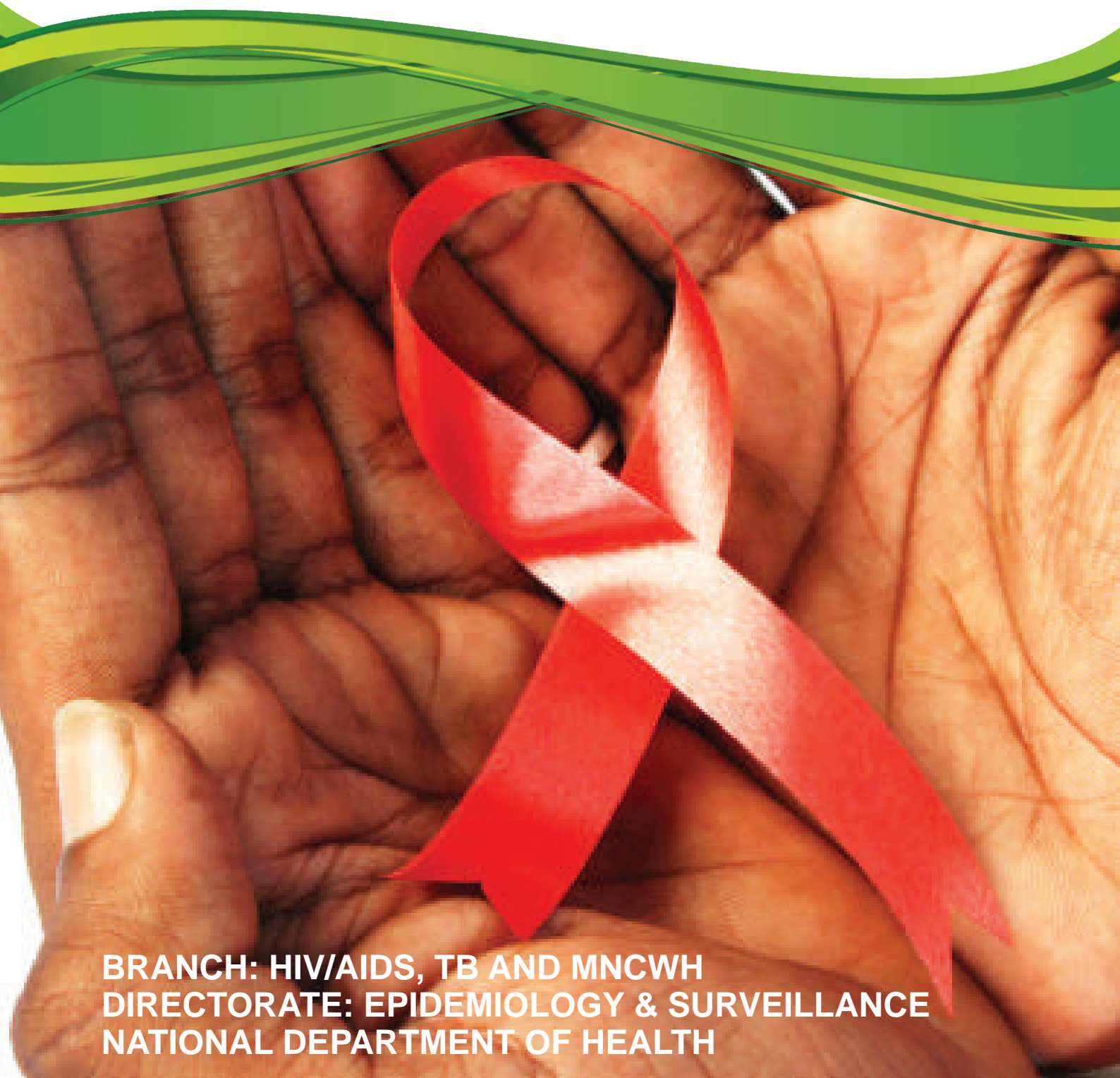


The 2013 National Antenatal Sentinel HIV Prevalence Survey South Africa



**BRANCH: HIV/AIDS, TB AND MNCWH
DIRECTORATE: EPIDEMIOLOGY & SURVEILLANCE
NATIONAL DEPARTMENT OF HEALTH**



health

Department:
Health
REPUBLIC OF SOUTH AFRICA

The 2013 National Antenatal Sentinel HIV Prevalence Survey South Africa

Published by the National Department of Health, Civitas Building, Corner Struben and Thabo Sehume Street, Pretoria © 2015. National Department of Health. ISBN: 978-920031-89-3.

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Suggested citation: The National Antenatal Sentinel HIV prevalence Survey, South Africa, 2013, National Department of Health.

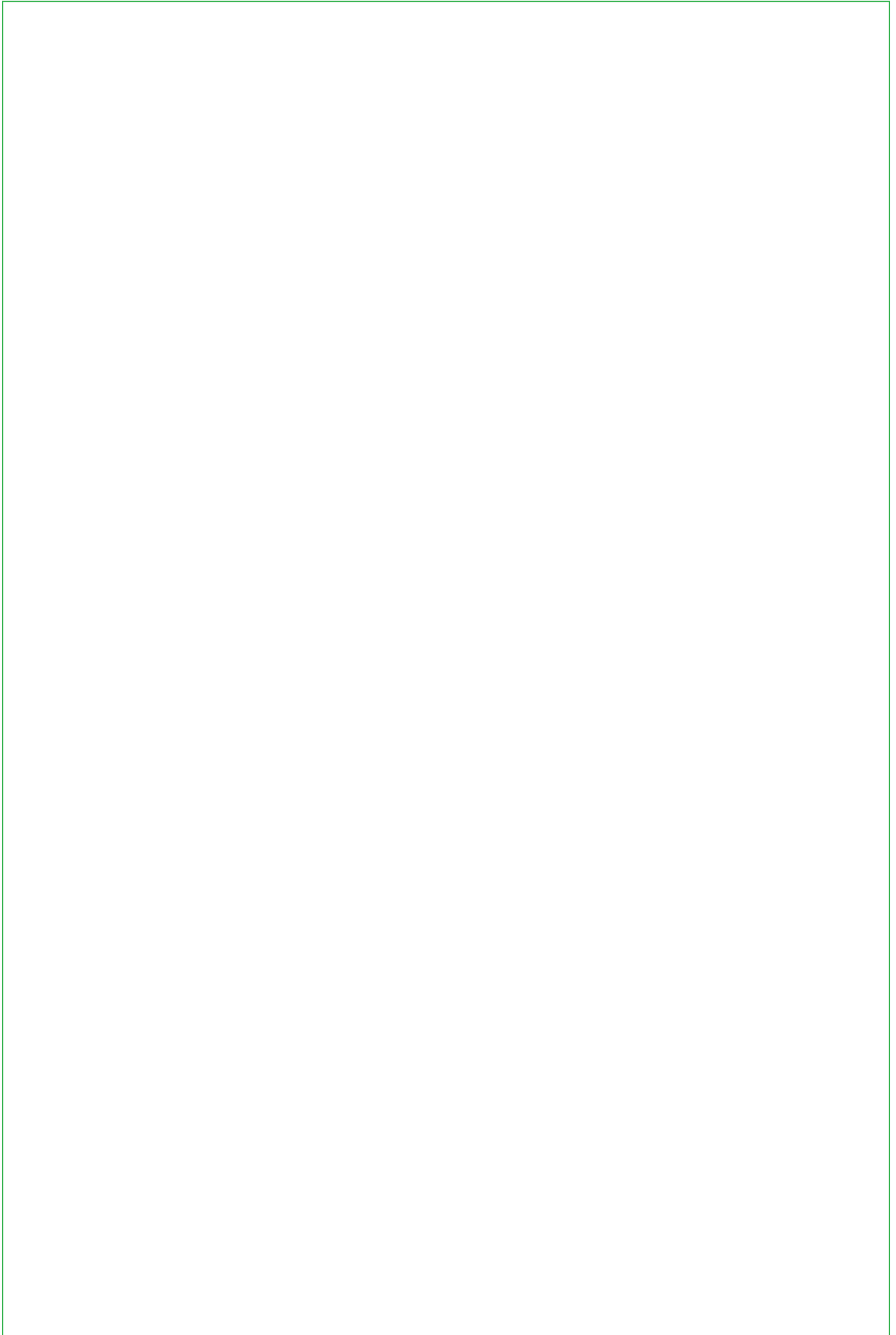
Search citation: South Africa Antenatal Sentinel HIV prevalence, 2008, 2009, 2010, 2011, 2012, 2013; HIV prevalence national, provincial and district trends in South Africa; Antenatal Sentinel HIV Survey; 2008, 2009, 2010, 2011, 2012, 2013; HIV at National, Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, North West, Northern Cape, Western Cape, HIV prevalence trends, and District Level South Africa.

Prepared and obtainable free of charge from:

BRANCH: HIV/AIDS, TB AND MNCWH

DIRECTORATE: Epidemiology and Surveillance
Library and Office 2218, South Tower, Civitas Building
National Department of Health
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www.nmc.gov.za
www.doh.gov.za

ISBN: 978-1-920031-89-3



EXECUTIVE SUMMARY

Globally, an estimated 35.3 million people were living with Human Immunodeficiency Virus (HIV) in 2012. An increase from previous years as more people are receiving the life-saving antiretroviral therapy. There were 2.3 million new HIV infections globally in 2012, showing a 33% decline in the number of new infections from 3.4 million in 2001. At the same time, the number of AIDS related deaths are also declining, with 1.6 million AIDS deaths in 2012, down from 2.3 million in 2005 (UNAIDS, 2013).

Sub-Saharan Africa remains the epicenter of the epidemic and accounted for nearly 70% of the world's burden of HIV and AIDS. South Africa is the worst affected country with an estimated 6.3 million people living with HIV, which is the largest number of people living with HIV and AIDS in the world. Since 1990, this generalised HIV epidemic trend is monitored annually through the national antenatal sentinel surveillance tool. Since 2006, the HIV prevalence trends are published and reported at national, provincial and in the 52 districts, and disaggregated by age.

The goal of the national antenatal sentinel HIV prevalence survey is to produce robust scientific evidence at national, provincial and district level in order to:

- Determine 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 general adult sexually active part of the population
- Provide baseline empirical data for national, provincial and district level estimates and extrapolation of HIV infections for future projections of the epidemic

THE OBJECTIVES ARE:

- To estimate the national prevalence of HIV infection among pregnant women in South Africa
- To determine the geographical distribution pattern of HIV infection among pregnant women attending antenatal clinics at national and provincial level, by district and by age categories
- To monitor trends over time for both HIV prevalence at national, provincial and district level in South Africa
- To provide scientific evidence to monitor the country's progress towards meeting the Millennium Development Goal 6, Target 7, Indicator 18 - HIV prevalence amongst 15–24 year old pregnant women

In 2013, a total of 33 077 first time antenatal care attendees participated in the survey. The sample was sufficiently representative to make conclusive inferences on HIV occurrence at national and provincial level and in all 52 health districts. Intravenous blood samples were collected from the surveyed pregnant women in 1 497 public sector antenatal clinics during October 2013. These biological specimens were collected and sent to central laboratories in the various provinces for HIV analysis. The blood test used was the Enzyme Linked Immuno Sorbent Assay (ELISA) for HIV antigen testing. Given that the sentinel sites were chosen on

a probability proportional to size by districts, the sampling period was fixed and the districts' samples were self-weighting, the provincial prevalence estimates were 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 2013 mid-year population size estimates. The sample population realisation rate in 2013 was 91.9% and exceeded the 70% compliance rate as outlined in the survey protocol.

THE 2013 NATIONAL HIV PREVALENCE

The national HIV prevalence for 2013 was 29.7% (95% CI: 28.9-30.2), a slight increase of 0.2% from the 29.5% in 2011 and 2012 which was not statistically significant. The epidemic curve is still plateauing and there is no statistical difference in the national HIV prevalence estimates in the past six years. The cross sectional design of this point prevalence sentinel surveillance does not provide the association between HIV prevalence and the number of people on anti-retroviral therapy (ART) treatment, the design of the survey in its current form is purely descriptive. However, there are significant differences in HIV prevalence among the nine provinces and among the 52 health districts. The HIV epidemic in South Africa has in the past six years observed stabilisation at national level only.

THE 2013 PROVINCIAL HIV PREVALENCE

In the nine provinces, there is fluctuation and significant heterogeneity in HIV prevalence trends between districts over the years. In 2013, the highest provincial HIV prevalence was recorded in KwaZulu-Natal (KZN) which increased from 37.4% in 2012 to 40.1% in 2013. Provinces with 'higher' HIV prevalence estimates compared with 2012 are the Eastern Cape (from 29.1% in 2012 to 31.4% in 2013), Mpumalanga (increased from 35.6% in 2012 to 37.5% in 2013). These small increases fell within the expected sampling variability. The provinces with 'lower' HIV prevalence estimates were: North West (from 29.7% in 2012 to 28.2% in 2013) and Free State (decreased from 32.0% in 2012 to 29.8% in 2013). Their estimates were also within the expected sampling variability.

THE 2013 HIV PREVALENCE BY DISTRICT

The district level HIV epidemic is significantly heterogeneous, with prevalences ranging from a low of 2.3% in Namaqua in the Northern Cape to a high of 45.9% in iLembe, KwaZulu-Natal. When data is pooled over the last four years, this heterogeneity persists. The number of districts recording prevalence levels above 40% has increased from two out of 52 in 2011 to six out of the 52 districts in 2013, five in KZN and one in Mpumalanga.

In 2013, there were six districts in the country (five in KwaZulu-Natal and one in Mpumalanga) recording HIV prevalence above 40%. The highest prevalence in the country was recorded in iLembe (45.9%). The other five districts recording HIV prevalence above 40.0% were: UMkhanyakude (44.1%), eThekweni (41.1%), UMgungundlovu (42.5%), Ugu (41.1%) and UThukela in KwaZulu-Natal viz. (40.0%) and Gert Sibande in Mpumalanga at 40.8%.

THE 2013 HIV PREVALENCE DISTRIBUTION BY AGE

From 2007 to 2013, the peak in HIV prevalence occurs in the 30-34 year olds. The HIV prevalence in this age group increased from 41.5% in 2009 to 42.5% in 2013. When comparing

the HIV prevalence in the different age categories with previous years it has gone up slightly in all age groups. The higher prevalence in older age groups could be partly explained by the ART usage. The 2013 HIV prevalence among the 15-24 pregnant women is 19.9%. The baseline HIV prevalence in the 15-24 year- old pregnant in 2001 was 23.1% and it is expected to be reduced by 75% in 2015, which translates to 5.3%. It is very worrying that the trend among young people (15-24) is not showing a decline (this age group should not be affected much by ART). The UN MDG 6 baseline HIV prevalence for the 15-24 pregnant MDG group in 2001 was 23.1% and it is expected to be reduced by 75% in 2015, which translates to 5.3%. The 2013 HIV prevalence among the 15-24 pregnant women is 19.9%. The decrease in HIV prevalence in this age group is slow but not significant.

CONCLUSION

The national HIV prevalence of 29.7% among antenatal women is in line with the prevalence of 29% and 30% since 2004, which shows stabilisation at national level. It is noted that there are significant differences between the nine provinces and even more significant heterogeneity in HIV prevalence among the 52 health districts. The high HIV prevalence amongst young ANC women (15–24 years) is a concern. Going forward, an analytical exercise is required to understand the potential hypothesis for this trend. The HIV prevalence for women aged 15-29 has fallen (declining incidence) while the prevalence of those above 30 years has risen (provision of ARVs keeping infected women alive) resulting in the combined prevalence (15-49 years) remaining almost unchanged.

In conclusion, the Department will revise the current design of the protocol in the context of expanding coverage of HIV testing, prevention of mother to child transmission (PMTCT) and ART and transition to PMTCT Option B+ for HIV-positive pregnant women. The Department will also consider the use of linked testing (confidential or anonymous) with informed consent for HIV sentinel surveillance. This will require informed consent from pregnant women who are HIV tested for surveillance, providing them and the clinic with their HIV test results, and referring them to available HIV care, treatment and prevention interventions, if the test results are positive. Further research will be conducted to better understand what contributes to increases in HIV prevalence and the HIV prevalence levels in Mpumalanga, Western Cape and KwaZulu-Natal, and whether the increase in HIV prevalence predominantly observed among older women is needed. The interpretation of HIV prevalence trends in this age group is difficult without an in-depth analysis of HIV incidence and the impact of increasing access to ART.

In the context of expanding coverage of HIV testing, PMTCT and ART and transition to PMTCT Option B+ for HIV-positive pregnant women, the Department will be conducting an Unlinked Anonymous Testing (UAT) based sentinel surveillance which raises ethical concerns. It recommends the use of linked testing (confidential or anonymous) with informed consent for HIV sentinel surveillance. This will require informed consent from pregnant women who are HIV tested for this antenatal sentinel surveillance survey, providing them and the clinic with their HIV test results, and referring those to available HIV care, treatment and prevention interventions if the test results are positive.

FOREWORD



Since 1990, the effort to track the HIV epidemic has relied mainly on this point prevalence sentinel surveillance to monitor HIV prevalence trends at national, provincial spheres of government and in all 52 health districts. The prevalence of infection gives a snapshot of the magnitude of the disease burden. In this report, we present the 2013 national, provincial, and district HIV prevalence trends, which have shown stabilisation around 29% at national level. The highest provincial HIV prevalence was recorded in KwaZulu-Natal which increased from 37.4% in 2012 to 40.1% in 2013. The district level HIV epidemic is significantly heterogeneous, with prevalence's ranging from a low of 2.3% in Namaqua in the Northern Cape to a high of 45.9% in iLembe, KwaZulu-Natal. The number of districts recording prevalence levels above 40% has increased from two out of 52 in 2011 to six out of the 52 districts in 2013, five in KZN and one in

Mpumalanga.

This annual antenatal HIV surveillance data also provides robust empirical data on HIV prevalence among pregnant 15-24 year-old women as required for reporting against the Millennium Development Goals (MDGs). In terms of the MDGs, countries are expected to have reduced HIV prevalence in this age group by two-thirds by 2015.

