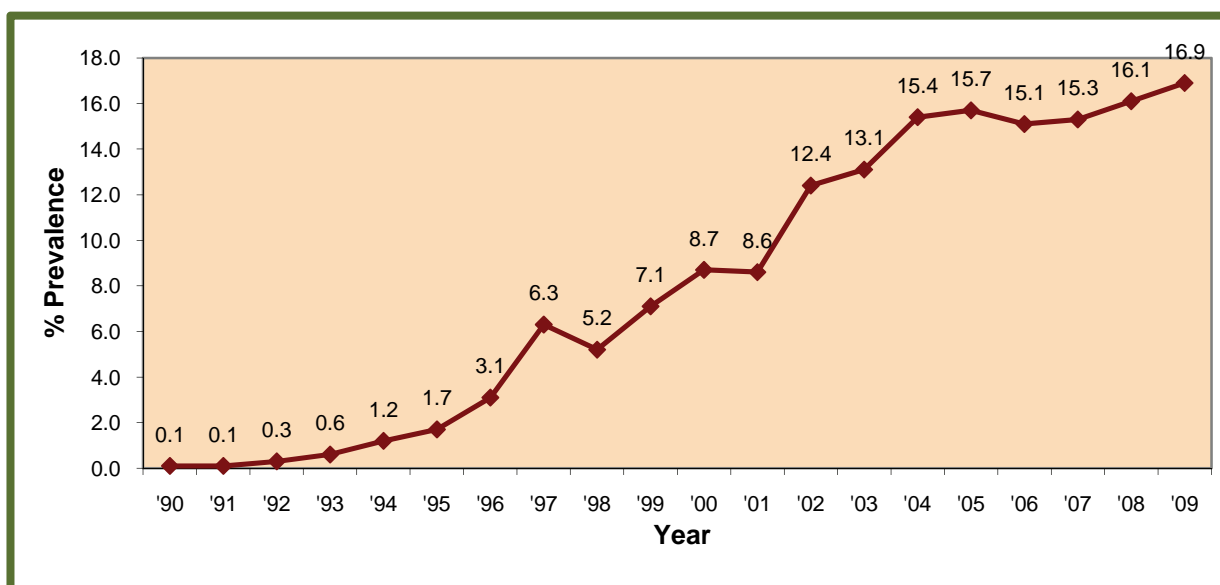


Figure 33: HIV prevalence epidemic curve among antenatal women, Western Cape, 1990 to 2009.

Table 14: HIV prevalence among antenatal women by district, Western Cape, 2007 to 2009.

	2007			2008			2009			
	N ₁	% Prev.	95% CI	N ₁	% Prev.	95% CI	N ₁	N ₂	% Prev	95% CI
Provincial	3 830	15.3	12.2 – 18.9	3 828	16.1	12.6 – 20.3	3 679	622	16.9	13.8 – 20.5
C. Winelands	514	12.8	8.1 – 19.7	539	12.0	8.2 – 17.3	499	66	13.2	9.0 – 19.1
Central Karoo	55	23.6	15.2 – 34.7	54	14.8	7.5 – 27.1	51	6	11.8	6.8 – 19.6
Eden	321	13.0	8.6 – 19.3	338	13.0	8.8 – 18.8	319	58	18.2	12.9 – 25.0
Metropole	2 590	16.0	11.9 – 21.3	2 536	17.9	13.2 – 23.9	2 481	446	18.0	13.8 – 23.1
Overberg	144	19.4	14.0 – 26.2	157	15.9	10.3 – 23.8	130	27	20.8	14.1 – 29.5
West Coast	206	10.1	7.2 – 14.2	204	9.3	6.2 – 13.6	199	19	9.5	6.1 – 14.6

N = Realised sample size; N₂ = Number of HIV positive women in the sample; CI= Confidence Interval.

The Cape Metropole carries the heaviest burden of HIV in the Western Cape, with more than 70% of the HIV infected pregnant women in the province.

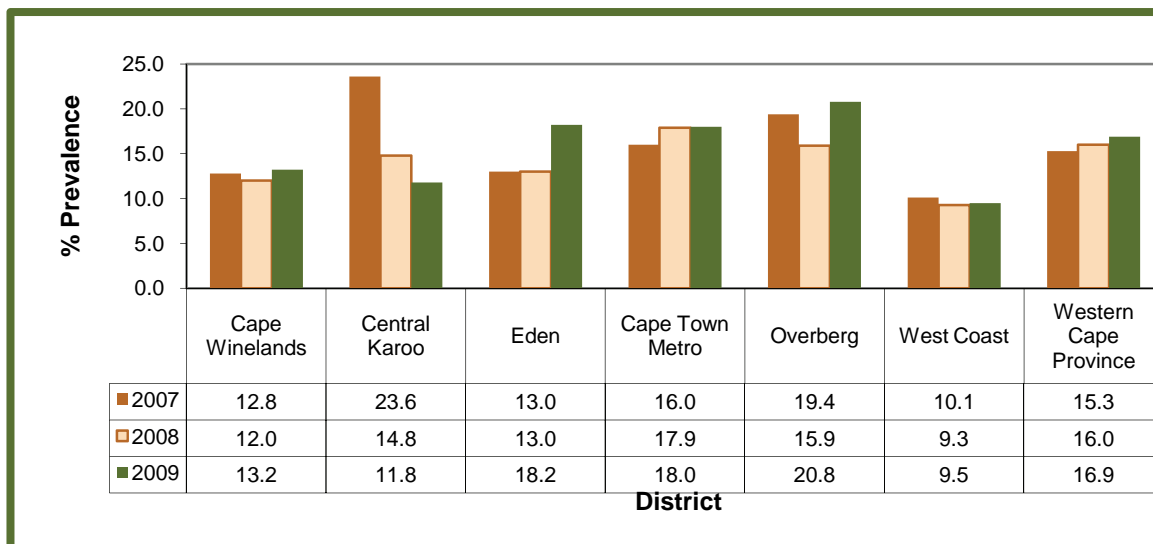


Figure 34: HIV prevalence trends among antenatal women by district, Western Cape, 2007 to 2009.