The diffuse nature of the HIV epidemic underscores the need to continuously enhance our HIV prevention and AIDS treatment modalities. We will continue to collaborate with United Nations (UN) agencies as well as our development partners to monitor the HIV and AIDS epidemic. Information generated by an effective HIV surveillance system is essential for us – Government, Health Professionals, Civil Society, Non-Government Organisations, Research and Academic Institutions and International Development Partners in Health, to mount an adequate national response to the HIV and AIDS epidemic. There are many uses of this surveillance data, in addition to estimating the magnitude of the epidemic and monitoring its trends at national, provincial and district spheres of government in South Africa. This surveillance data is essential for planning and evaluating HIV prevention and care activities and for assessing their impact.

A handwritten signature in black ink, consisting of a large, stylized initial 'P' followed by a series of vertical lines and a long horizontal stroke extending to the right.

DR. P. A. MOTSOLEDI (MP)
MINISTER OF HEALTH

AKNOWLEDGEMENTS



I would like to thank everyone who contributed to conducting the 24th National 2013 Antenatal Sentinel HIV Prevalence Survey in South Africa. This report would not have been possible without all the women who agreed to participate in the survey, all of whom I would like to thank. Special thanks go to all the nurses in the public health clinics for their continued dedication and professionalism over the past 23 years in the implementation of this survey.

The National Department of Health's, Epidemiology and Surveillance Directorate provided strategic leadership and technical oversight on the coordination and implementation of this survey. I would like to thank each of its members for their time, energy, dedication and enthusiasm. Particular thanks goes to Dr. Thabang Mosala, for her key role in providing technical and leadership at all stages of the survey implementation and for providing strategic leadership in writing this report. My thanks also go to the Directorate technical staff for coordinating the survey and managing data capturing, validation, cleaning and collation. A special thanks to Ms. Audrey Mbatha of the NDoH NHIS Directorate for preparing the GIS maps. Thanks to Ms. Norah Moakamedi, Ms. Corrie Nagel and Ms. Tinyiko Maluleka for their administrative support.

Our sincere gratitude also goes to the provincial survey co-coordinators: Mr. Z. Merile (EC), Mr. A. Khajoane (FS), Dr. B. Ikalafeng (GA), N. Moodley, Ms. N. Mbana, Ms. N. Mapena and Nonkosi (KZN), Mr. E. Maimela (LP), Mr. M. Machaba (MP), Mr. M. Khumalo and Ms. T. Naicker (NC), Mr. L. Moaisi (NW), Dr. D. Pienaar (WC) and their teams who coordinated the survey in their respective provinces and districts. Sincerest gratitude is also extended to the testing laboratories and coordinators: Ms. B. Singh and Dr. Adrian Puren (NICD), Ms. Y. Gardee and Ms A. Burell (PE), Mr. L. Hildebrand (Pelonomi), Mr. B. Singh and Mr. L Reddy (UKZN), Mr. T.J. Chephe (MEDUNSA), Mr. J. Kruger (Ermelo), Ms. E. Weenink and Ms. B. Gool (Kimberley Hospital) and Mr. T. Stander (Stellenbosch University).

We are very grateful for the technical advice, constructive criticism and inputs and support of Dr. Yogan Pillay (NDOH, DDG: HIV/AIDS, TB, MNCWH) and Dr. Peter Barron, Dr. Nono Simelela (Special Advisor to the Deputy Presidency of the Republic of South Africa) who provided valuable comments on the draft report. A number of public health and biostatistician experts generously gave their time to participate in meetings to assist in the analysis of the data and interpretation of the results. Special thanks go to members of the HIV Surveillance Task Team including biostatisticians from MRC viz: Prof. Carl Lombard and Prof. Samuel Manda, Prof. Kebogile Mokwena (Sefako Makgatho Health Sciences University). Dr. G. Aynalem (US CDC SA), Dr. Okore Okorafor (World Bank), Dr. Brian Williams (SACEMA/WHRI), Dr. Eleanor Gouws (UNAIDS), Ms. Eva Kiwango (UNAIDS, SA) for their constructive inputs and advice.

MS. M.P. MATSOSO
DIRECTOR-GENERAL (HEALTH)

CONTENTS

EXECUTIVE SUMMARY	3
FOREWORD	10
ACKNOWLEDGEMENTS	12
ACRONYMS	20
CHAPTER 1	
1. INTRODUCTION	22
CHAPTER 2	
2. METHODOLOGY	25
2.1 Survey Design	25
2.2 Sampling	26
2.2.1 Sentinel population	26
2.2.2 Selection of survey population	26
2.2.3 Selection of sentinel surveillance sites	26
2.2.4 Selection of Primary Sampling Units (PSU)	26
2.3 Sample Collection	
2.4 Laboratory Methods	
2.4.1 Laboratory techniques	28
2.4.2 Laboratory quality assurance	28
2.5 Quality Control of Fieldwork	28
2.6 Data Management	29
2.6.1 Exclusions from analysis	29
2.6.2 Calculation of confidence intervals	29
2.6.3 Weighting	29
2.6.4 Biases with antenatal data	29
2.7 National Population Based Surveys vs. Sentinel Surveillance	30
2.7.1 Sentinel series antenatal HIV surveys	30
2.7.2 National population based surveys	30
2.9 Ethical considerations	33
CHAPTER 3	
3. RESULTS - HIV PREVALENCE	
3.1 Characteristics of survey population	
3.1.1 Participation	
3.1.2 The demographic characteristics of the sample population	
3.1.2.1 National participation rate by age	
3.1.3 HIV prevalence in relation to various demographics and background	

characteristics of the survey participants

3.1.3.1 Participants knowledge of their own HIV status

3.1.3.2 HIV prevalence and marital status

3.1.3.3 HIV prevalence by level of education

3.1.3.4 HIV prevalence and parity

3.1.3.5 HIV prevalence by partner's age

3.2 National HIV Prevalence Trends (1990 – 2013)

3.3 HIV Prevalence by Province (2009 – 2013)

3.4 HIV Prevalence by District (2009 – 2013)

3.5 HIV Prevalence Trends by Age (2009 – 2013)

3.6 HIV Prevalence Trends by Individual Province - 2013

3.6.1 Eastern Cape Province

3.6.2 Free State Province

3.6.3 Gauteng Province

3.6.4 KwaZulu-Natal Province

3.6.5 Limpopo Province

3.6.6 Mpumalanga Province

3.6.7 North West Province

3.6.8 Northern Cape Province

3.6.9 Western Cape Province

4. CHAPTER 4

CONCLUSION and RECOMMENDATIONS

REFERENCES

LIST OF FIGURES

Figure 1:	National distribution of survey participants by age group in 2013	1
Figure 2:	Histogram of age of pregnant women who participated in the survey in 2013	2
Figure 3:	Histogram of age of women in the 2013 antenatal sentinel survey participants by province	3
Figure 4:	The HIV prevalence estimates trend among antenatal women, SA, 1990 to 2013	4
Figure 5:	The HIV epidemic curve among antenatal women, SA, 1990 to 2013	5
Figure 6:	The five data set points, clearly shows the (stabilisation of HIV prevalence at national level) plateauing of the HIV epidemic curve from 2009 to 2013	6
Figure 7:	HIV prevalence by province, SA, 2013	7
Figure 8:	Change in HIV prevalence by province between 2009 and 2013	8
Figure 9:	HIV prevalence trends among antenatal women by province, SA, 2009 to 2013	9
Figure 10:	Maps showing the HIV prevalence distribution pattern among antenatal women in the 52 districts in South Africa, in 2009-2013 and Change in HIV prevalence between 2009 and 2013	10
Figure 14:	HIV prevalence distribution by district among 15-49 years antenatal women in 2013	11
Figure 15:	Number of districts per HIV prevalence range 2009, 2010, 2011, 2012, and 2013	12
Figure 16:	Map showing change in HIV prevalence distribution in the 52 districts in SA in 2013	13
Figure 17:	Map showing change in HIV prevalence distribution in the 52 districts, SA in 2009 and 2013	14
Figure 18:	Smoothed 2013 HIV prevalence by age (15 to 49 years)	15
Figure 19:	HIV prevalence curve among 15-24 years pregnant women, SA 2001 to 2013	16
Figure 20:	Comparison of HIV prevalence trends among antenatal women by age group, SA, 2009 to 2013	17
Figure 21:	HIV prevalence by age group for the 2009, 2011 and 2013 ANSUR	18
Figure 22:	Association between HIV prevalence by education level and age groups	19
Figure 23:	Prevalence by awareness of HIV status and age	20
Figure 24:	Association between the HIV infection outcome of the survey participants	21
Figure 25:	Distribution of pregnant survey participant by age group, EC, 2013	22
Figure 26:	HIV prevalence epidemic curve among antenatal women, EC, SA 1990 to 2013	23
Figure 27:	Districts HIV prevalence five-year trend analysis among antenatal women, EC, 2009 to 2013	24
Figure 28:	Maps showing a five-year HIV prevalence trend analysis among antenatal women by district, EC, 2009 to 2013	25
Figure 29:	Distribution of pregnant survey participant by age group, FS, 2013	26
Figure 30:	HIV prevalence epidemic curve among antenatal women in the FS, SA 1990 to 2013	27
Figure 31:	Districts HIV prevalence five-year trend analysis among antenatal women, FS, 2009 to 2013	28
Figure 32:	HIV prevalence distribution among survey participants by district, FS, 2009 and 2013	29
Figure 33:	Distribution of pregnant women survey participants by age group, GA, 2013	30
Figure 34:	HIV prevalence epidemic curve among antenatal women in GA, SA 1990 to 2013	31
Figure 35:	Districts HIV prevalence five-year trend analysis, GA, 2009 to 2013	32
Figure 36:	HIV prevalence distribution among survey participants by district in GA, 2009 and 2013	33
Figure 37:	Distribution of pregnant women survey participant by age group, KZN, 2013	34
Figure 38:	HIV prevalence epidemic curve among antenatal women in KZN, SA 1990 to 2013	35
Figure 39:	Districts HIV prevalence five-year trend analysis among antenatal women, KZN, 2009 to 2013	36
Figure 40:	HIV prevalence distribution among survey participants by district in KZN, 2009 and 2013	37
Figure 41:	Distribution of pregnant women survey participant by age group in LP, 2013	38
Figure 42:	HIV prevalence epidemic curve among antenatal women, LP, SA 1990 to 2013	39
Figure 43:	Districts HIV prevalence five-year trend analysis among antenatal women, LP, 2009 to 2013	40
Figure 44:	HIV prevalence distribution among survey participants by district, LP, 2009 and 2013	41
Figure 45:	Distribution of pregnant women survey participants by age group, MP, 2013	42

Figure 46:	HIV prevalence epidemic curve among antenatal women in MP, SA 1990 to 2013	43
Figure 47:	Districts HIV prevalence five-year trend analysis among antenatal women, MP, 2009 to 2013	44
Figure 48:	HIV prevalence distribution among survey participants by district, MP, 2009 and 2013	45
Figure 49:	Distribution of pregnant women survey participants by age group, NW, 2013	46
Figure 50:	HIV prevalence epidemic curve among antenatal women, NW, SA 1990 to 2013	47
Figure 51:	Districts HIV prevalence trends among antenatal women, NW, 2009 to 2013	48
Figure 52:	HIV prevalence distribution among survey participants by district, NW 2009 to 2013	49
Figure 53:	Distribution of pregnant women survey participants by age group, NC, 2013	50
Figure 54:	HIV prevalence epidemic curve among antenatal women, NC, 1990 to 2013	51
Figure 55:	Districts HIV prevalence trends among antenatal women in the NC, 2009 to 2013	52
Figure 56:	HIV prevalence distribution among survey participants by district, NC, 2009 and 2013	53
Figure 57:	Distribution of pregnant women survey participants by age group in the WeC, 2013	54
Figure 58:	HIV prevalence epidemic curve among antenatal women in the WC, SA 1990 to 2013	55
Figure 59:	Districts HIV prevalence five-year trend analysis among antenatal women, WC, 2009 to 2013	56
Figure 60:	HIV prevalence distribution among survey participants by district, WC, 2009 and 2013	57

LIST OF TABLES

Table 1:	Sampled population participation rate by province from 2009 to 2013	1
Table 2:	National distribution of survey participants (pregnant women) by age group, 2009 to 2013	2
Table 3:	HIV prevalence among antenatal women by province, 2009 to 2013	3
Table 4:	Change in HIV infection between 2009 and 2013 by province	4
Table 5:	The raw numbers and HIV prevalence among pregnant 10–14 year old women who participated in the 2013 survey	5
Table 6:	Age of pregnant women vs. age of partner	6
Table 7:	HIV prevalence among the antenatal women who participated in the 2013 survey in the different race/population groups	7
Table 8:	Change in HIV prevalence by district from 2009 to 2013 in the Eastern Cape province	8
Table 9:	Change in HIV prevalence by district from 2009 to 2013 in the Free State province	9
Table 10:	Change in HIV prevalence by districts from 2009 to 2013 in the Gauteng province	10
Table 11:	Change in HIV prevalence by district from 2009 to 2013 in the Limpopo province	11
Table 12:	Change in HIV prevalence by district from 2009 to 2013 in KwaZulu-Natal province	12
Table 13:	Change in HIV prevalence by districts from 2009 to 2013 in the North West province	13
Table 14:	Change in HIV prevalence by district from 2009 to 2013 in the Northern Cape	14
Table 15:	Change in HIV prevalence by district from 2009 to 2013 in the Western Cape	15

ACRONYMS

AIDS	Acquired Immuno Deficiency Syndrome
ANC	Antenatal Care
ART	Anti-retroviral Therapy
CI	95% Confidence Interval
DHIS	District Health Information System
DoH	Department of Health
EC	Eastern Cape
ELISA	Enzyme Linked Immunosorbent Assay
EPP	Estimation and Projection Package
FPD	Foundation for Professional Development
FS	Free State
GP	Gauteng Province
HCW	Health Care Worker
HIV	Human Immunodeficiency Virus
KZN	KwaZulu-Natal
LP	Limpopo Province
MDG	Millennium Development Goals
MP	Mpumalanga
MRC	Medical Research Council
NC	Northern Cape
NDoH	National Department of Health
NHC	National Health Council
NHLS	National Health Laboratory Service
NICD	National Institute for Communicable Diseases
NTP	National Tuberculosis Programme
NSP	National Strategic Plan for HIV, AIDS and STI
NW	North West
PCR	Polymerase Chain Reaction
PHC	Primary Health Care
PMTCT	Prevention of Mother-to-Child Transmission
PPS	Probability Proportional to Size
PSU	Primary Sampling Unit
QA	Quality Assurance
SA	South Africa
StatsSA	Statistics South Africa
STI	Sexually Transmitted Infection
UCT	University of Cape Town
UKZN	University of KwaZulu-Natal
UNAIDS	United Nations Joint Programme on HIV & AIDS
UNGASS	United Nations General Assembly Special Session on HIV & AIDS
UNICEFUnited	Nations Children's Fund
USAID	United States Agency for International Development
WB	World Bank
WC	Western Cape
WHO	World Health Organisation

CHAPTER 1

1. INTRODUCTION

The history of the annual HIV antenatal sentinel prevalence survey in South Africa dates back to 1990 when the National Department of Health (NDoH) realised that the epidemic was increasing exponentially in the general population and an instrument or a HIV surveillance tool had to be developed to monitor HIV trends for strategic response and policy planning. Since 1990, women attending antenatal care for the first time in their current pregnancy were requested to participate in the survey in selected public health clinics across the country to assess their HIV infection status. Initially, these sentinel surveys only allowed for national and provincial level estimates. Due to the differences among districts within provinces with regard to social determinants such as population distribution, poverty levels and access to services, the need was identified to have information on the HIV prevalence at district level. The target sample was increased to 36 000 pregnant women presenting for their first antenatal visits to public health clinics for the first time in their current pregnancy, during October each year. These antenatal sites are located in both urban and rural areas and provide health services to urban, rural, semi-rural, township, and informal settlement communities.

The purpose of conducting the annual sentinel antenatal point prevalence survey 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) and to assess trends in HIV prevalence over time.

1.2 THE GOAL

The general objective of the HIV surveillance is to determine the distribution of HIV infection among pregnant women attending public health antenatal clinics at national, province and district level, disaggregated by demographic factors and age of the participants.

1.3 THE PRIMARY OBJECTIVES ARE:

- To assess HIV sero-prevalence among women attending public sector antenatal clinics
- To monitor HIV over time (1990-2013) among women attending public antenatal clinics
- To use this data for estimation and projection of HIV sero-prevalence trends and the burden of AIDS in the general population
- To provide scientific evidence to measure progress towards meeting the Millennium Development Goal 6
- To estimate the national prevalence of HIV infection among the adult population of 15-49 years old; those aged under 15 years and those above 49 years in the country, using pregnant women attending antenatal clinics in public health institutions as a proxy
- To determine the geographical distribution pattern of HIV infection among pregnant women attending antenatal clinics in public health institutions at national and provincial level, by district and age categories

The antenatal sentinel surveillance HIV prevalence results remain one of the most important sources of robust surveillance data to provide a basis for the projection and estimation of the epidemic and measurement of HIV and AIDS impact in the general population, presented in a separate report.

CHAPTER 2

2. METHODOLOGY

2.1 SURVEY DESIGN

The twenty fourth cross-sectional antenatal sentinel point HIV prevalence survey to monitor HIV infection trends, at national, provincial and district levels in South Africa, using the standard unlinked and anonymous methodology (WHO/UNAIDS) was conducted during the month of October 2013. Since 2006, this survey has expanded its sample population to target 36 000 pregnant women recruited from 1 497 Primary Sampling Units compared with 16 000 women recruited from 461 clinics in 2005. This has expanded the geographic coverage considerably to include a representative sample from all 52 health districts in all the nine provinces as well as urban, peri-urban and rural comparisons.

2.2 TARGETED POPULATION

A total of 36 000 first time pregnant antenatal care bookers served in public health clinics are targeted in a single month of October annually since 1990. In 2013, a total of 33 077 pregnant women participated compared to 34 260 in 2012 and 33 446 in 2011. The survey is used as a proxy to estimate the trend in the prevalence of HIV among pregnant first bookers aged 15–49 years served in public health facilities.

2.2.1 Sampling framework

Basic principles for sampling, selection of the sample population and sentinel sites, the duration of sampling, the data and sample collection in the sentinel clinics, the transportation of the samples to the respective testing laboratories and the screening of the blood samples for HIV were followed as outlined in the Protocol for the implementation of the National Antenatal Sentinel HIV Prevalence Survey in South Africa (www.nmc.gov.za).

2.2 Preparatory phase

The protocol and methodology is reviewed annually by the national and all provincial survey coordinators and laboratory staff. In addition, a pre and post HIV survey workshop is conducted at the National Department of Health, this is followed by individual district HIV survey workshops by the nine provincial HIV survey coordinators, before the scheduled commencement date of the survey. Participants in these workshops include provincial and laboratory coordinators, health information officers, data capturers and health facility nurses.

The training covers the criteria for selection of the sites, recruitment of pregnant women, data administration, blood sample collection, labeling, coding, storage of samples, sample transportation, HIV testing analysis techniques, ethical considerations, survey implementation, monitoring and evaluation and quality assurance procedures.

2.3 SAMPLING

2.3.1 Criteria for sentinel population selection

First time booking pregnant women attending antenatal care services in public health facilities

are used as the target population as they are sexually active, constitute an easily accessible and stable population and are more likely than other groups to be representative of the general population. In addition, they obtain antenatal care at facilities that draw blood as part of routine medical services offered to this group. It is also unlikely that they can participate in the same survey twice in the same year.

2.3.2 Criteria used for participation

All pregnant women attending selected antenatal clinics for the first time during their current pregnancy were eligible for inclusion.

Inclusion and Exclusion criteria

All other pregnant women who had previously visited antenatal clinics during their current pregnancy during the survey period were excluded (to avoid duplicate sampling during the same month). No pregnant women were excluded from participation on the basis of their HIV status.

2.3.3 Sampling of HIV sentinel surveillance sites

The basic goal was to select sentinel surveillance sites representative of the population size estimate of the area to be surveyed. Sentinel sites were selected using the 'Probability Proportional to Size' (PPS) method as this combines a random approach with a bias towards the larger clinics. The clinics had to provide pregnancy testing and antenatal care. The District Health Information System (DHIS) antenatal data was used to ensure that the participating sentinel sites had a minimum of 20 first time bookers per month.

2.3.4 Selection of Primary Sampling Units (PSU) – Sentinel clinic

The criteria that was applied in selecting sentinel surveillance sites eligible for recruiting survey participants is briefly outlined below:

Any randomly selected public health clinic providing antenatal care services and routinely drawing blood from attendees during their first visit of the current pregnancy with facilities to store sera at 4°C; the sentinel site should provide antenatal care services to a minimum of 20 first time bookers over one month, transport arrangements must be in place that allow for biological specimens to be taken to a nearest reference laboratory within 24 hours or if the blood samples are centrifuged then transferred to referral laboratory within 72 hours; the clinic staff must be willing to cooperate and have the capacity to conduct the survey.

It must be noted that sentinel sites were not selected specifically to monitor either high risk or low risk sub-populations, nor with the aim of monitoring interventions.

2.3.5 Biological sample collection

Full blood analysis for pregnant first bookers at the antenatal care clinics was used for HIV testing using bar codes to anonymously unlink procedures. One full blood sample was taken by vein-puncture and labeled with the bar code number of the individual pregnant woman and stored at 4°C. The demographic details of the participants identified linked to the same bar code number of the blood specimen, with the exclusion of any particulars from which it may

be possible to ascertain the identity of a patient, were collected using a standardised data collection form. At the close of each day the supervisors checked the forms against the blood samples for any mismatches and completeness. The samples, together with the forms, were transported in cooler boxes to participating provincial laboratories where HIV testing was done.

2.4 LABORATORY ANALYSIS METHODS

2.4.1 Blood specimen testing for HIV

In accordance with the recommendations of the World Health Organisation (WHO) on HIV screening for surveillance purposes, blood samples were tested with one ELISA (Abbot Axysm System for HIV-1; HIV2) Assay. Participating laboratories included the National Health Laboratory Services (NHLS) laboratories in Bloemfontein, Johannesburg, the Sefako Makgatho Health Sciences University, Kimberley, Middleburg, Port Elizabeth and Stellenbosch, and the Virology laboratory of the University of KwaZulu-Natal.

2.4.2 Laboratory quality assurance

Internal quality assurance was the responsibility of the individual laboratories. While all laboratories participate in the NHLS external quality assurance programmes or external EQA/PT schemes, for the purposes of this study, the National Institute for Communicable Diseases (NICD) was responsible for the overall external quality assurance. The NICD compiles a panel of 10 HIV positive and negative sera which was sent to each participating laboratory for independent analysis. HIV test results and remaining blood sample are sent back to the NICD for storage and BED ASSAYS HIV incidence testing. The NICD performed further re-testing as part of the HIV incidence testing to determine the quality assurance, specificity and sensitivity of the HIV analysis tests in all testing laboratories. After the completion of the survey, the NICD produced a quality assurance report on the performance of the laboratories for HIV.

2.5 QUALITY ASSURANCE OF FIELDWORK EXECUTION

District level monitoring of the sentinel sites was done weekly by a team from the district. Provincial coordinators also undertook provincial level monitoring and visited the sites in their provinces. The national team conducted technical supervisory visits to at least two districts per province. The main purpose was to monitor protocol adherence and ethical issues that may arise, by observing practices and reconciling the number of submitted specimens to the calculated expected number derived from the routine data collection.

2.6 DATA MANAGEMENT AND ANALYSIS

Raw data was captured at provincial and national offices, using the Antenatal HIV Prevalence Survey DHIS 1.4 Patient Module. This database is designed with range restrictions to ensure that data captured are not out of range. Additionally, extensive internal data consistency checks against the original data capture forms were done by each provincial coordinator to ensure the data were accurate. After data was 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 and quality assessment was done at the national office.

The data analysis plan was compiled by the National Department of Health (NDoH) Epidemiologists, Public Health specialist etc., and consensus on data analysis method, using the 2013 mid-year estimates was carried out by the demographers, epidemiologist, technical staff within the NDoH and independent biostatisticians and actuarial scientists based in South African research and academic institutions. There were descriptive, bivariate and regression analyses with a focus on determining national, provincial, district and age group specific prevalence rates of HIV and variation of the HIV infection among the different age groups. The entries that were excluded from the analysis were those which had no HIV status result specified and those with no age of the survey participant specified.

2.6.1 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 (e.g. <500 participants per district), the exact binomial calculation was used and adjusted for the design effect of the domain.

2.6.2 WEIGHTING

The national estimate was weighted according to the total number of women aged 15-49 years in the different provinces using the 2013 StatsSA mid-year population estimates, current at the time of the survey. 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 calculated as the total of the results from the districts in the provinces.

2.7 BIASES WITH ANTENATAL SURVEY DATA

- Only pregnant women and not all reproductive age women are tested
- Only pregnant women who attend public sector antenatal clinics are tested

In general terms, antenatal care data underestimates the prevalence in the general female population, excludes other race groups which do not use public health clinics for antenatal care and overestimates prevalence in the general population.

2.8 ETHICAL CONSIDERATIONS

Participation in the survey was voluntary, with verbal informed consent for answering the questions on the forms and for collecting the blood samples from the pregnant women. For reasons of confidentiality, testing was done on anonymous unlinked samples. A unique bar code was allocated to each of the participants. The same bar code number that was recorded on the participant's demographic data form was also used for labeling the blood samples. The bar code was used to link the demographic information with the laboratory results while maintaining anonymity of the survey participant.

2.9 RELIABILITY OF THIS REPORT'S RESULTS

To ensure the release and publication of a robust report which provides reliable and scientific evidence on the HIV infection trends in South Africa, at national, provincial and district levels, the National Department of Health does the following:

- Continuously liaises with the scientific HIV Surveillance Task Team and receives critical technical inputs from experts in different fields of Public Health internationally
- Captures the survey empirical data using a reliable DHIS data capturing and verification management tool to ensure data validity and plausibility
- Revises the protocol with the provincial survey coordinators and laboratory technicians annually before the implementation of the next survey
- Sends out the report for external scientific peer-review and consultation with internal and external statisticians, actuarial scientists and epidemiologists from Academic and Research Institution and our Development partners

CHAPTER 3

3.1 CHARACTERISTICS OF SURVEY POPULATION

The first phase of this chapter describes the characteristics of the survey population; secondly it will present the association between HIV prevalence in relation to demographic factors collected. Thirdly, this chapter will present the descriptive summary of HIV prevalence at national and provincial level, by district and HIV distribution by age categories.

3.1.1 PARTICIPATION AT INDIVIDUAL AND SENTINEL SITE LEVEL

The sample population realidation rate was 91.9%. The number of Sampling Units = 1 497, number of Strata = 52; number that participated = 33 077; the 2013 mid-year population estimates that there were 14 627 747 females in the 15-49 years old population in South Africa in 2013. Design Effect = 1 435.

3.1.2 THE DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE POPULATION

In 2013, a total of 33 077 out of the targeted 36 000 pregnant first time bookers participated in the survey during October compared to 33 446 recruited in 2011 and lower than 34 260 recruited in 2012. The provinces with the highest numbers of the survey participants were from KwaZulu-Natal (21.0%), followed closely by Gauteng (20.4%), the least number of study participants are from Northern Cape. The sampled participation rate by province is presented in Table 1.

Table 1: Sampled population participation rate by province from 2009 to 2013.

PROVINCE	2009		2010		2011		2012		2013	
	N	%	N	%	N	%	N	%	N	%
EC	4 225	12.9	3 994	12.4	4 123	12.3	4 625	13.5	4 235	12.8
FS	2 336	7.1	2 223	6.9	2 303	6.9	2 325	6.8	2 244	6.8
GA	7 187	21.9	6 714	20.8	6 960	20.8	6 862	20.0	6 760	20.4
KZN	6 744	20.5	6 887	21.4	6 741	20.2	7 011	20.5	6 940	21.0
LP	3 412	10.4	3 117	9.7	3 665	11.0	3 579	10.5	3 346	10.1
MP	2 049	6.2	2 202	6.8	2 125	6.4	2 201	6.4	2 214	6.7
NW	2 227	6.8	1 963	6.1	2 357	7.1	2 457	7.2	2 398	7.3
NC	1 002	3.0	1 144	3.6	1 128	3.4	1 190	3.5	1 147	3.5
WC	3 679	11.2	3 981	12.4	4 044	12.1	4 010	11.0	3 793	11.5
Total	32 861	100.0	32 225	100.0	33 446	100.0	34 260	100.0	33 077	100.0

N = Realised sample size. Source: Epidemiology Directorate, NDoH 2015.

3.1.3 SURVEY PARTICIPATION RATE BY AGE

Age is an important risk factor and is central to monitoring the epidemic among the sexually active group. The HIV prevalence in the 15-24 year age group 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 described later in the results section.

The age distribution of pregnant women who participated ranged from girls aged 10 years to women aged over 50 years, as shown below in Table 2 and Figure 1. The majority of the survey participants were aged 20-24 years, which made up 29.9% of the survey population. Antenatal women older than 39 years and younger than 15 years were under-represented in the survey compared to the 15 to 39-year-old women. Ten survey participants were more than 50 years old. Pregnant women above 40 years and under 15 years are classified as the high risk pregnancy group.

Table 2: National distribution of survey participants (pregnant women) by age group, 2009 to 2013

Age groups (years)	2009		2010		2011		2012		2013	
	N	%	N	%	N	%	N	%	N	%
<15	114	0.3	121	0.4	112	0.3	127	0.4	99	0.3
15 - 19	6 143	18.7	6 171	19.2	6 289	18.8	6 578	19.2	5 735	17.3
20 – 24	10 224	31.1	9 723	30.2	10 123	30.3	10 000	29.2	9 901	29.9
25 – 29	7 864	23.9	7 939	24.6	8 308	24.8	8 360	24.4	8 289	25.1
30 – 34	4 776	14.5	4 690	14.6	4 989	14.9	5 263	15.4	5 396	16.3
35 – 39	2 650	8.1	2 498	7.8	2 763	8.3	2 805	8.2	2 662	8.1
40 – 44	732	2.2	703	2.2	760	2.3	791	2.3	768	2.3
45 – 49	82	0.2	58	0.2	94	0.3	68	0.2	62	0.2
>49	6	0.00	7	0.02	7	0.02	2	0.01	10	0.03
Not specified	270	0.8	315	1.0	1	1.0	1	0.0	1	0.003
Total	32 861	100.0	32 225	100.0	33 446	100	34 260	100	33 077	100.0

N = Realised sample size.

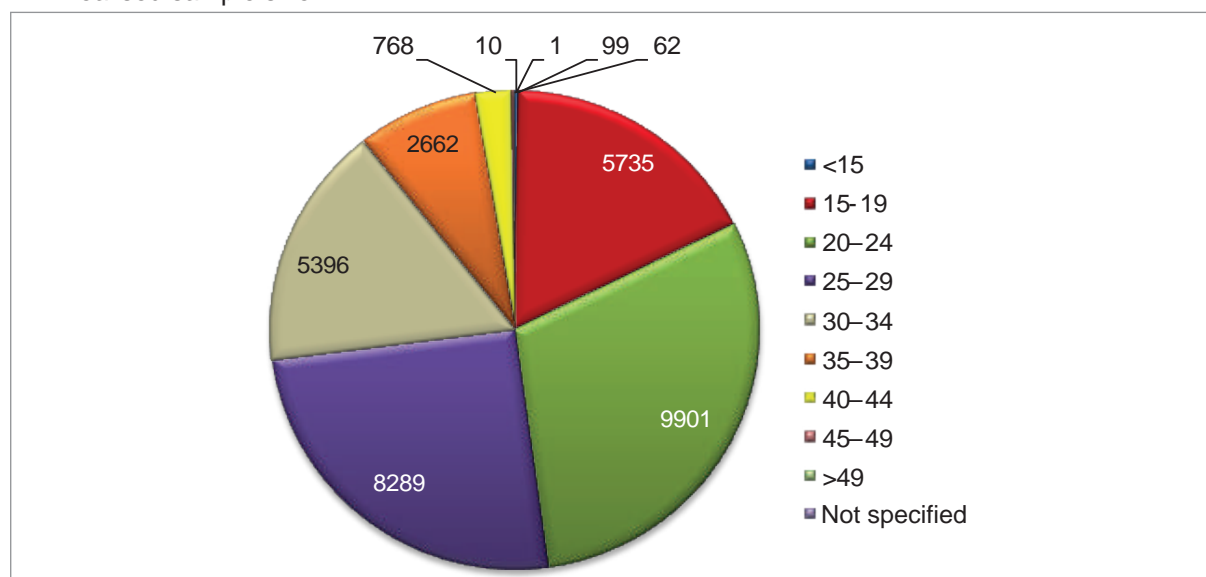


Figure 1: National distribution of survey participants by age group in 2013.

A large percentage (48.5%) of the survey participants were women aged 24 years old and younger. The participants aged below 20 years constituted 17.6% of the total sample population, this is a worrying observation since these women are still in the adolescent stage of their lives, are still school going children and these maybe unplanned HIV high risk pregnancies.

The Histograms Figures 2 and 3 show the age distribution of pregnant women that participated in the survey that is similar across provinces, and in general, this is an expected age distribution of pregnant women - majority of survey participants are younger than 30 years with tail towards the forties and above.

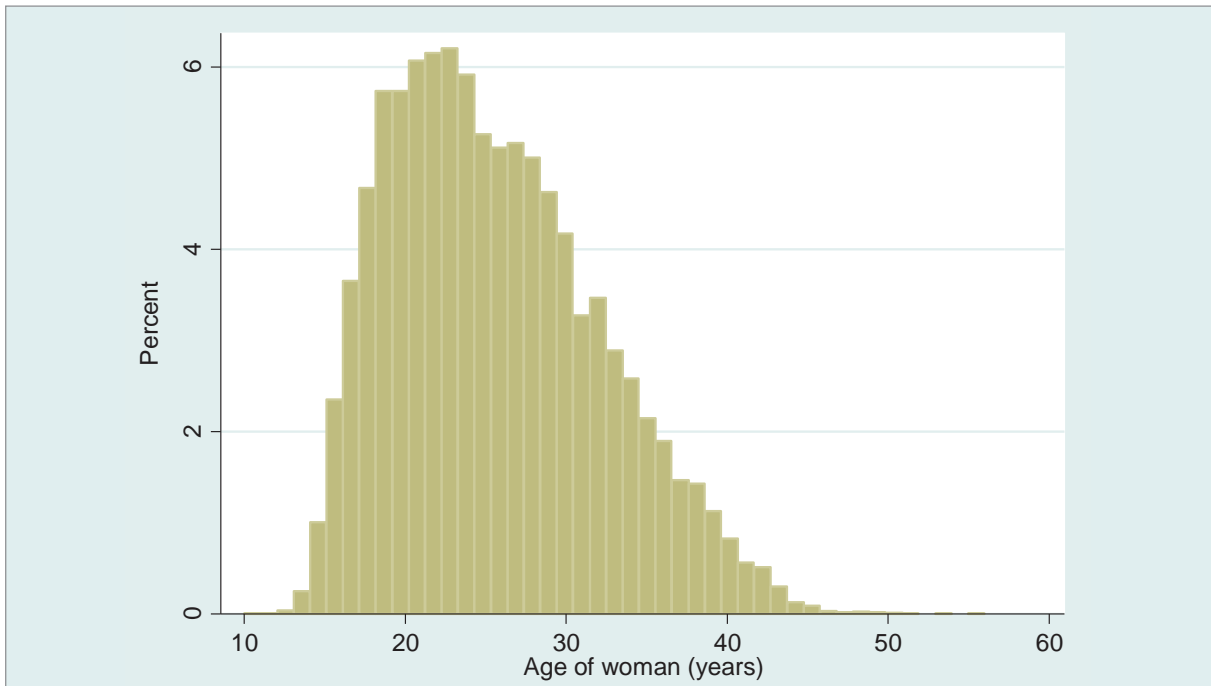


Figure 2: Histogram of age of pregnant women who participated in the survey (survey participants) in 2013.