Prevalence in the West Coast has remained at or below 10% for the past three years. The Central Karoo district has shown a decrease by 3.0% from 14.8% in 2008 to 11.8% in 2009. However, in the Eden and Overberg districts there has been a slight increase of 5.2% and 4.9% respectively from 2008 to 2009 (Table 14 and Figure 34).

The distribution of HIV prevalence by district in the Western Cape Province is shown in Figure 35 below. The Western and Northern Cape are the only provinces which have districts with HIV prevalence estimate below 10%.

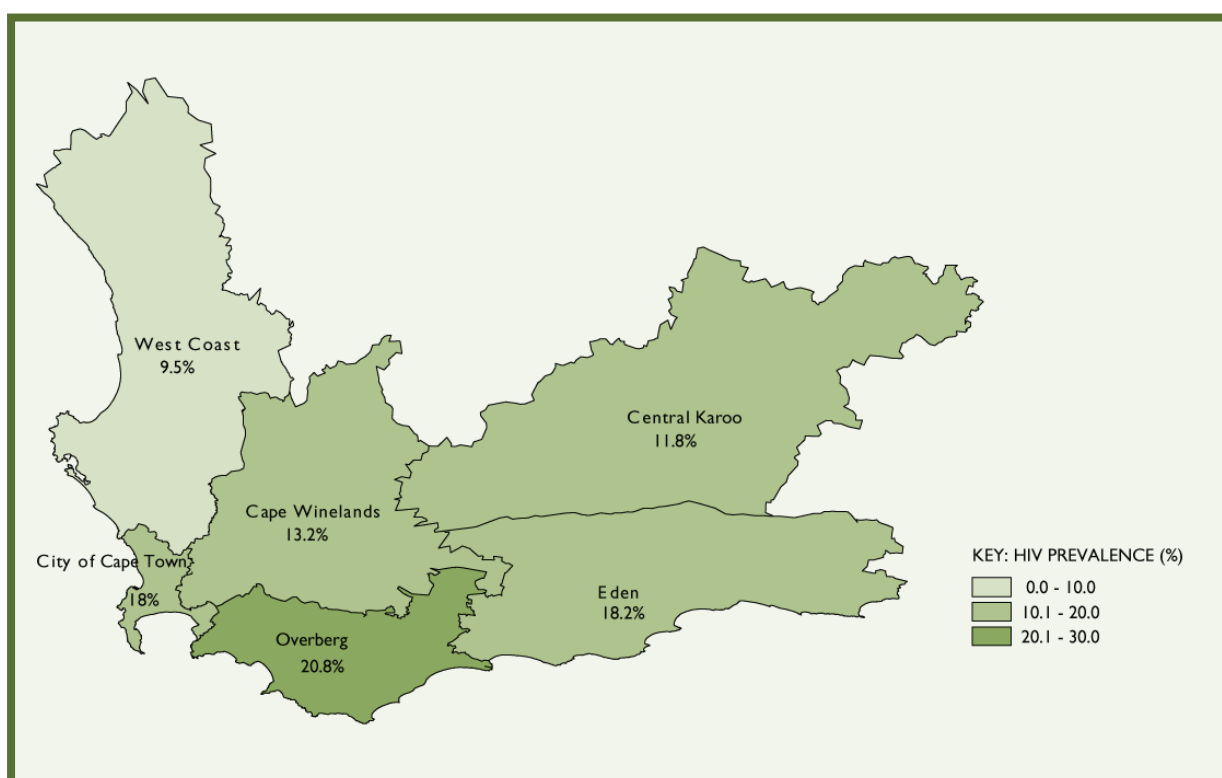


Figure 35: HIV prevalence distribution among antenatal women by district, Western Cape, 2009.

3.6 EXTRAPOLATION OF HIV INFECTION TO THE GENERAL POPULATION

Using different mathematical models it is estimated that there were between 5.2 and 5.63 million people living with HIV in 2009. Other parameter estimates are presented in table 15a.

Table 15a: Selected HIV estimates for South Africa, calendar years 2008 and 2009

Indicator	UNAIDS 2008	UNAIDS ¹ 2009	ASSA ² 2008	ASSA 2009	HSRC 2008
Total HIV population (Adults and children)	5 570 000	5 630 000	5 250 000	5 380 000	5 200 000
HIV+ Adults (15+)	5 240 000	5 300 000	4 850 000	4 950 000	4 700 000
Adult (15-49) prevalence (%)	17.9	17.8	16,9	16,9	16.9%
Adult HIV+ female population (15+)	3 230 000	3 270 000	2 830 000	2 930 000	3 200 000
HIV population (children <15)	325 000	334 000	403 000	429 000	340 000
Total annual AIDS deaths	330 000	314 000	235 000	200 000	
AIDS orphans	1 850 000	1 950 900	1 100 000 (maternal <18)	1 200 000 (maternal <18)	
Adult AIDS deaths (15+)	297 000	284 000	208 0000	179 000	
Adult New HIV infections (15+)	352 000	344 000	325 000	302 000	360 000
New infections (children 0-14)	49 800	42 700	55 000	50 000	
Need for ART among adults (15+)*	1 475 000	1 584 000	874 000	1 040 000	
Need for ART (children)	156 800	158 600	71 000	92 000	
HIV Infected mothers needing PMTCT	218 700	213 800			

* Based on the 2006 WHO eligibility criteria of CD4<200

Based on modelled estimates from Spectrum, Table 15a shows that for 2009, the total number of people living with HIV is estimated at 5,62 million. Fewer new infections among adults (344 000) and children (42 700) were estimated for 2009 compared to 2008 estimates. Approximately 214 000 mothers were in need PMTCT services. Table 15b shows the provincial HIV prevalence estimates in the general population Provincial distribution of the estimated number of new infections for adults aged 15-49 and children younger than 15 years are showed in Table 15c. The incidence for the South African population as a whole for 2009 was estimated at 1.5% of the uninfected per year. The Spectrum model showed considerable variation in the estimates of adult (15-49) incidence by province. The lowest incidence estimates were obtained for the Northern Cape (0,7%) and Western Cape (0,5%) and highest

¹ These estimates are based on data provided by the National Department of Health up to 2009. Spectrum version 3.48 was used to derive these estimates.