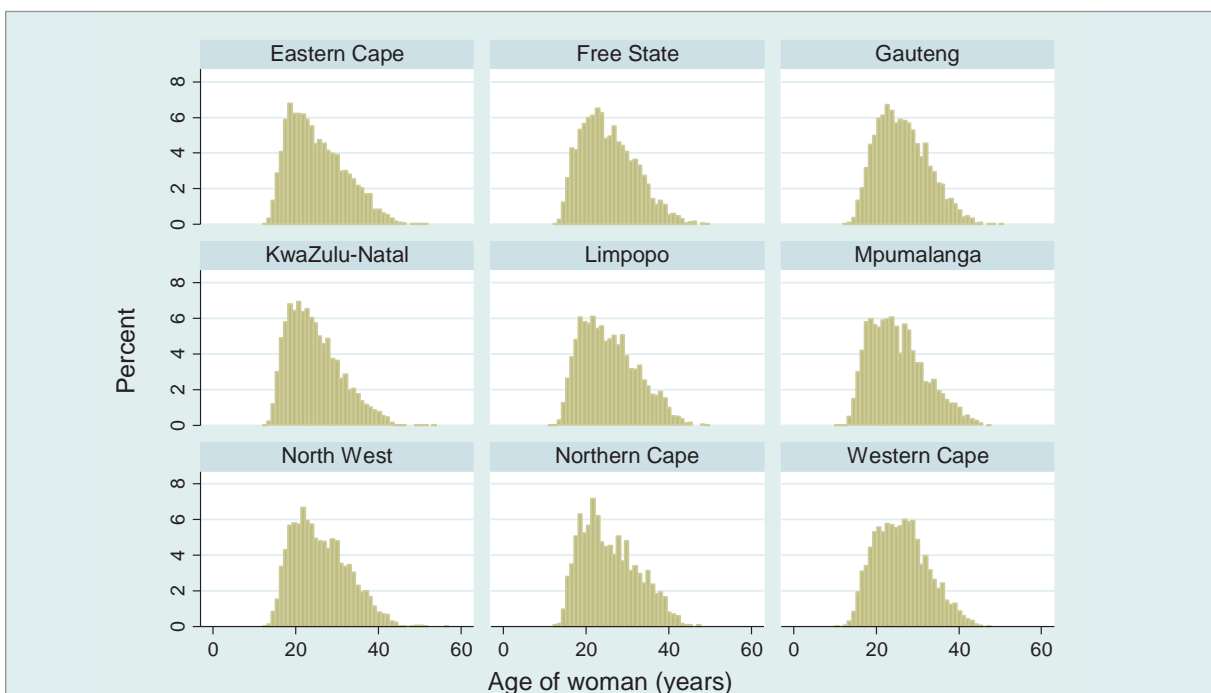


Figure 3: Histogram of age of women in the 2013 antenatal sentinel survey participants by province. Legend on the vertical axis shows the percentage (X 100%) e.g. majority of women who participated were between 20 to 35 years old.

HIV PREVALENCE RESULTS - 2013

3.2 NATIONAL HIV PREVALENCE TRENDS - 1990 to 2013

In 2013, the overall HIV prevalence amongst women who presented for their first antenatal care visit in October in public health clinics was 29.7%. The estimated national HIV prevalence amongst the women surveyed has remained stable over the past ten years viz: 30.2% in 2010; 29.5% in 2011 and 2012 and has increased by 0.2% to 29.7% in 2013. The HIV prevalence trends from 1990 to 2013, shown by the Error Bars (⊥) shows that between 2004 to 2013, the bars overlap (i.e. they fall within the 95% Confidence Interval). This indicates that there is no statistical difference in the **national** HIV prevalence estimates in the past 10 years as shown in Figure 4 below.

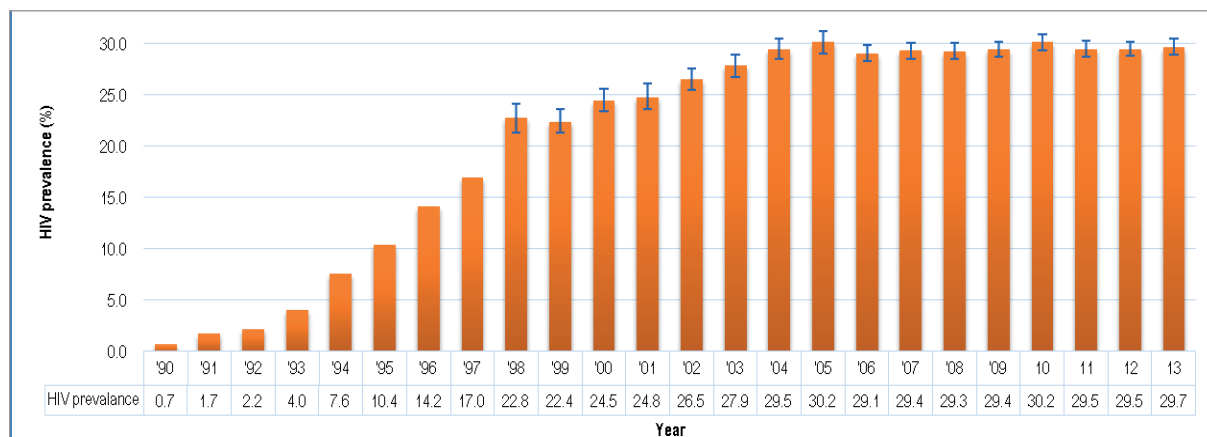


Figure 4: The HIV prevalence estimates trend among antenatal women, SA, 1990 to 2013. (Source: NDoH, 2014).

NB: It is important to note that since 2006, the sampling methodology was changed and the sample population expanded to target 36 000 pregnant women recruited from 1 497 sentinel sites compared to 16 000 women recruited from 461 sentinel sites in 2005 retrospectively since 1990. This has expanded geographic coverage to allow for district level HIV prevalence estimates.

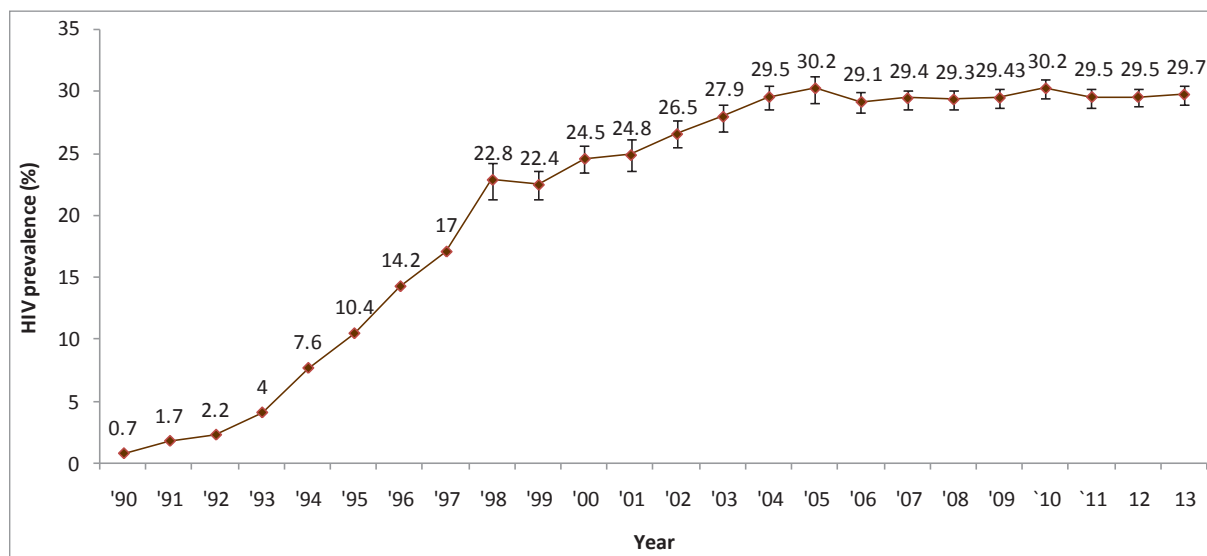


Figure 5: The HIV epidemic curve among antenatal women, South Africa, 1990 to 2013. (Source: NDoH, 2014).

The national five-year HIV prevalence data set points between 2009 to 2013 is shown in detail in Figure 6. The overall HIV prevalence estimate among antenatal pregnant women in 2012 was 29.5% (28.8%-30.2%) which show stabilisation. This estimate was around 29.5% which was similar in 2006, 2007, 2008 and 2009, the 2011 estimates, falling within the 95% confidence limits for 2009, 2010, 2011, 2012 and 2013 as shown in Figure 6, below:

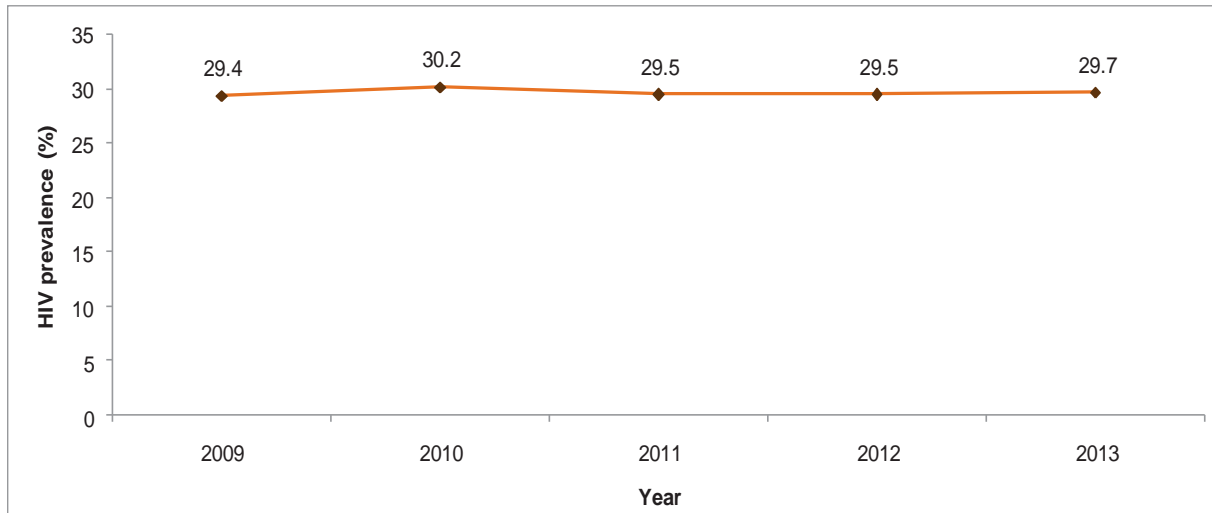


Figure 6: The five data set points, clearly shows the (stabilisation of HIV prevalence at national level) plateauing of the HIV epidemic curve from 2009 to 2013 (Source: NDoH, 2014).

However, it is clear that the distribution of HIV prevalence trends varies amongst the provinces and districts HIV prevalence, but it is difficult to make inferences about variation between years due to the wide confidence intervals. In 2013, we present for the first time, the five-year trend analysis done (2009 to 2013) at provincial and district levels and age distribution trends.

3.3 HIV PREVALENCE BY PROVINCE IN 2013

The highest provincial HIV prevalence was recorded in KwaZulu-Natal (KZN) which increased from 37.4% in 2012 to 40.1% in 2013, an increase by 2.7% but not statistically significant. Provinces with 'higher' HIV prevalence estimates compared with 2012 are: Eastern Cape (from 29.1% in 2012 to 31.4% in 2013), Mpumalanga HIV prevalence increased from 35.6% in 2012 to 37.5% in 2013. These small increases fell within the expected sampling variability. The provinces with 'lower' HIV prevalence estimates were: North West HIV prevalence decreased from 29.7% in 2012 to 28.2% in 2013 and in the Free State, it decreased from 32.0% in 2012 to 29.8% in 2013. The provincial HIV estimate were also within the expected sampling variability, which means that the HIV prevalence is stabilising, but the statistical differences is significant in HIV prevalence's amongst provinces from a low of 17.5% in the Northern Cape to a high of 40.1% in Kwazulu-Natal. Four out of the nine provinces have recorded HIV prevalence that is above the national average as shown in Figure 7.

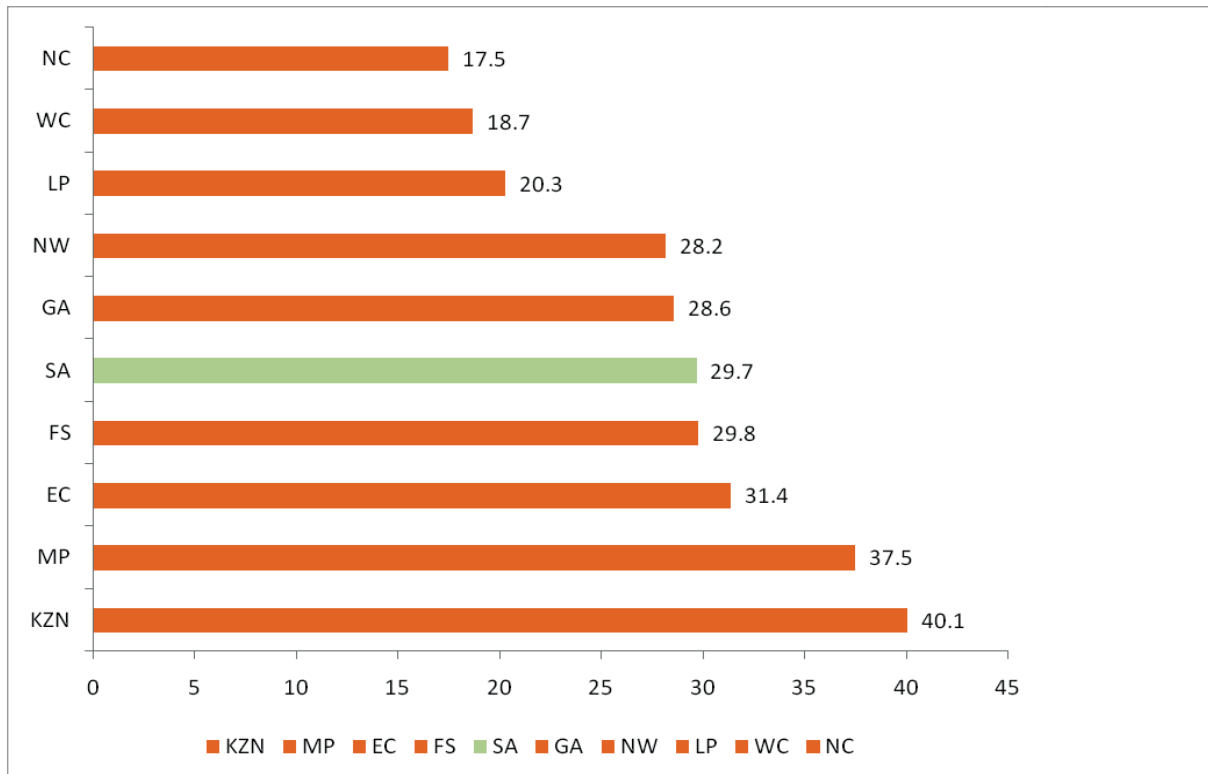


Figure 7. HIV prevalence by province, South Africa (the National HIV estimate is shown by a green coloured bar), 2013. (Source NDoH, 2014) 29.7% = National HIV prevalence estimate

Table 3 below shows the changes in HIV prevalence in the nine provinces. The Northern Cape shows no change in HIV prevalence which is similar to the national estimate. Four provinces, viz., Eastern Cape, KwaZulu-Natal, Mpumalanga and Western Cape show an HIV prevalence increase of between 1.8% to 2.7%, while Free State, Gauteng, Limpopo and North West show a slight HIV prevalence decrease of between 1.3% and 2.2%. The five-year provincial HIV trends and change in HIV prevalence between 2009 and 2013 are presented in Tables 4 and 5 and Figure 9.

Table 3: HIV prevalence among antenatal women by province, 2009 to 2013.

PROVINCE	2009		2010		2011		2012		2013	
	%HIV	95% CI	%HIV	95% CI	%HIV	95% CI	%HIV	95% CI	%HIV	95% CI
EC	28.1	26.1 - 30.1	29.9	28.2 - 31.7	29.3	27.5 - 31.1	29.1	27.3 - 30.9	31.4	29.4 - 33.5
FS	30.1	28.1 - 32.1	30.6	28.3 - 33.0	32.5	30.5 - 34.5	32.0	29.8 - 34.3	29.8	27.6 - 32.0
GA	29.8	28.6 - 31.1	30.4	29.1 - 31.8	28.7	27.3 - 30.1	29.9	28.3 - 31.5	28.6	27.0 - 30.3
KZN	39.5	38.1 - 41.0	39.5	38.0 - 41.0	37.4	35.8 - 39.0	37.4	36.0 - 38.7	40.1	38.4 - 41.8
LP	21.4	19.7 - 23.1	21.9	20.3 - 23.6	22.1	20.6 - 23.7	22.3	20.7 - 23.9	20.3	18.9 - 21.9
MP	34.7	32.5 - 36.9	35.1	32.6 - 37.7	36.7	36.7 - 39.2	35.6	33.3 - 37.9	37.5	35.1 - 40.0
NC	17.2	14.3 - 20.5	18.4	16.1 - 21.1	17.0	14.3 - 20.2	17.8	15.3 - 20.7	17.5	14.9 - 20.4
NW	30.0	27.5 - 32.6	29.6	27.3 - 31.9	30.2	28.2 - 32.4	29.7	27.5 - 32.0	28.2	26.3 - 30.2
WC	16.9	13.8 - 20.5	18.5	15.1 - 22.5	18.2	14.3 - 22.8	16.9	13.8 - 20.5	18.7	15.1 - 23.0
SA	29.4	28.7 - 30.2	30.2	29.4 - 30.9	29.5	28.7 - 30.2	29.5	28.8 - 30.2	29.7	28.9 - 30.5

N = Realised sample size. ; CI= Confidence Interval (Source NDoH, 2014).

A different picture emerges when we look at the changes in HIV prevalence by province in the past five years between 2009 and 2013 and these changes are summarised as follows: It is clear that the distribution of HIV prevalence trends between the provinces and districts HIV prevalence differ, but variations between years makes it difficult to make inferences due to the wide confidence intervals.

Table 4: Change in HIV infection between 2009 and 2013 by province.

	HIV prevalence Change	Lower limit	Upper limit	Change in HIV prevalence between 2009 and 2013
FS	-0.3	-1.658199515	1.0582	No HIV prevalence change
EC	3.3	2.30490597	4.295094	Moderate HIV prevalence increase
GA	-1.2	-1.971037632	-0.42896	Moderate HIV prevalence decrease
KZN	0.6	-0.237622196	1.437622	No HIV prevalence change
LP	-1.1	-2.089804822	-0.1102	Moderate HIV prevalence decrease
MP	2.8	1.32451868	4.275481	Moderate HIV prevalence increase
NC	0.3	-1.339440372	1.93944	No HIV prevalence change
NW	-1.8	-3.138762372	-0.46124	Moderate HIV prevalence decrease
WC	1.8	0.91014038	2.68986	Moderate HIV prevalence increase

There was a change in HIV prevalence among women attending antenatal at provincial level from 2009 to 2013 and they recorded a moderate decrease in HIV prevalence. The Free State, KwaZulu-Natal and Northern Cape showed no change in HIV prevalence among antenatal women between 2009 and 2013. Gauteng, Limpopo and North West showed a decline in HIV prevalence of -1.2%, -1.1%, and -1.8% respectively. Although the national HIV prevalence has shown stabilisation between 29%-30% since 2004, there is moderate increase in HIV prevalence in Eastern Cape, Mpumalanga, and Western Cape by 3.3%, 2.8%, and 1.8% respectively, as presented in Table 4 above.

A five-year trend analysis was done (2009–2013) presented in Table 4 and Figures 8, 9 and 10 shows that in the past five years, there was a moderate increase in HIV prevalence in Mpumalanga (2.8%), Eastern Cape (3.3%) and Western Cape by (1.8%). There was no significant change in HIV prevalence in the Free State, KwaZulu-Natal and Northern Cape provinces. However, there is a decline in HIV prevalence in the past five years in Limpopo, Gauteng and the North West provinces.

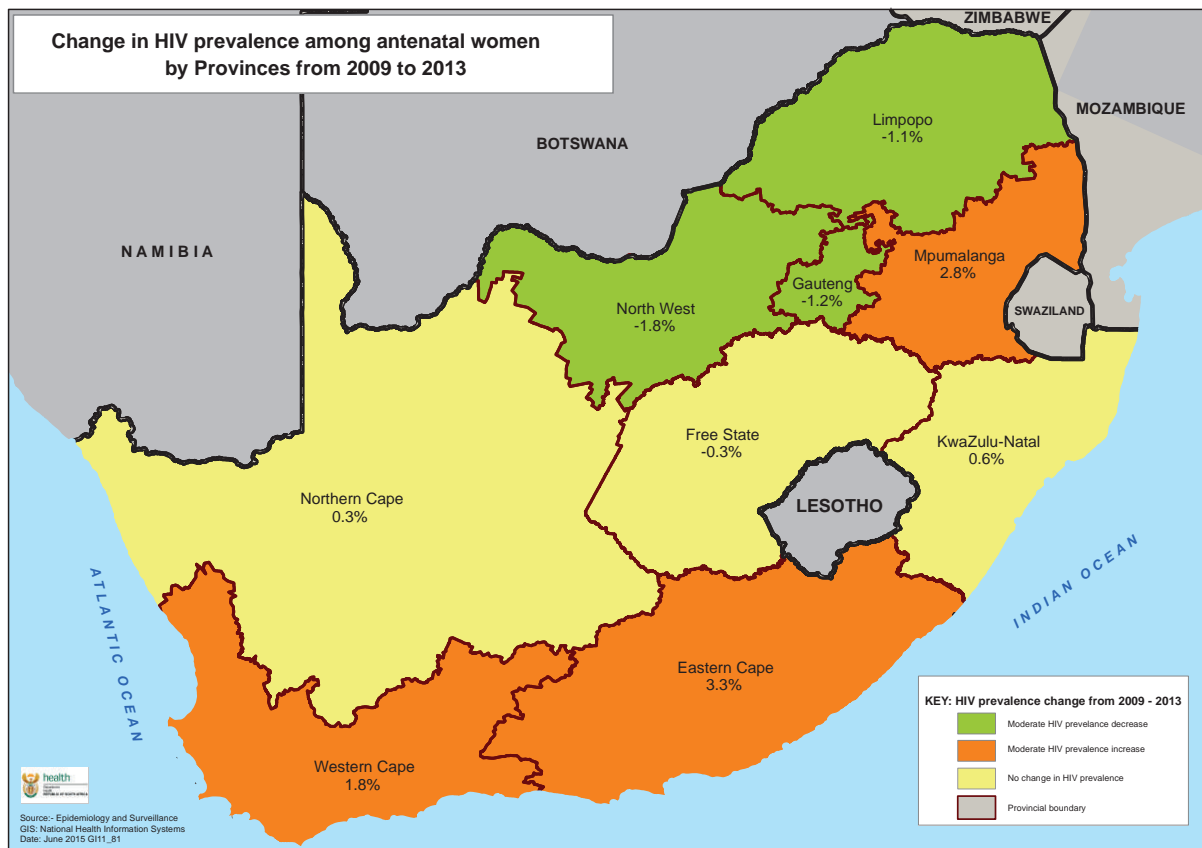


Figure 8: Change in HIV prevalence by province between 2009 and 2013.

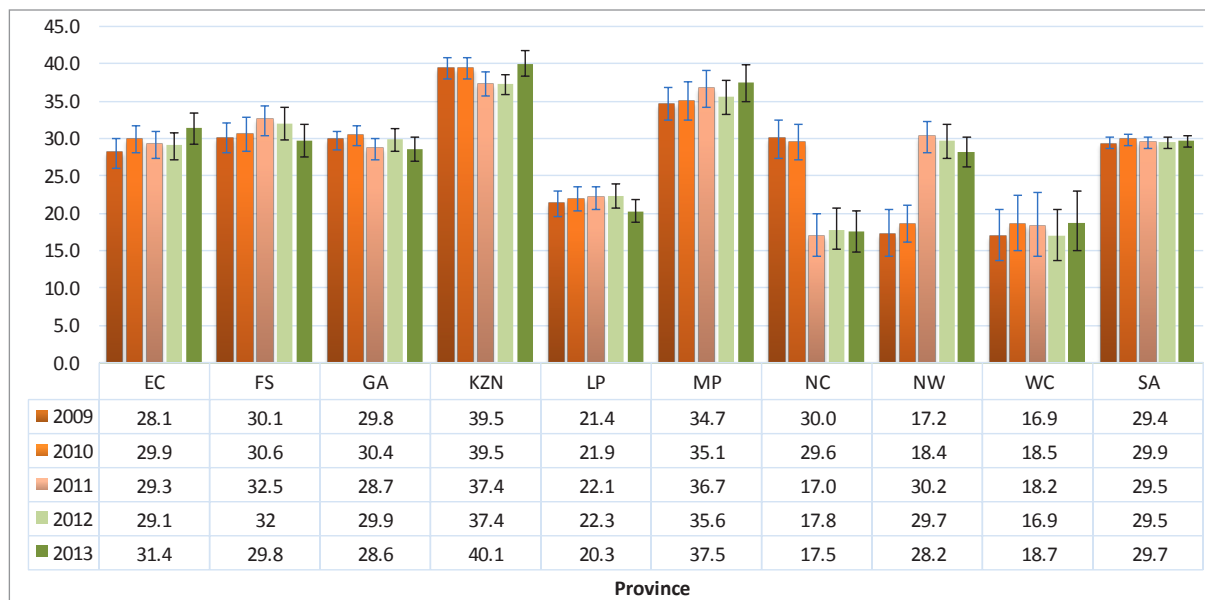


Figure 9: HIV prevalence trends among antenatal women by province, South Africa, 2009-2013. Source: Epidemiology and Surveillance (NDoH).

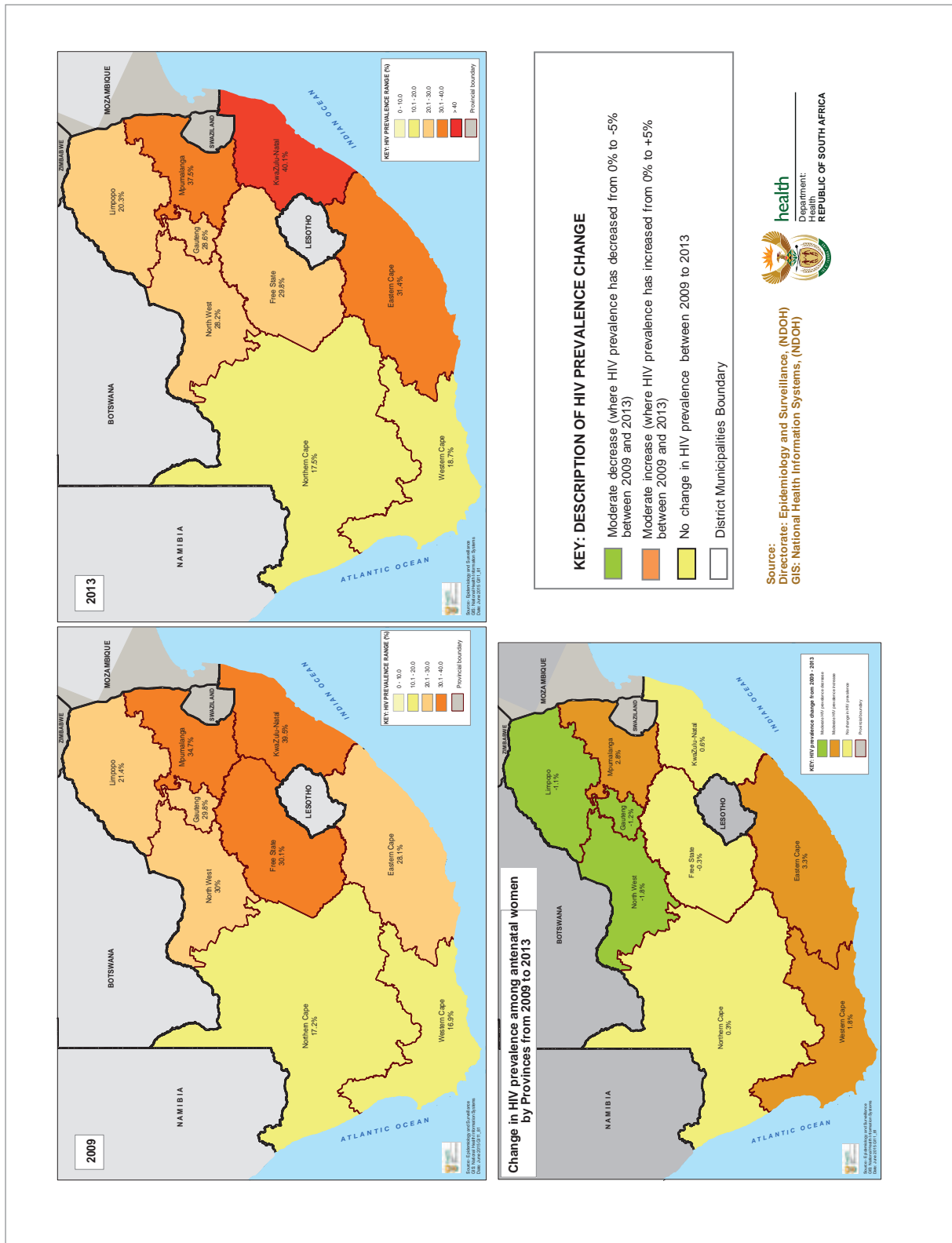


Figure 10. Maps showing the HIV prevalence distribution pattern among antenatal women in the 52 districts in South Africa, in 2009-2013 and Change in HIV prevalence between 2009 and 2013.

3.4 HIV PREVALENCE TRENDS BY DISTRICT

Three of the 52 districts, namely, UThukela, Francis Baard and Overberg have shown a significant decline in HIV prevalence of more than 5%. Sixteen districts have shown a moderate decline in HIV prevalence. Seven of the 52 districts have shown a significant increase in HIV prevalence between 2009 and 2013 as shown in Figures 14.

It is clear that the distribution of HIV prevalence trends varies between provinces and districts. There are six districts recording HIV prevalence above 40% in 2013; five are in KwaZulu-Natal and one in Mpumalanga. In 2013, the three districts that recorded HIV prevalence below 10.0% were Namaqua (2.3%), Central Karoo (6.9%) and West Coast (9.6 %). Whereas, in 2010 there was no single district that recorded prevalence below 10%. The number of districts recording prevalence between 30% and 40% has decreased from 23 out of 52 in 2012 to 20 out of the 52 districts in 2013 as presented in the caterpillar graph in Figures 14.

The 52 districts HIV prevalence distribution for 2013 is presented in Figure 14 below.

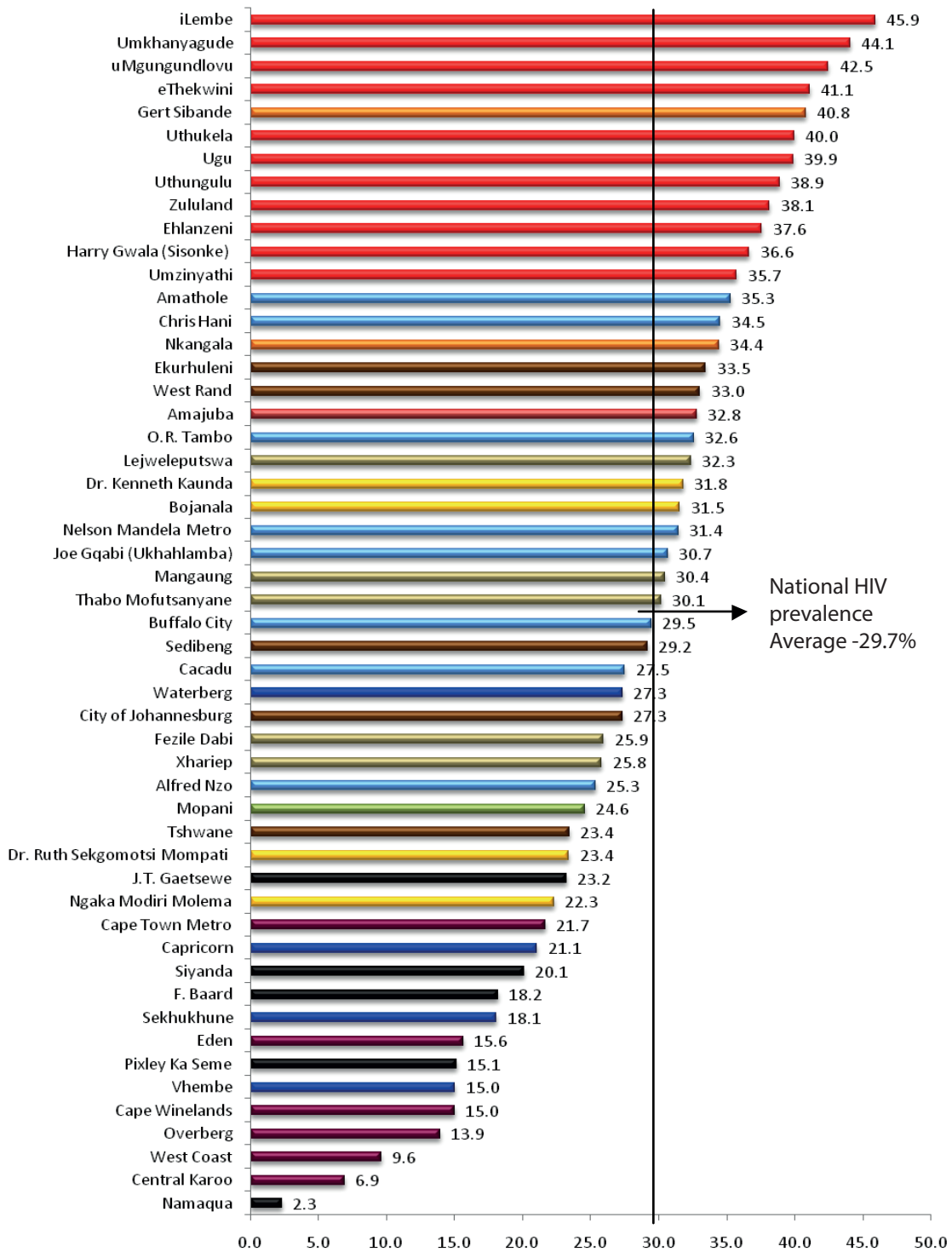


Figure 14. HIV prevalence distribution by district among 15-49 years antenatal women in 2013.

Five health districts, all located in KwaZulu-Natal recorded the highest HIV prevalence ranging between 40.0% and 45.9%. One of the three districts in Mpumalanga (Gert Sibande) recorded prevalence levels of 40.8%.