² As the final version of the ASSA2008 model has yet to be released these estimates are derived from the latest beta versions of the model and thus may differ slightly from the final estimates.

for Mpumalanga (1,9%) and KwaZulu-Natal (2,3%). Most of the childhood new infections were estimated to take place in KwaZulu-Natal followed by Gauteng. The incidence rates estimated from the ASSA model are slightly lower and occur in a narrower range.

Table 15b: Provincial HIV prevalence of adults 15-49, 2008 and 2009

	UNAIDS³	UNAIDS	ASSA⁴	ASSA	HSRC
	2008	2009	2008	2009	2008
SA	17.9%	17.8%	16,9%	16,9%	16.9%
EC	18.6%	18.5%	16,6%	16,7%	15.2%
FS	19.5%	19.5%	18,8%	18,7%	18.5%
GA	16.7%	16.6%	17,0%	17,0%	15.2%
KZN	25.1%	25.0%	23,2%	23,2%	25.8%
LP	13.8%	13.8%	10,0%	11,0%	13.7%
MP	21.8%	21.8%	19,5%	19,5%	23.1%
NW	19.2%	19.2%	19,5%	19,3%	17.7%
NC	9.3%	9.3%	9,0%	9,1%	9.0%
WC	6.2%	6.2%	7,9%	8,1%	5.3%

Table 15c: Provincial estimates of new infections, 2009; UNAIDS (EPP & SPECTRUM) and ASSA models

	Estimated number of new infections (adults 15-49)		Estimated incidence (adults 15-49) % per annum		Estimated number of new infections (children 0-14)	
	UNAIDS	ASSA⁵	UNAIDS	ASSA	UNAIDS	ASSA
South Africa	335 700	302 000	1.5	1.3	48 481	50 000
Kwazulu-Natal	98 600	78 000	2.3	1.7	14 235	15 000
Mpumalanga	28 200	27 000	1.9	1.6	4 069	5 000
Free State	22 600	19 000	1.7	1.4	3 263	3 000
Gauteng	67 100	68 000	1.4	0.9	9 692	9 000
Northwest	28 500	22 000	1.6	1.5	4 111	4 000
Eastern Cape	46 400	47 000	1.6	1.6	6 704	7 000
Limpopo	29 000	28 000	1.1	1.0	4 181	4 000
Northern Cape	3 100	3 500	0.7	0.7	449	500
Western Cape	12 300	14 000	0.5	0.5	1 778	2 000

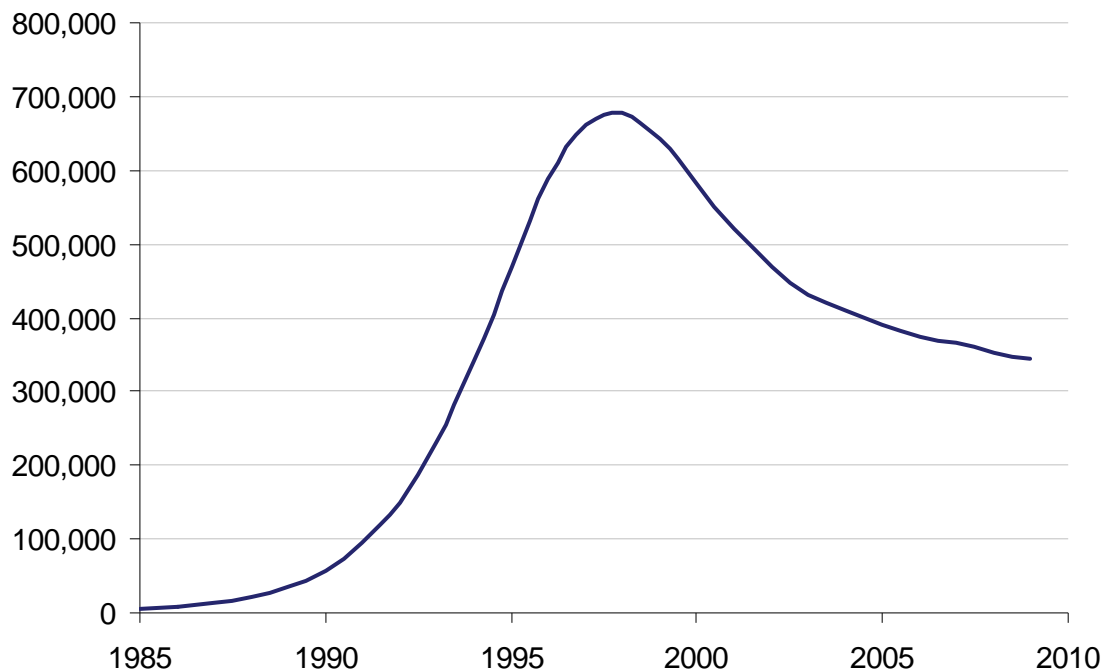
Note: As the final version of the ASSA2008 model has yet to be released these estimates are derived from the latest beta versions of the model and thus may differ slightly from the final estimates.

³ These estimates are based on data provided by the National Department of Health up to 2009. Spectrum version 3.48 was used to derive these estimates.

⁴ As the final version of the ASSA2008 model has yet to be released these estimates are derived from the latest beta versions of the model and thus may differ slightly from the final estimates.