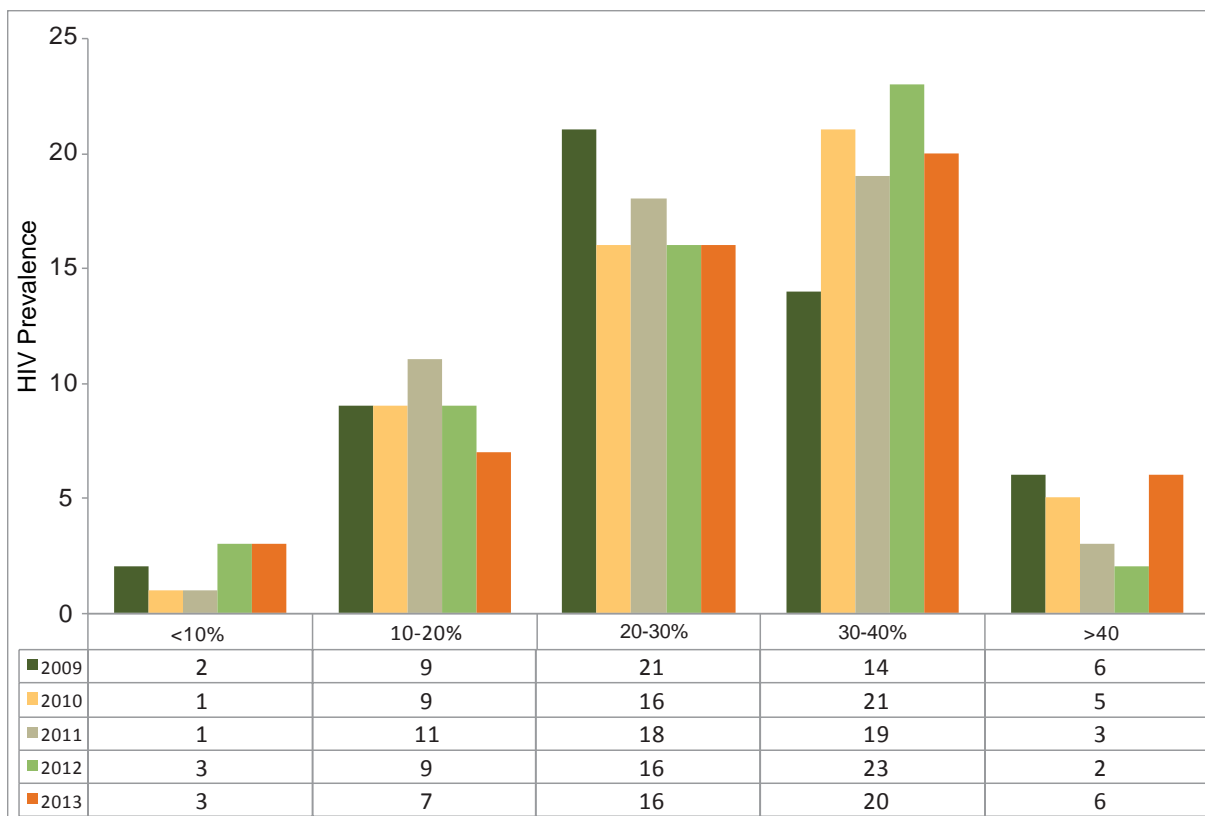


Figure 15: Number of districts per HIV prevalence range 2009, 2010, 2011, 2012, and 2013.

The districts are clearly heterogeneous with respect to the epidemic, with prevalence ranging from a high of 45.9% in iLembe in KwaZulu-Natal to a low of around 2.3% in Namaqua in the Northern Cape. When data is pooled over the six years, this heterogeneity persists (Figure 15).

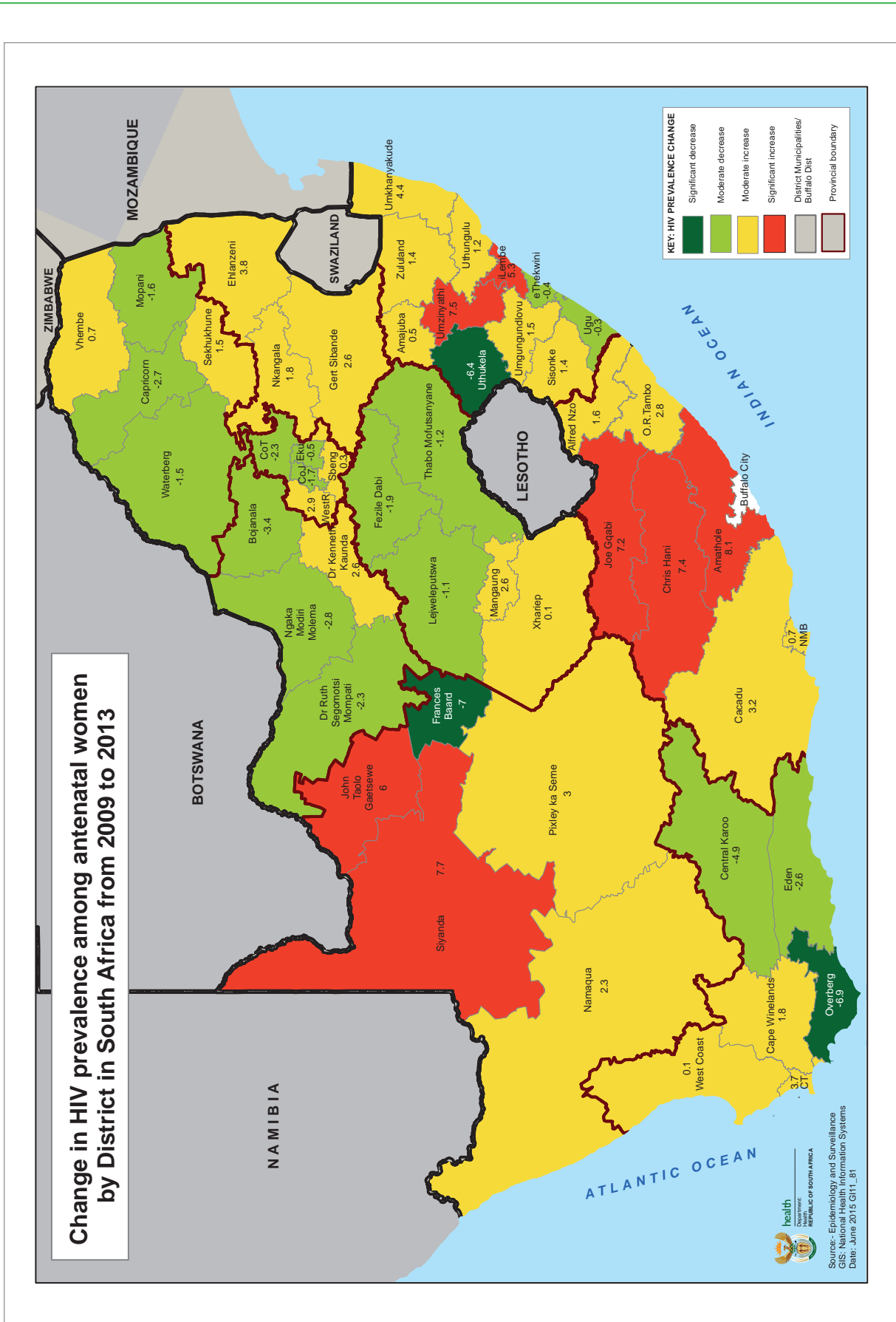


Figure 16: Map showing change in HIV prevalence distribution in the 52 districts in SA between 2009 and 2013.

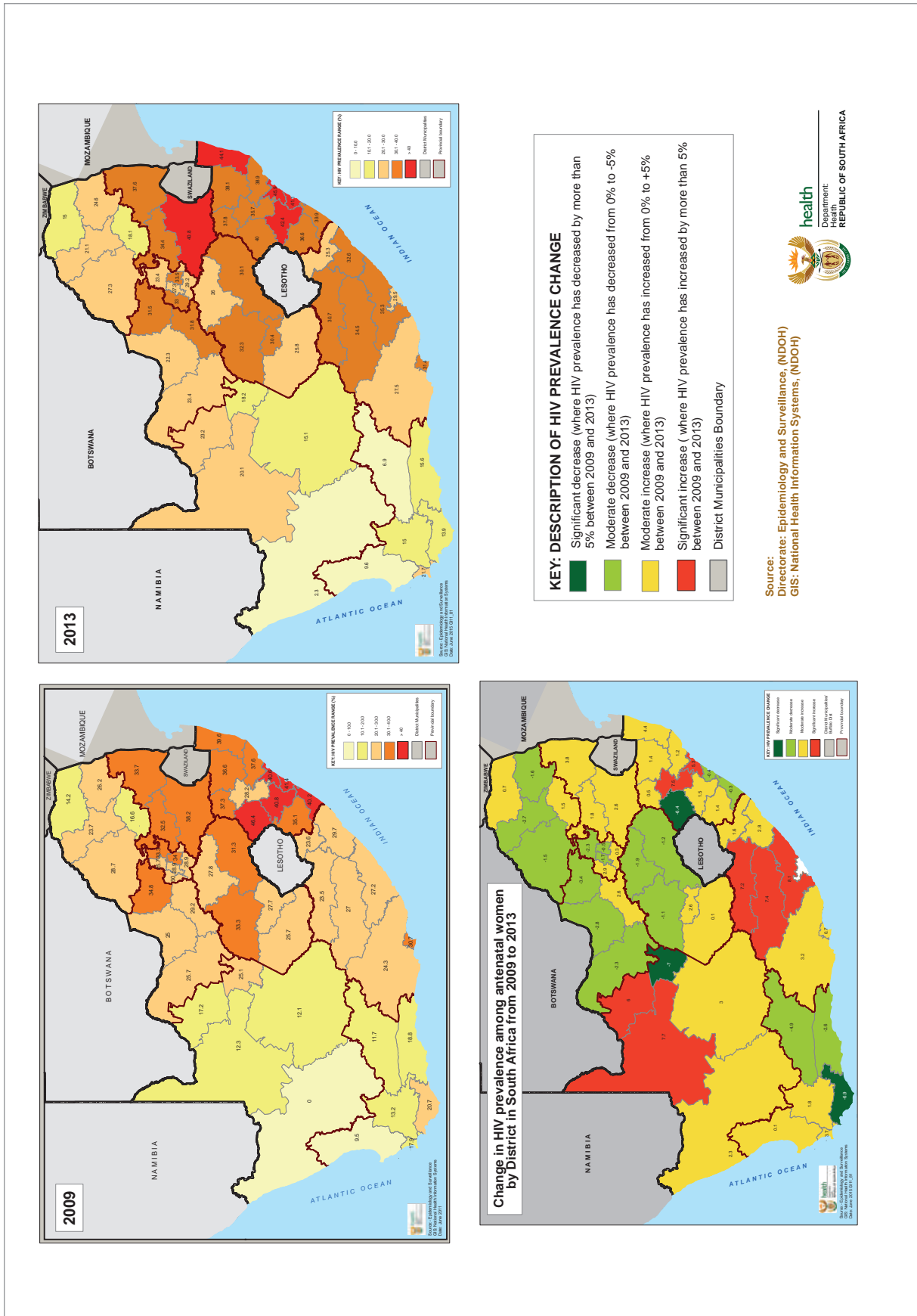


Figure 17: Map showing change in HIV prevalence distribution in the 52 districts in SA in 2009 and 2013.

HIV PREVALENCE BY AGE

The HIV prevalence by age prevalence trends from 2009 to 2013 is depicted in Figure 20. From the smoothed prevalence in Figure 18. The age groups 30-34 and 35-39 have the highest HIV prevalence, both at 42.5%. There is a doubling of prevalence between those aged 15-19 years (12.7%) and those aged 20-24 years (24.0%).

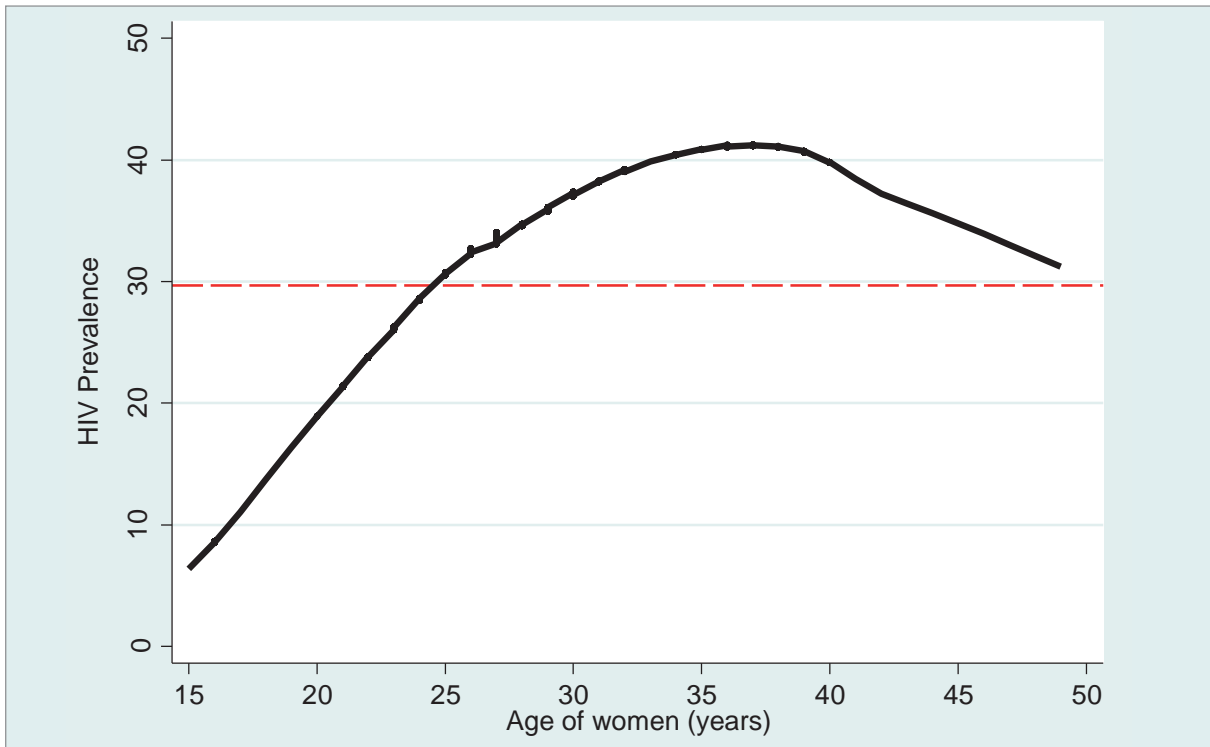


Figure 18. Smoothed 2013 HIV prevalence by age (15 to 49 years) with overall HIV prevalence indicated by the red dotted line.

The age group 15-19 years is the most important indicator to use for providing evidence when monitoring HIV incidence (new infections). HIV prevalence in this age group has been suggested as a proxy measure for incidence because of sexual onset and hence prevalent infections are assumed to be recent while this age group is less likely to be affected by AIDS mortality. The HIV prevalence among the 15-24 year-old pregnant women was 20.1% in 2011 compared with 19.9% in 2013, with no change over this time. This MDG group constituted almost 47.5% N = 15 636 of the survey population. The specific MDG target is that by 2015 the expected HIV prevalence reduction should be 75% less than the baseline prevalence of 23.1% in 2001, to an expected MDG target of 5.3% in 2015. The trends in this age group in South Africa shows that efforts to achieve the MDG target must be significantly strengthened (Figure 19).

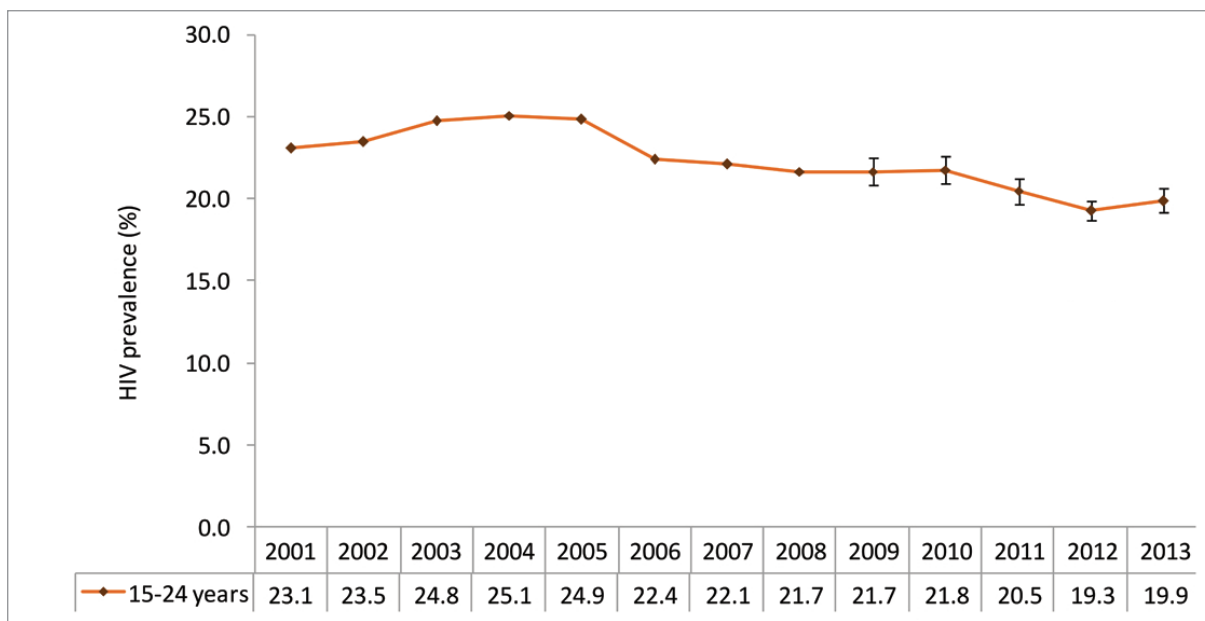


Figure 19: HIV prevalence curve among 15-24 years pregnant women, South Africa from 2001 to 2013 showing the country’s progress towards achieving the UN Millennium Goal 6, Target 7, and Indicator 18.

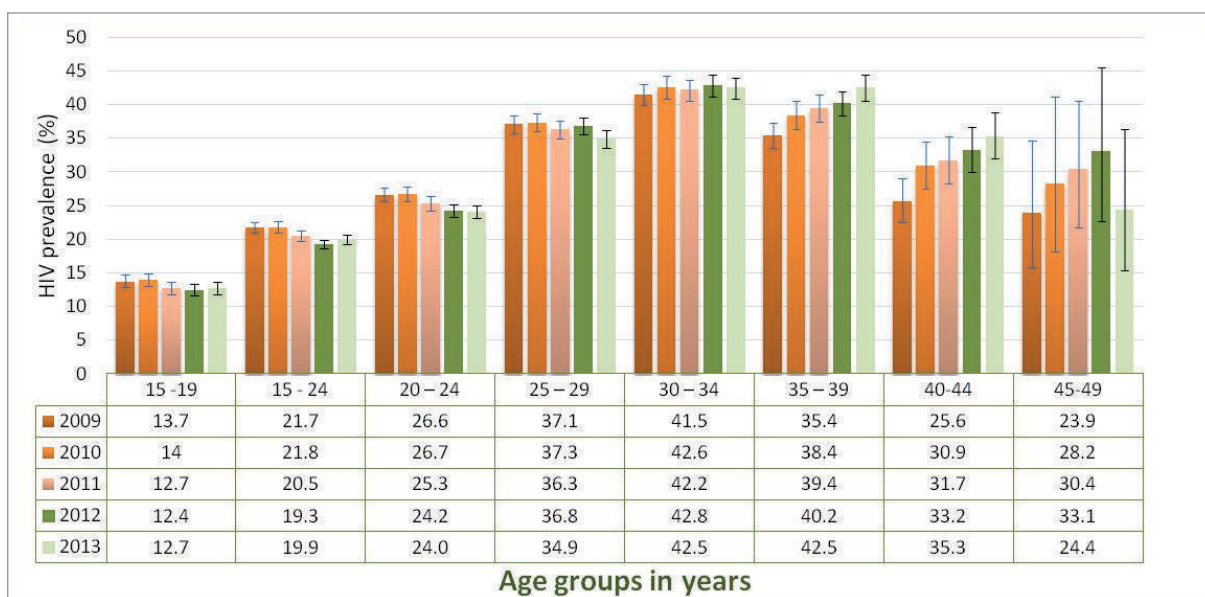


Figure 20: Comparison of HIV prevalence trends among antenatal women by age group, SA, 2009 to 2013.

As shown in Figure 19, the shift in the HIV prevalence distribution over the age range 15-49 is very evident. The increase in prevalence in the older age groups can partially be explained by ART use. The 45-49 year age group show some variability due to the small number of women. From Figure 20, the decline in prevalence in the three youngest age groups (15-19, 20-24, 25-29 years) are also evident although this decline is modest. The decline in prevalence in the younger age groups are cancelled by the increase in prevalence in the older age groups and this has the net result of no change in the overall national prevalence over this five-year period (2009 to 2013). It becomes more important, that triangulation of ART provision must be included in future surveys and reports, in order to understand the age patterns of HIV infected patients receiving ART.

Nationally, the HIV prevalence among women in the 35–39 year-old age group remains the highest from 40.2% in 2012 to 42.5% in 2013. This age group constituted 8.1% of the survey sample.

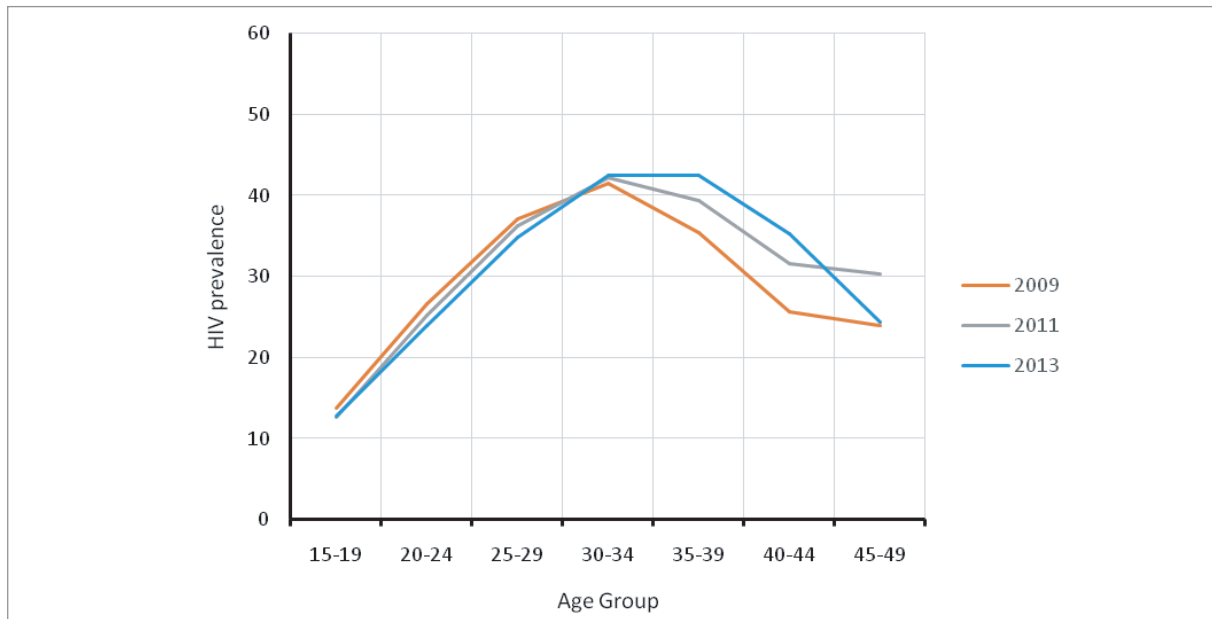


Figure 21: HIV prevalence by age group for the 2009, 2011 and 2013 antenatal sentinel surveys.

Figure 21 show that there was an increase in HIV prevalence rates in the age group 15-19 years, from 12.4% in 2012 to 12.7% in 2013. There was also an increase of 0.6% in HIV prevalence among young women in the age group 15-24 years from 19.3% in 2012 to 19.9% in 2013.

A close analysis of the antenatal survey results for 2008 and 2012 shows consistency between the HIV prevalence trends among younger women and the HIV prevalence trends among older women with some outliers because of sample size e.g. women aged 45-49 years. This provides a powerful argument that the antenatal sentinel survey expanded sample is very representative of the general population. It was noted that the sample size participation of the 45-49 years is the same as the 10-14 year olds. At national level inferences can be made on both age groups

The number of the 10-14 year old pregnant teenage participants are too small to make any scientific inferences at provincial and district levels but provide a valid national HIV estimate. A total of 99 participated in only one month. Table 6 presents the HIV prevalence estimates among pregnant 10–14 year old women who participated in the survey (Table 5).

Table 5: The raw numbers and HIV prevalence among pregnant 10–14 year old women who participated in the 2013 survey.

Age of pregnant women in years	HIV negative	HIV positive	Total
10	0	1	1
	0.0%	100.0%	
11	1	0	1
	100.0%	0.0%	
12	2	0	2
	100%	0%	
13	12	1	13
	92.3%	7.7%	
14	77	5	82
	93.9%	6.1%	
Total	92	7	99
	92.9%	7.1%	

Table 5 above shows that out of the ninety nine 10-14 year old, seven of them were HIV infected with six of the seven aged 13-14 years. This age distribution and observed prevalence is expected if considered against the age distribution and observed prevalence of the main survey.

Two interesting questions arise: are these transmissions due to sex exposure or due to antenatal and postnatal infections due to exposure to an HIV positive mother. Both scenarios are possible.

Some demographic background information is available. It was noted that in 2013, six of the seven who were HIV positive were aware of their HIV status. In addition, amongst the 337 under 15-year-old pregnant women of 2011 to 2013, eight were married (two 13 year olds and six 14 year olds). In 2013, one of the 13 year olds was married to a 35 year old partner. The age of partners of the 337 (10-14 years survey participants) women ranged from 14 to 35 year old.

To investigate the HIV prevalence in the 10-14 year age group at provincial level and the possible factors associated with the transmission, a dedicated epidemiological study is needed. The pregnant 10-14 year old women is a rare population and different sampling strategies are needed to report prevalence at provincial or even district levels.

Evaluation of recent HIV prevalence trends among pregnant women 15–49 years shows differential trends in women of different age groups in South Africa. HIV prevalence has decreased marginally among women aged 15–24 years while increasing significantly among women 35–49 years because of ART. A comparison of antenatal sentinel and the household survey data shows a similarity for African females 25-44 years. It was noted that the age structure and age adjustment of the ANC sample is very different from the 2011 Census sample, with the ante-natal survey sample more than 50% is 15-24 years for 2012.

The analysis of the antenatal sentinel survey results for 2009 and 2013 shows consistency between the HIV prevalence trends among younger women and the HIV prevalence trends

among older women with some outliers because of small sample size e.g. women aged 45-49 years. This provides a powerful argument that the ANC survey expanded sample is very representative of the general population. It was noted that the sample size participation of the 45-49 years is the same as the 10-14 years old at national level, inferences can be made on both age groups.

Figures 22 and 23 presented below show the differential levels of HIV prevalence due to age and education. They show that women under 30 years old with tertiary education have HIV prevalence below the national average. Furthermore, for the age group 20-24 the prevalence plot shows that the education level of a women has a strong protective association, women with no education have an estimated HIV prevalence of 30% compared to 15% in women with a tertiary education. For women 30 years and older, woman with tertiary education also have a lower HIV prevalence.

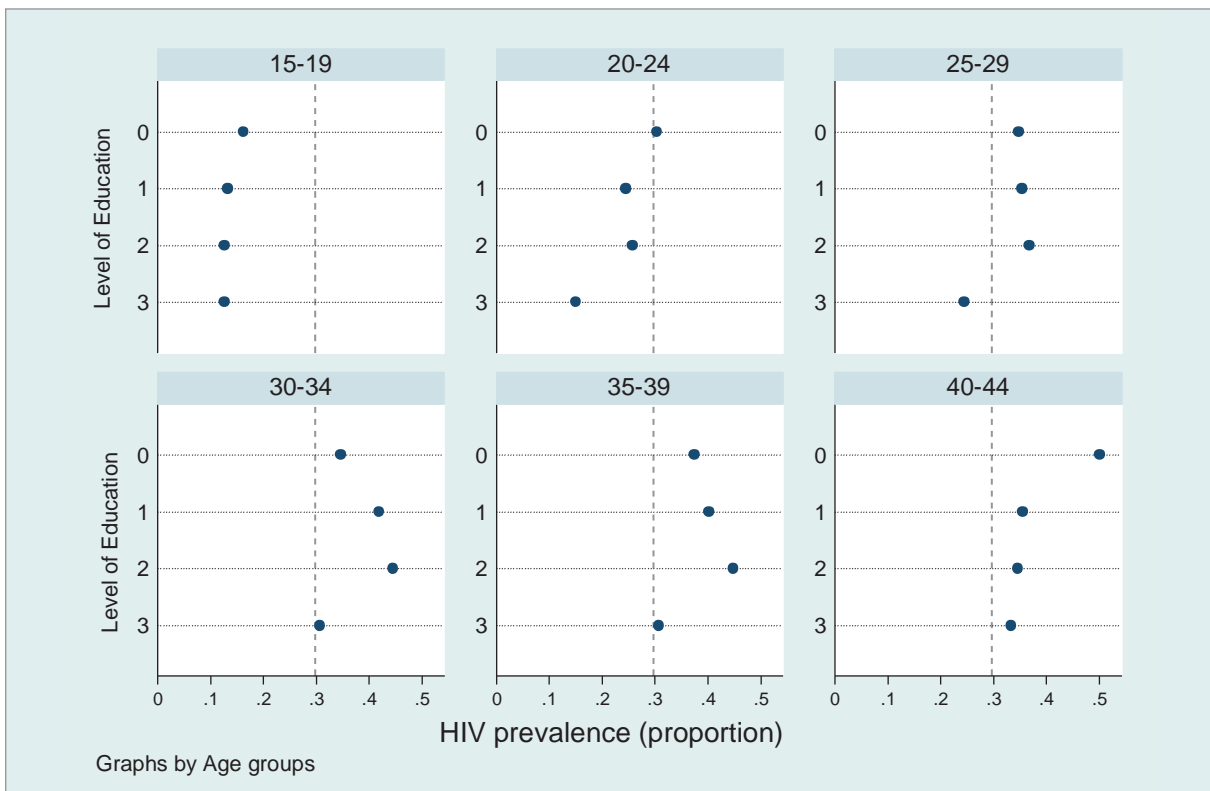


Figure 22: Association between HIV prevalence by education level and age groups (45-49 years age group not shown – because of small numbers).

Key: (0 = no education; 1 = primary education; 2 = secondary education and 3 = tertiary education). The vertical line is the national HIV prevalence estimate of 29.7%.

Higher HIV prevalence is observed in older (>25 years) women who knew their HIV status before participating in the survey in 2013 (Figure 23)

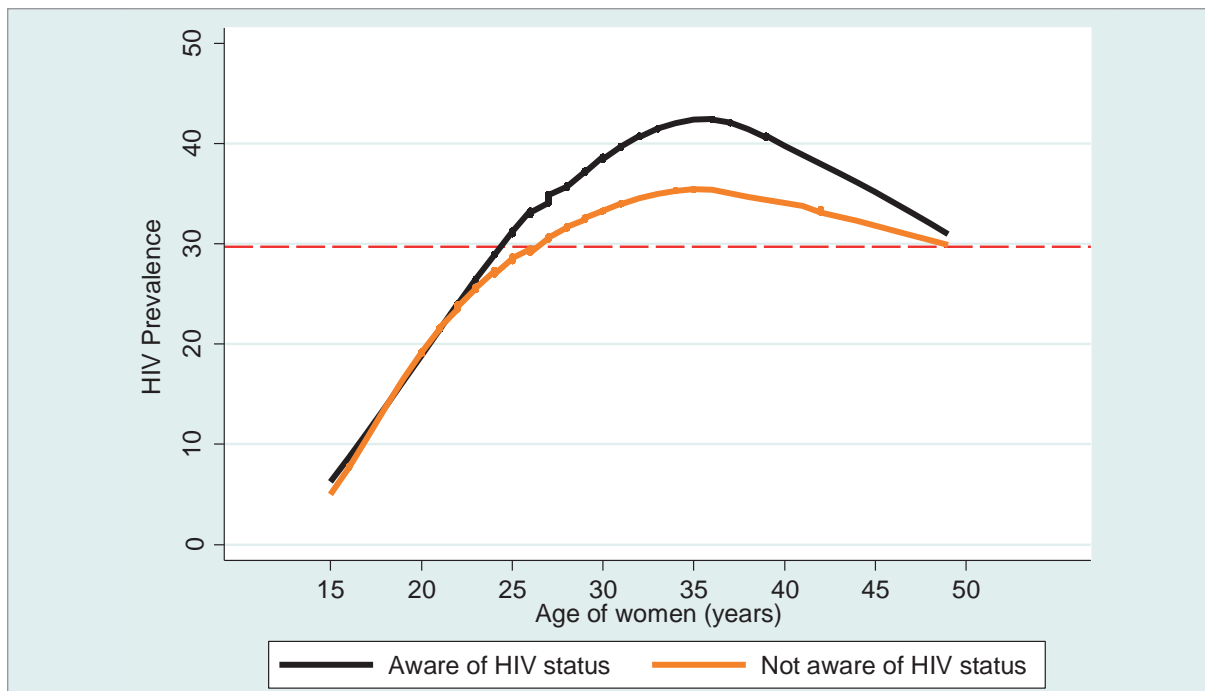


Figure 23: Prevalence by awareness of HIV status and age

HIV PREVALENCE AMONG PREGNANT WOMEN ASSOCIATION WITH AGE GROUP OF PARTNER

The results presented in Figure 24 and Table 6 show that the HIV prevalence by age of partner corresponds to HIV prevalence profile by age of the women. The number of women with partners 65 years and older are small (N=24). There was no indication of any association which the exact logistic regression model confirms. Thus, no indication that older partners are associated with more HIV+ status in this sample.

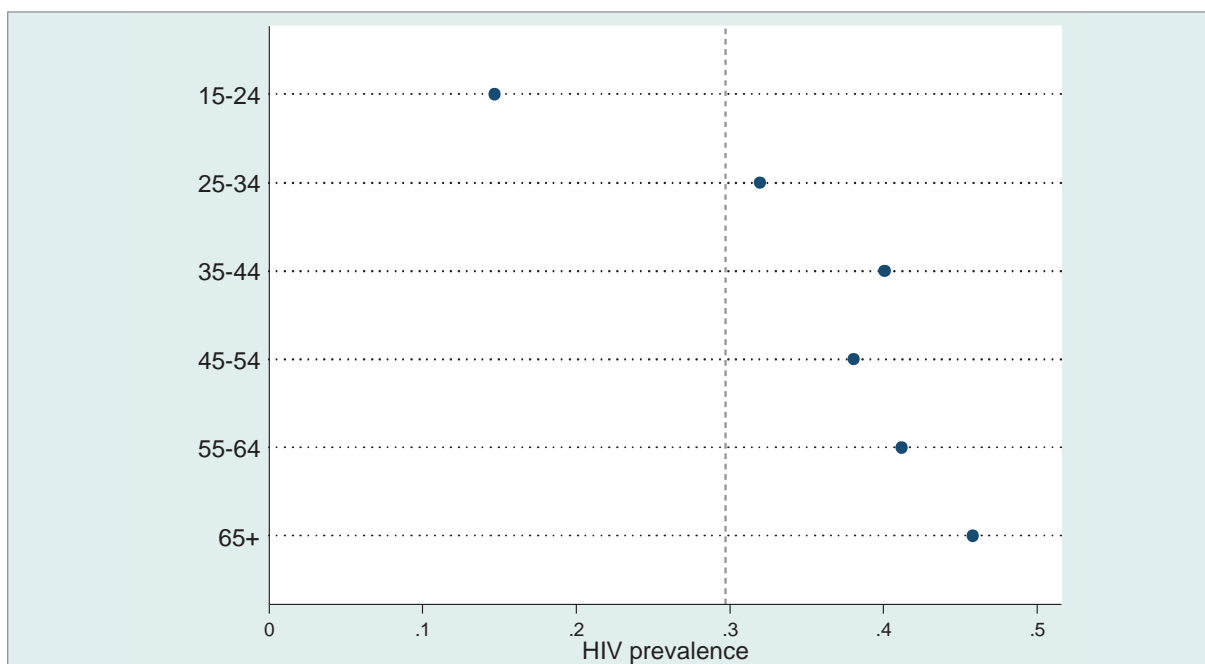


Figure 24: Association between the HIV infection outcome of the survey participants with the age of their partners. The dot plots clearly show provinces with similar HIV age distribution and those women that record HIV prevalence above the national average of 29.7%. **The HIV prevalence on the horizontal axis must be multiplied by 1 000%.**

The results presented in Figure 24 and Table 6 show that the HIV prevalence by age of partner corresponds to HIV prevalence profile by age of the women. The number of women with partners 65 years and older are small (N=24) to make any statistical inference.