⁵ As the final version of the ASSA2008 model has yet to be released these estimates are derived from the latest beta versions of the model and thus may differ slightly from the final estimates.

The HSRC estimate for 2008 HIV incidence among adults 15-49 is 1.3% (1.3 / 100 person years at risk (pyar))



Estimated number of new HIV infections among adults aged 15+ between 1985 and 2009 using the UNAIDS model

4. SYPHILIS PREVALENCE



The 2009 survey found that 1.9% CI 95% (1.7% – 2.1%) of pregnant women presenting at public antenatal care clinics were infected with syphilis. This is unchanged from 2008. The trend of syphilis prevalence among attendees of antenatal clinics from 1997 to 2009 is shown in Figure 36 below. Since 2003 the national estimate has fluctuated between a prevalence of 1.6% and 2.8%.

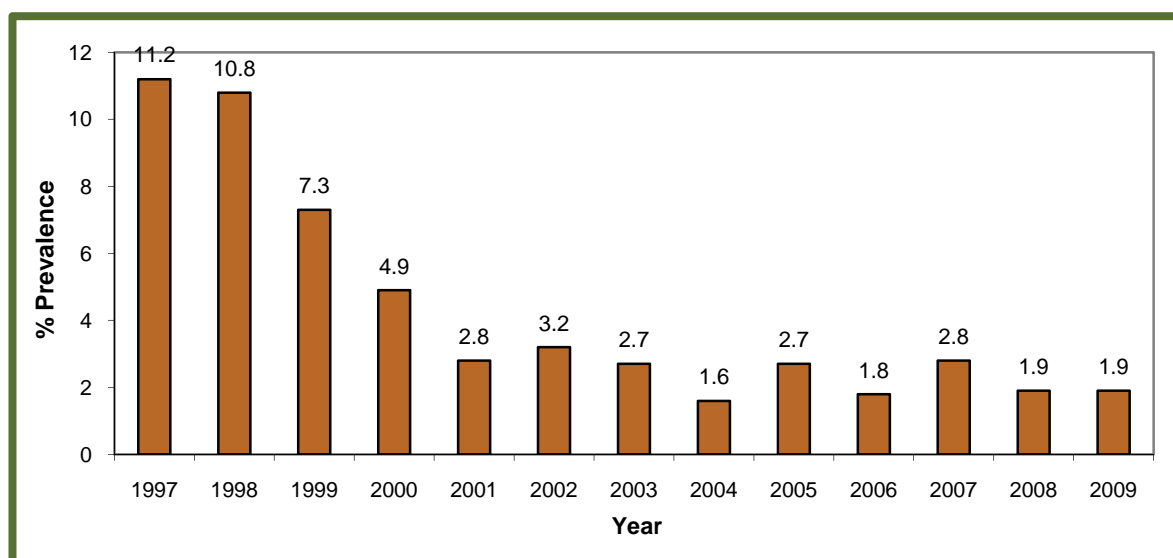


Figure 36: National syphilis prevalence trends among antenatal women, South Africa, 1997 to 2009.

4.1 SYPHILIS PREVALENCE BY PROVINCE

The estimated highest prevalence of syphilis (5.6%) in 2009 was recorded in the Northern Cape. Mpumalanga syphilis prevalence tripled from 0.7% in 2008 to 2.4% in 2009. The lowest syphilis prevalence was 0.3% recorded in Limpopo (Table 16).

Table 16: Syphilis prevalence by province among antenatal women, South Africa, 2007 to 2009.

Province	RPR prev. 95% CI 2007	RPR prev. 95% CI 2008	RPR prev. 95% CI 2009
National	2.8 (2.6 – 3.0)	1.9 (1.7 – 2.0)	1.9 (1.7 – 2.1)
Eastern Cape	3.0 (2.5 – 3.6)	1.9 (1.5 – 2.4)	2.2 (1.7 – 2.7)
Free State	2.5 (1.9 – 3.0)	2.3 (1.7 – 3.1)	2.1 (1.5 – 2.8)
Gauteng	3.8 (3.3 – 4.3)	2.7 (2.3 – 3.1)	2.9 (2.5 – 3.4)
KwaZulu-Natal	0.8 (0.6 – 1.1))	0.6 (0.4 – 0.8)	0.8 (0.5 – 1.1)
Limpopo	1.4 (1.1 – 1.9)	0.4 (0.3 – 0.7)	0.3 (0.2 – 0.5)
Mpumalanga	1.8 (1.3 – 2.4)	0.7 (0.4 – 1.2)	2.4 (1.9 – 3.2)
North West	2.7 (2.1 – 3.5)	1.5 (1.1 – 2.2)	1.7 (1.1 – 2.7)
Northern Cape	5.4 (4.2 – 6.9)	6.8 (5.2 – 8.7)	5.6 (4.0 – 7.8)
Western Cape	5.6 (4.9 – 6.3)	3.8 (3.1 – 4.6)	2.0 (1.5 – 2.6)

KwaZulu-Natal, which has the highest HIV prevalence in the country, has the second lowest syphilis prevalence (Figure 37). There was a slight decrease in syphilis prevalence in the Western Cape and Northern Cape from 3.8% in 2008 to 2.0% in 2009 and from 6.8% in 2008 to 5.6% in 2009 respectively.

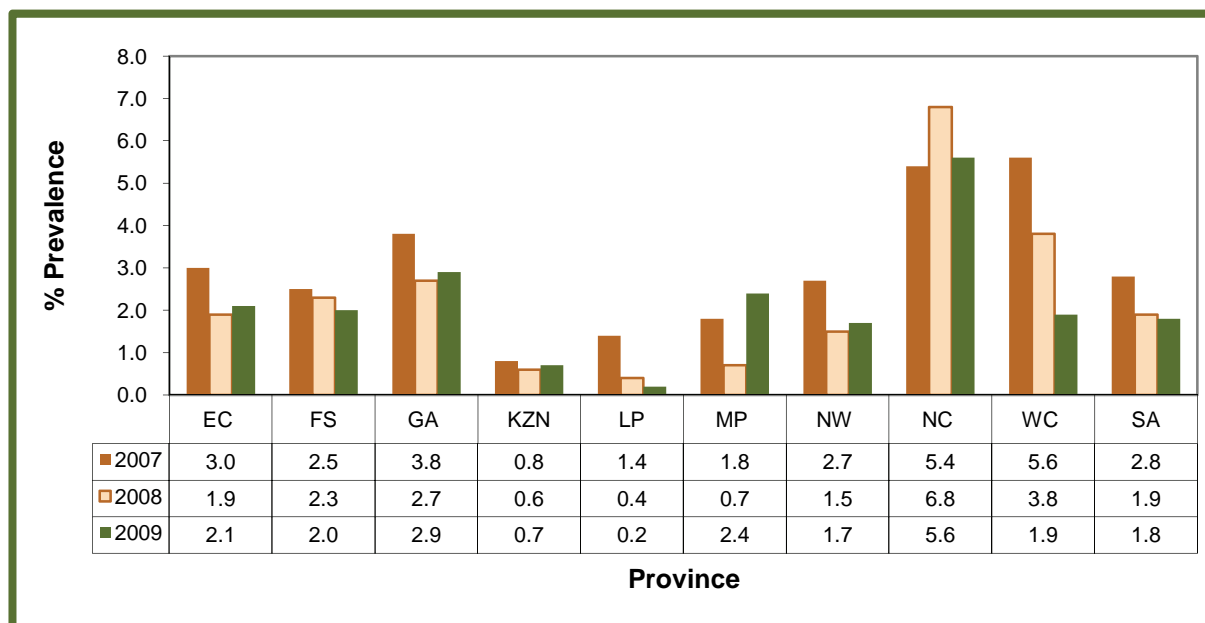


Figure 37: Syphilis prevalence trends among antenatal women by province, South Africa 2007 to 2009.

4.2 SYPHILIS PREVALENCE BY AGE

Unlike HIV, the prevalence of syphilis appears to be largely independent of age with the exception of lower prevalence in the youngest age group. In 2009, the syphilis prevalence remained stable in the 15-49, 35-39 and >40 years and slightly decreased among the 20-24 and 25 to 29 years old age group, there is only a 0.5% increase in syphilis prevalence among the 30-34 years age group.

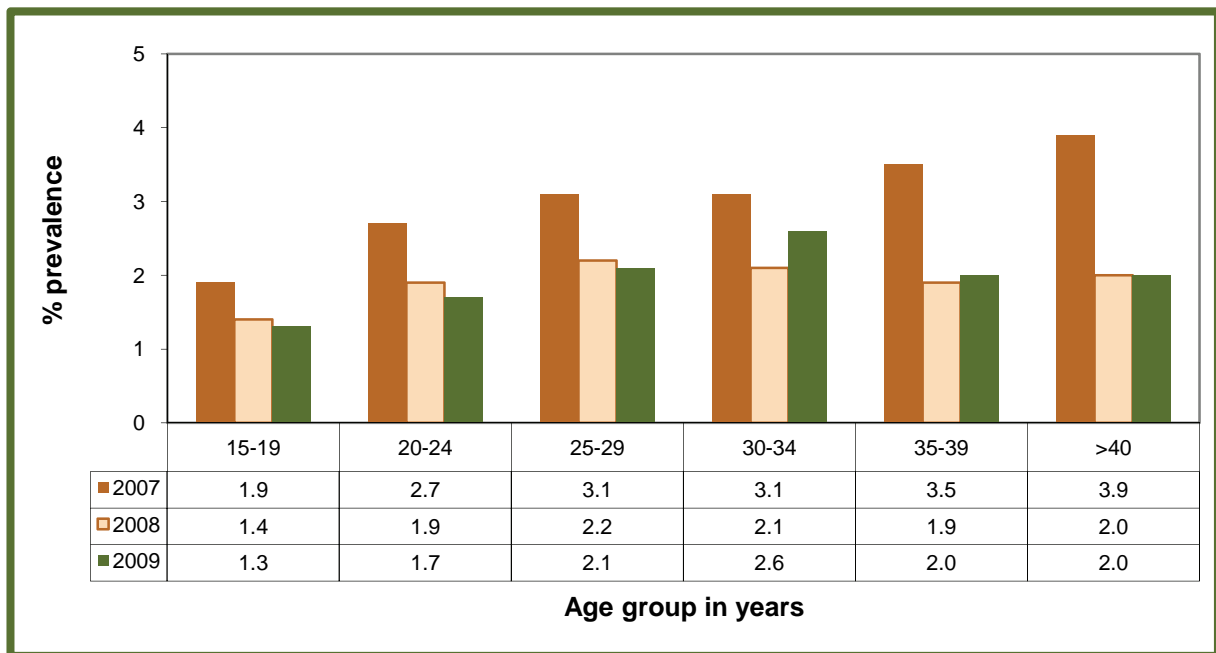


Figure 38: Syphilis prevalence trends among antenatal women by age group, South Africa, 2007 to 2009.

5. GENERAL DISCUSSION



This 20th HIV antenatal sero-prevalence survey in South Africa has provided further evidence that the national HIV prevalence in South Africa has stabilized with prevalence at around 29% since 2006.

The majority of samples came from the 20-24 year age group, 31.1% in total, while the number of women tested in the 45-49 year age group was very small, 82 in total. The results of this survey show that the HIV prevalence among women in the age group 15 -19 years has decreased from 14.1% in 2008 to 13.7% in 2009 (Table 5). The HIV prevalence estimate in the 15 - 24 year age group, the target age group for the MDG 6, stood at 21.7% in 2008 and 2009, only a small decline of 0.4% since 2007.

HIV prevalence in the age groups 15-19, 20-24 and 25-39 decreased only marginally, whereas the older age groups showed more substantial increases. The HIV prevalence in the 35-39 year age group increased by 6.1% over the last four years, from 29.3% in 2006 to 32.4% in 2008 and to 35.4% in 2009.

The highest HIV prevalence was recorded in KwaZulu-Natal, with an increase from 38.7% (CI: 37.2% – 40.1%) in 2008 to 39.5% in 2009 (39.5 95%CI: 38.1 – 41.0). Provinces with 'higher' HIV prevalence estimates compared to 2008 are: Eastern Cape from 27.6 % in 2008 to 28.1% in 2009, Limpopo from 20.7% in 2008 to 21.4% in 2009, Northern Cape from 16.2% in 2008 to 17.2% in 2009, KwaZulu-Natal from 38.7% in 2008 to 39.5% in 2009, and Western Cape from 16.1% in 2008 to 16.9% in 2009. These small increases fall within the expected sampling variability. The provinces with 'lower' HIV prevalence estimate are: North West from 31.0% in 2008 to 30.0% in 2009, Mpumalanga from 35.5% in 2008 to 34.7% in 2009 and Free State from 32.9% in 2008 to 30.2% in 2009. Provincial estimates were also within the expected sampling variability.

Some health districts recorded HIV prevalences above 40%. In 2009 all five of these districts were located in KwaZulu-Natal, with the highest estimate recorded in UThukela i.e. 46.4%. The district-level HIV epidemic is clearly heterogeneous, with prevalences ranging from a high of 46.4% in UThukela to a low of 0.0% (0/68) in Namaqua. Even when data are pooled over three years to reduce the statistical fluctuation in the estimates in individual districts this heterogeneity persists. It is the second time that we are noting evidence of significant differences in HIV prevalence between the 52 health districts. The findings show that there are different HIV determinants or risk factors that drive the epidemic in the different parts of the

country. This is clearly shown in Figures 8a to 8d which indicate the different levels of prevalence and where the epidemic is localized.

What is a disturbing concern is the number of districts recording HIV prevalence above 40% in KwaZulu-Natal. In the past four years, the findings have indicated that these districts have repeatedly recorded HIV prevalences above 30%. It would be useful to conduct separate analytical epidemiological studies that focus on the high risk and low risk areas to determine what the main drivers of HIV infection rate are, between the 'high' and 'low' prevalence areas in the country.

The distribution of HIV prevalence by province ranged from 16.9% in the Western Cape to 39.5% in KwaZulu-Natal. The results show that the highest HIV prevalences were located on the North-Eastern side, and the lowest numbers in the Western parts of South Africa. KwaZulu-Natal still has the highest HIV infection rate, followed closely by Mpumalanga and Free State, with prevalences greater or equal to 30%.

This survey found that 1.9% of pregnant women presenting at public antenatal care clinics were infected with syphilis.

This report provides a wealth of HIV prevalence and incidence data and has presented the HIV distribution pattern at national, provincial and district level. It is hoped that government departments, non-governmental organisations, the private sector, community based organisations and international development partners will use this information as part a collective response to stop new infections and provide care and support to those living with the HI virus and to ensure access to treatment for all South Africans in need, under the theme "I am responsible, we are responsible, South Africa is taking responsibility".

6. CONCLUSIONS & RECOMMENDATIONS



The results from the 2009 report on the national antenatal HIV and syphilis prevalence and HIV incidence survey, can be used to observe trends, to reinforce or increase the commitment for policy development and to provide feedback to health workers, local and international groups and all sectors involved in AIDS prevention and care programs. The antenatal sentinel surveillance programme remains a good indicator of HIV prevalence and incidence estimations in the total population and one of the most robust HIV surveillance methods to monitor **annual** HIV epidemic trends in African countries with generalized epidemics.

For the first time, we are reporting on HIV incidence estimates at national and provincial level. However, these estimates are derived from models as they cannot be directly observed from the survey. We are also able to observe the transmission potential of the syphilis trends at district level, where previously it was limited to national and provincial levels.

Conclusions that can be drawn from the 2009 findings are as follows:

South Africa has an established generalized HIV epidemic with an estimated 17.8% prevalence in the general population and an estimated prevalence of 29.4% in the 15 to 49 year olds in the general South African population.

The HIV prevalence is increasing among women aged 30 years and above, although the 15-24 year olds, Millennium Development Goal 6, Target 7, indicator 18, states that countries should aim to halve the HIV prevalence among pregnant women in the 15-24 year age group. The HIV prevalence in this age group remained static at 21.7% in 2008 and 2009, after a decrease of 0.4% in 2007. It is crucial that the department conduct pilot analytical (in-depth), epidemiological surveys in high prevalence (>40%) and low prevalence districts (below 10%), in order to investigate potential risk factors that drive the epidemic.

Further research and triangulation of other HIV surveillance data within the public health sector is needed to further understand the potential risk factors for high risk groups in this country and to improve the department-focused targeted interventions in its attempt to mitigate the burden of the disease. Triangulation can also be applied at the regional or district level for the following purposes:

- Allocating resources
- Tracking trends in HIV prevalence

- Planning, monitoring and evaluating prevention, treatment, care and support programmes
- Guiding operational research

The delays in finalization of geotype definition of “rural and urban” has prevented us from reporting on HIV prevalence distribution by geotype (rural vs. semi-rural vs. urban), because in generalized heterosexual epidemics the standard practice is to categorise populations by geographic subdivisions. The 2009 survey did not collect information to ascertain whether the pregnant women ever participated in the PMTCT. It is crucial to know the age distribution of patients initiating ART so that this information can be correlated to the HIV age distribution at district level and also be used to determine the numbers in specific age groups who are receiving ART.

LIST OF REFERENCES



1. Anderson and May, 1999. *Infectious diseases of Humans Dynamics and Control*. Oxford University Press. New York.
2. Asamoah-Odei E., Garcia-Calleja J.M. and Boerma T. (2004). HIV prevalence and trends in sub-Saharan: no decline and large sub regional differences. *Lancet*, 364:35-40.
3. Boerma J.T., Ghys P.D. and Walker N. (2003). HIV estimates from national population – based surveys: A new standard for Surveillance Systems. *Lancet*, 362: 1929 – 31.
4. Boisier P., Ouwe Missi Oukem-Boyer and Amadou H. (2004). Nationwide HIV prevalence survey in general population in Niger. *Tropical Medicine International Health*, 11:1161-1166.
5. Central Statistical Agency & ORC Macro (2006). *Ethiopia Demographic and Health Survey 2005*. Addis Ababa & Calverton.
6. Central Statistical Office Swaziland, Macro International Inc. (2007). *Swaziland Demographic and Health Survey 2006–2007: preliminary report*. June. Calverton.
7. Central Statistical Office Zambia *et al.* (2003). *Zambia Demographic and Health Survey 2001–2002*. Calverton.
8. Chin J, Mann J, *Global Surveillance and Forecasting of AIDS* (1989). *Bull World Health Organ*, 67: 1-7.
9. Department of Health South Africa (2007). *National HIV and Syphilis Antenatal Prevalence Survey, South Africa, 2006*. Pretoria.
10. Department of Health, 2007. *HIV & AIDS and STI Strategic Plan for South Africa 2007-2011*. Pretoria.
11. Department of Health South Africa (2006). *National HIV and Syphilis Antenatal Prevalence Survey, South Africa, 2005*. Pretoria.
12. Department of Health, 2005. *Report: National HIV and Syphilis Antenatal Prevalence Survey, South Africa, 2004*. Pretoria.
13. Department of Health. *Comprehensive HIV and AIDS Care, Management and Treatment Plan*. South Africa, 2003. Pretoria.
14. UNAIDS (2007). *Comparing adult antenatal-clinic based HIV prevalence with prevalence from national population based surveys in sub-Saharan Africa*. UNAIDS presentation.
15. UNAIDS (2005). *AIDS Epidemic Update 2005: Special Report on HIV/AIDS: December 2006*.
16. UNAIDS (2001). *Declaration of Commitment on HIV/AIDS: UN General Assembly Special Session on HIV/AIDS, 25-27 June 2001*.
17. UNAIDS Reference Group on Estimates, Modelling, and Projections (2006). *Improving parameter estimation, projection methods, uncertainty estimation, and epidemic classification. Report of a meeting of the UNAIDS Reference Group on Estimates,*
18. *Modelling, and Projections, Prague, Czech Republic, 29 Nov—1 Dec.*
http://data.unaids.org/pub/Report/2007/2006prague_report_en.pdf.

19. UNAIDS Reference Group on Estimates, Modelling and Projections (2002). Improved methods and assumptions for the estimation of the HIV/AIDS epidemic and its impact: recommendations of the UNAIDS Reference Group on Estimates, Modelling and Projections. *AIDS*, 16: W1–W16.
20. WHO, UNAIDS, UNICEF (2007). Towards universal access: scaling up priority HIV/AIDS interventions in the health sector: progress report. April. Geneva. ISBN 978 92 4 159539 1.
21. UNAIDS & WHO (2007). AIDS epidemic update: December 2007. UNAIDS, Geneva 2007. UNAIDS/07.27E/JC1322E. ISBN 978 92 9 173621 8.
22. UNAIDS & WHO (2006). Guidelines for measuring national HIV prevalence in population – based surveys. UNAIDS, Geneva. ISBN 92 4 159370 9.
23. UNAIDS & WHO (2006). AIDS epidemic update: December 2006. UNAIDS, Geneva 2006. UNAIDS/06.29E. ISBN 92 9 173542 6.
24. UNAIDS & WHO (2005). AIDS Epidemic Update 2005.
25. UNAIDS & WHO (2003). Working group on HIV/AIDS & STI surveillance. Guidelines for 2nd Generation HIV surveillance.
26. UNAIDS & WHO (2000). Working group on HIV/AIDS & STI surveillance. Guidelines for 2nd Generation HIV surveillance.
27. UNAIDS & WHO Global Programme on AIDS (1989). Unlinked anonymous screening for the public health surveillance of HIV infections. International Guidelines.
28. WHO (2003). World health report: 2003: shaping the future. Geneva. ISBN 92 4 156243 9.
29. Shisana O, Rehle T, Simbayi L, Zuma K, Jooste S, et al. (2009) South African National Prevalence, Incidence, Behaviour and Communication Survey, 2008. A Turning Tide Among Teenagers? Cape Town, South Africa: HSRC Press
30. Hallett TB, Zaba B, Todd J, Lopman B, Mwita W, et al. (2008) Estimating incidence from prevalence in generalised HIV epidemics: methods and validation. *PLoS Med* 5: e80.
31. Rehle T, Shisana O, Pillay V, Zuma K, Puren A, et al. (2007) National HIV incidence measures-- new insights into the South African epidemic. *S. Afr. Med J* 97: 194-199.

ANNEXURE 1



Sampled population distribution by district from 2007 to 2009.

District	2007		2008		2009	
	N ₁	%	N ₁	%	N ₁	%
A. Nzo DM	189	0.6	201	0.6	186	0.6
Amajuba DM	404	1.2	420	1.2	410	1.2
Amathole DM	1 058	3.1	1 128	3.3	1 116	3.4
Bojanala Platinum DM	906	2.7	811	2.4	892	2.7
C. Hani DM	572	1.7	529	1.6	491	1.5
Cacadu DM	269	0.8	281	0.8	255	0.8
Cape Town MM	2 590	7.7	2 538	7.5	2 481	7.5
Cape Winelands DM	514	1.5	550	1.6	499	1.5
Capricorn DM	919	2.7	902	2.7	887	2.7
Central Karoo DM	55	0.2	54	0.2	51	0.2
Dr. K. Kaunda DM	545	1.6	426	1.3	462	1.4
Eden DM	321	1.0	342	1.0	319	1.0
Ehlanzeni DM	1 061	3.1	1 027	3.0	921	2.8
Ekurhuleni MM	1 795	5.3	2 007	5.9	1 896	5.8
eThekweni MM	2 218	6.6	2 158	6.4	2 140	6.5
Fezile Dabi DM	355	1.1	336	1.0	416	1.3
Frances Baard DM	442	1.3	389	1.1	385	1.2
G. Sibande DM	564	1.7	560	1.7	560	1.7
Gr. Sekhukhune DM	772	2.3	793	2.3	493	1.5
iLembe DM	418	1.2	424	1.2	421	1.3
J. T. Gaetsewe DM	180	0.5	171	0.5	157	0.5
Johannesburg MM	2 627	7.8	2 426	7.2	2 489	7.6
Lejweleputswa DM	578	1.7	571	1.7	611	1.9
Metsweding DM	70	0.2	131	0.4	120	0.4
Mopani DM	655	1.9	724	2.1	698	2.1
Motheo DM	565	1.7	486	1.4	601	1.8
N. Mandela MM	770	2.3	795	2.3	785	2.4
Namaqua DM	82	0.2	89	0.3	68	0.2
Ngaka Modiri Molema DM	545	1.6	539	1.6	527	1.6
Nkangala DM	707	2.1	637	1.9	568	1.7
O. R. Tambo DM	1 036	3.1	1 067	3.1	1 192	3.6

Overberg DM	144	0.4	157	0.5	130	0.4
Pixley ka Seme DM	232	0.7	257	0.8	206	0.6
Ruth Segomotsi Mompati	357	1.1	337	1.0	346	1.1
Sedibeng DM	530	1.6	740	2.2	667	2.0
Sisonke DM	328	1.0	343	1.0	324	1.0
Siyanda DM	255	0.8	207	0.6	186	0.6
T. Mofutsanyane DM	550	1.6	519	1.5	603	1.8
Tshwane MM	1 498	4.4	1 640	4.8	1 466	4.5
Ugu DM	512	1.5	508	1.5	435	1.3
Ukhahlamba DM	224	0.7	219	0.6	200	0.6
uMgungundlovu DM	696	2.1	688	2.0	651	2.0
Umkhanyakude DM	407	1.2	416	1.2	396	1.2
Umzinyathi DM	338	1.0	341	1.0	340	1.0
Uthukela DM	452	1.3	452	1.3	444	1.4
Uthungulu DM	567	1.7	641	1.9	597	1.8
Vhembe DM	922	2.7	963	2.8	903	2.7
Waterberg DM	480	1.4	524	1.5	431	1.3
West Coast DM	206	0.6	207	0.6	199	0.6
West Rand DM	503	1.5	556	1.6	549	1.6
Xhariep DM	121	0.4	105	0.3	105	0.3
Zululand DM	580	1.7	595	1.8	586	1.8
Total	33 684	100.0	33 927	100.0	32 861	100.0

National Antenatal Sentinel HIV & Syphilis Prevalence Survey 2009
Data Collection Form



DISTRICT: _____ FACILITY (DHIS): _____

CLINIC COORDINATOR: _____ CONTACT TELEPHONE: _____

DATE SPECIMEN TAKEN: _____ (DD/MM/2009) DATE SPECIMEN REACHED LABORATORY: _____ (DD/MM/2009)

Bar code label	Age	Population Group AF=African AS=Asian CO=Coloured WH=White	Level of Education 0=None 1=Primary 2=Secondary 3=Tertiary	Marital Status 1=Single 2=Married 3=Widow 4=Divorce	Gravida (no of pregnancies including this one)	Parity (no of live born children)	Have you participate in this survey before Yes/No	Age of partner	Are you aware of your HIV status Yes/No	Lab. number	* For lab use	
											HIV result 0=Neg 1=Pos	RPR result 0=Neg 1=Pos

* Last Column reserved for data entry at laboratory only: HIV and RPR RESULT: _____ Non-participation P.T.O. →



health

Department:
Health
REPUBLIC OF SOUTH AFRICA

NATIONAL ANTENATAL SENTINEL HIV & SYPHILIS PREVALENCE SURVEY 2009

CHECKLIST FOR THE MONITORING OF SENTINEL SITES DURING THE NATIONAL HIV AND SYPHILIS SURVEY

Facility Name: _____
Name of survey coordinator: _____
District: _____
Province: _____
Date survey started: _____

1. Did you or a representative of your clinic /sentinel site attend the survey preparation workshop?

If not, what was the reason for not attending?

2. Were you provided with a copy of the Standard Operation Procedures or a manual explaining the procedures for the survey? _____
Is everything clear for you to feel comfortable with running the survey?

3. Did you receive all necessary equipment (vacutainers, data capture forms, etc) in time? _____
4. How many 1st ANC clients/patients do you normally see in a month? _____
5. On which day/s of the week do you see 1st time antenatal care patients/clients? _____
6. Actual number of specimens collected to date by the facility? _____ Target _____
7. Are the blood samples stored in a fridge? _____ Fridge temperature _____

8. How many refusals have you had since the beginning of the survey? _____

9. How do you inform and request clients to participate in the survey?

10. Do you know which laboratory you are supposed to send the specimen to? _____

Name _____

11. Are transport arrangements for the specimens to the laboratory adequate? _____

12. How often are the specimens collected? _____

13 Does this facility have VCT/PMTCT programmes?

14. Any other problems encountered?

15. Any recommendations for the survey?

Interviewer: _____ Today's date _____