Table 6: Age of pregnant women vs. age of partner

Age of pregnant woman	Age of partner groups (years)							Total
	<15	15-24	25-34	35-44	45-54	55-64	>65	
<15	2	83	3	2	0	0	0	90
15-19	1	4 634	978	47	11	2	0	5 673
20-24	0	3 199	6 113	460	24	2	2	9 798
25-29	0	195	6 475	1426	113	9	6	8 220
30-34	0	29	2 219	2 780	276	22	8	5 332
35-39	0	4	173	1 963	431	45	7	2 624
40-44	0	4	20	359	320	46	1	756
45-49	0	0	2	4	44	10	1	61
>50	0	0	0	0	4	5	25	10
Total	3	8 148	15 983	7041	1223	141	25	564

HIV PREVALENCE BY RACE (POPULATION GROUP) - 2013

With respect to HIV prevalence among the different race groups who participated, the Asian and, White population groups were under-represented in the sample and therefore no valid inference can be made for these groups. The highest carriers of the HI virus are Black pregnant women, who account for 32%. Of the 33 770 survey participants who were HIV tested, 9 709 were HIV positive and 9 485 of these women were Black (African women) as shown in the Table 7.

Table 7: HIV prevalence among the antenatal women who participated in the 2013 survey in the different race/population groups.

Population Group	HIV negative	HIV positive	Total participated
Blacks	68.02%	31.98%	29 511
	20 066	9 485	
Asians	91.14%	8.86%	180
	165	15	
Coloureds	93.23%	6.77%	2 851
	2 645	206	
White	97.82%	2.18%	164
	161	3	
Total	70.33	26.67	32 706
	22 997	9 709	

HIV PREVALENCE TRENDS BY INDIVIDUAL PROVINCE

In terms of the overall national antenatal HIV prevalence, the prevalence for women aged between 15-29, has fallen (declining incidence) while the prevalence among those older than 30 years has risen (provision of ARVs keeping infected women alive) resulting in the combined prevalence (15-49) resulting in the national prevalence estimates remaining almost unchanged.

The HIV prevalence trend analysis over the past eight years masks the differences between years at national level. It is clear that the distribution of HIV prevalence trends varies between three and five years in the provinces and districts. When this is done over a short period, for example, over a three-year period, it becomes difficult to make inferences due to the wide confidence intervals, hence, it is the first time in this report that we considered analysing the HIV prevalence change over five years at provincial and district levels and by age groups.

For each province, a five-year comparison of the provincial, district and age distribution HIV prevalences are reported from 2009 to 2013. Due to the smaller sample size in some districts, the sampling error will be much larger than at the provincial level. Therefore, changes of 1-2% 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.

Although the antenatal survey provides valuable information on provincial and district level HIV prevalence, the confidence intervals (CI) are significantly greater than those of national level. The different sample sizes and population density had implications of the wide and overlapping confidence intervals.

The power of test and precision has been done for every province and every district when generating the descriptive analysis. The current scale of the colour bands of the provincial maps is revised to ensure that the maps are more sensitive to changes in HIV prevalence, especially if the difference in HIV prevalence is small (e.g. a difference of 1% to 2%). The coloured maps are useful to show changes in HIV prevalence distribution over time.

EASTERN CAPE

Sampled Population in the Eastern Cape

The age distribution of pregnant women who participated in the survey in the Eastern Cape in 2013 is shown in Figure 25. The majority (73%) of the survey participants were women aged 15–29 years and 51% were women between 15–24 years old.

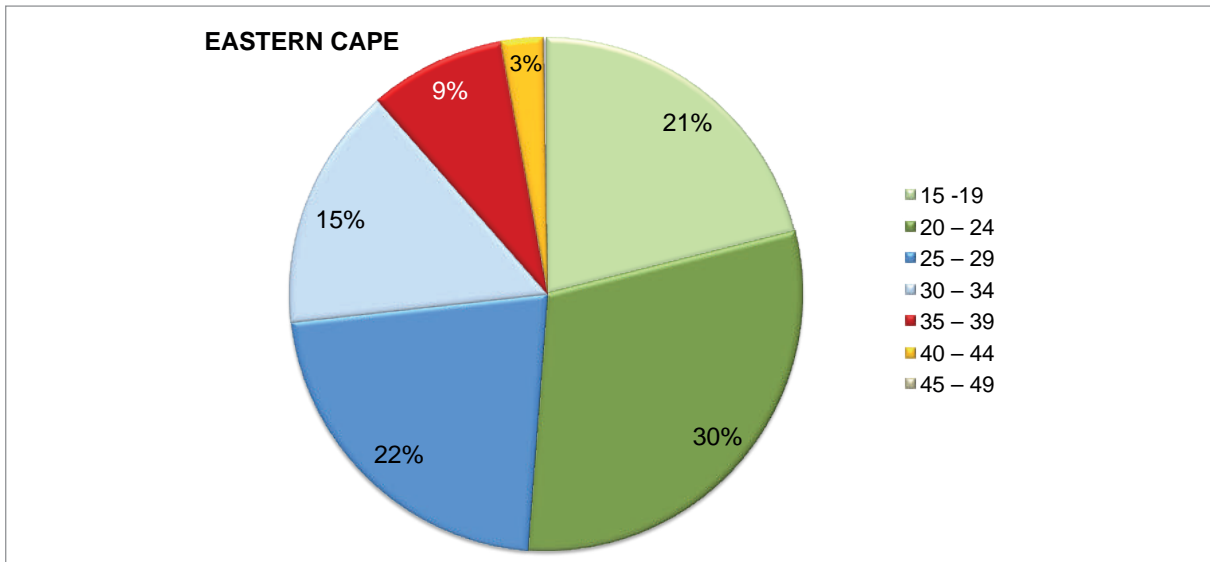


Figure 25: Distribution of pregnant survey participant by age group, Eastern Cape, 2013.

In 2013, the Eastern Cape provincial HIV prevalence amongst antenatal women increased from 28.1% (95% CI 26.1 – 30.1%) in 2009 by 3.3% to 31.4% (95% CI: 28.2 – 31.7). This is highest HIV prevalence estimate recorded in this province since 1990, as shown in Figure 26.

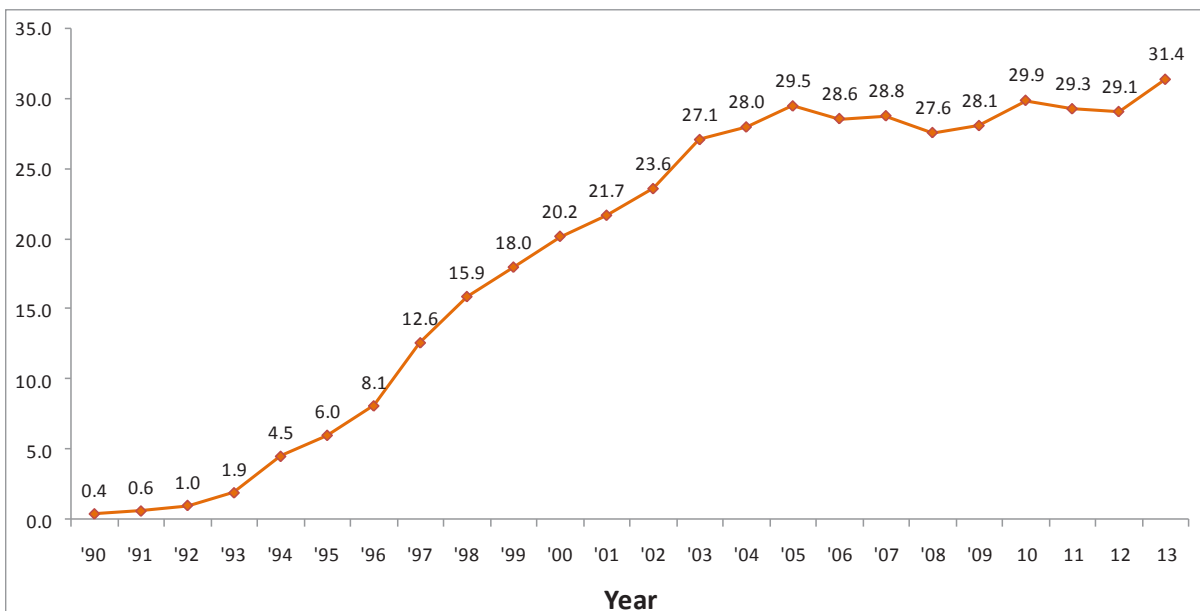


Figure 26: HIV prevalence epidemic curve among antenatal women in the Eastern Cape, SA 1990–2013.

HIV PREVALENCE BY DISTRICT IN THE EASTERN CAPE FROM 2009 TO 2013.

The HIV prevalence trends in Eastern Cape districts from 2009 to 2013 are presented in Figure 24. In 2009, there were six out of the seven districts that recorded HIV prevalence below 30.0%. However, in 2013, there were five districts that recorded HIV prevalence above 30% compared to one district (Nelson Mandela Metro) in 2009. In 2013, the lowest HIV prevalence was recorded in Cacadu (27.5%) district and the highest was in Amatole (35.3%). The O.R. Tambo and Chris Hani district HIV prevalence rates have increased from 30.1% and 29.0 % in 2012 to 32.6% and 34.5% in 2013 respectively.

Table 8: Change in HIV prevalence by district from 2009 to 2013 in the Eastern Cape province.

District	2009			2013			% Change in PREV
	%HIV+	95% (CI)	N	%HIV+	95% (CI)	N	
Alfred Nzo	23.7	16.3 - 33.0	186	25.3	20.5 - 30.9	395	1.6
Amatole	27.2	24.5 - 30.2	1116	35.3	31.4 - 39.4	502	8.1
Buffalo City	New District			29.5	24.8 - 34.6	516	n/a
Cacadu	24.3	16.4 - 34.5	255	27.5	20.4 - 35.9	291	3.2
Chris Hani	27.1	23.1 - 31.4	491	34.5	30.2 - 39.0	600	7.4
NMM	30.7	24.0 - 38.4	785	31.4	24.9 - 38.9	789	0.7
O.R. Tambo	29.8	27.1 - 32.6	1192	32.6	28.8 - 36.4	866	2.8
Joe Gqabi	23.5	16.0 - 33.2	200	30.7	24.2 - 38.8	248	7.2
Eastern Cape	28.1	26.1 - 30.1	4225	31.4	29.4 - 33.5	4207	3.3

The district HIV prevalence five-year trends from 2009 to 2013 are presented in Table 8 and Figure 25. The changes in HIV prevalence distribution is shown in Figure 25. All six districts have shown an increase in HIV prevalence from 2009 to 2013. The substantial significant increase in the past five years are the three districts, namely, Amatole (by 8.1%); Chris Hani (by 7.4%) and Joe Gqabi (by 7.2%). There were five districts in the Eastern Cape that recorded HIV prevalence rates above 30% compared to one district in 2009.

The lowest HIV prevalence was recorded in Alfred Nzo (25.3%) and the highest HIV prevalence was recorded in Amatole district (35.3%), which increased from 31.5% in 2012 to 35.3% in 2013. Buffalo City has decreased from 34.1% in 2011 to 29.5% in 2013. Substantive increases in HIV prevalence between 2009 and 2013 were recorded in Chris Hani and Nelson Mandela Metro where HIV prevalence increased by 5.5% and 7.1% respectively, with Amatole recording the highest increase of 8.1%. The changes in HIV prevalence by district from 2009 to 2013 in the Eastern Cape province are shown in the maps in Figure 28.

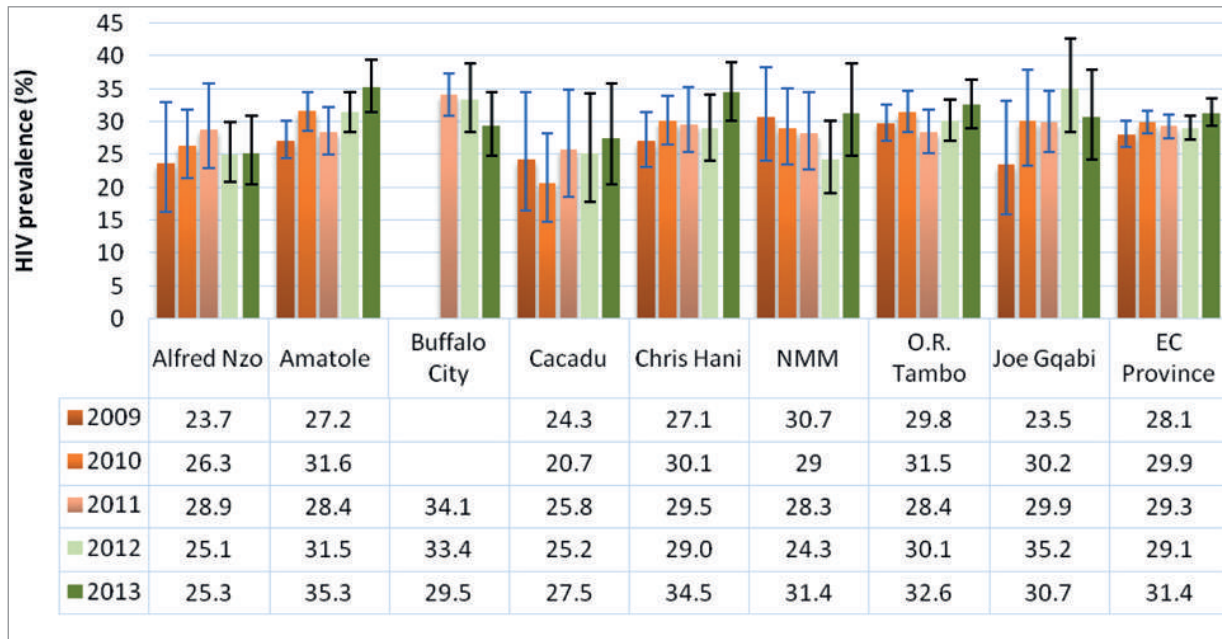


Figure 27: Districts HIV prevalence five-year trend analysis among antenatal women, Eastern Cape, 2009 to 2013.

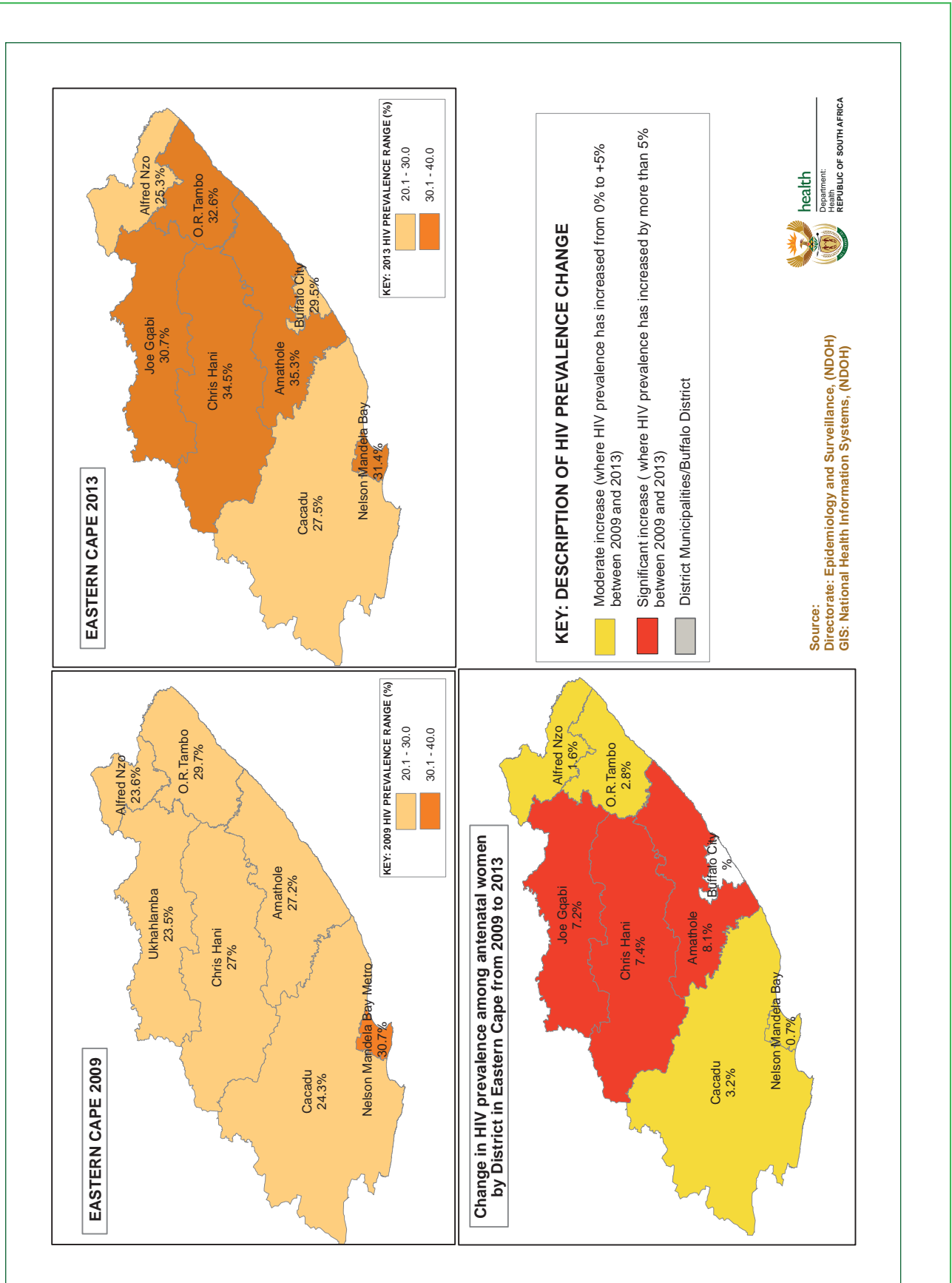


Figure 28: Maps showing a five-year HIV prevalence trend analysis among antenatal women by district, Eastern Cape, 2009 to 2013.

FREE STATE

Sampled population in the Free State

The age distribution of pregnant women who participated in the survey in the Free State in 2013 is shown in Figure 29. The majority (78%) of the survey participants were women aged 15–29 years and 52% were women between 15–24 years old.

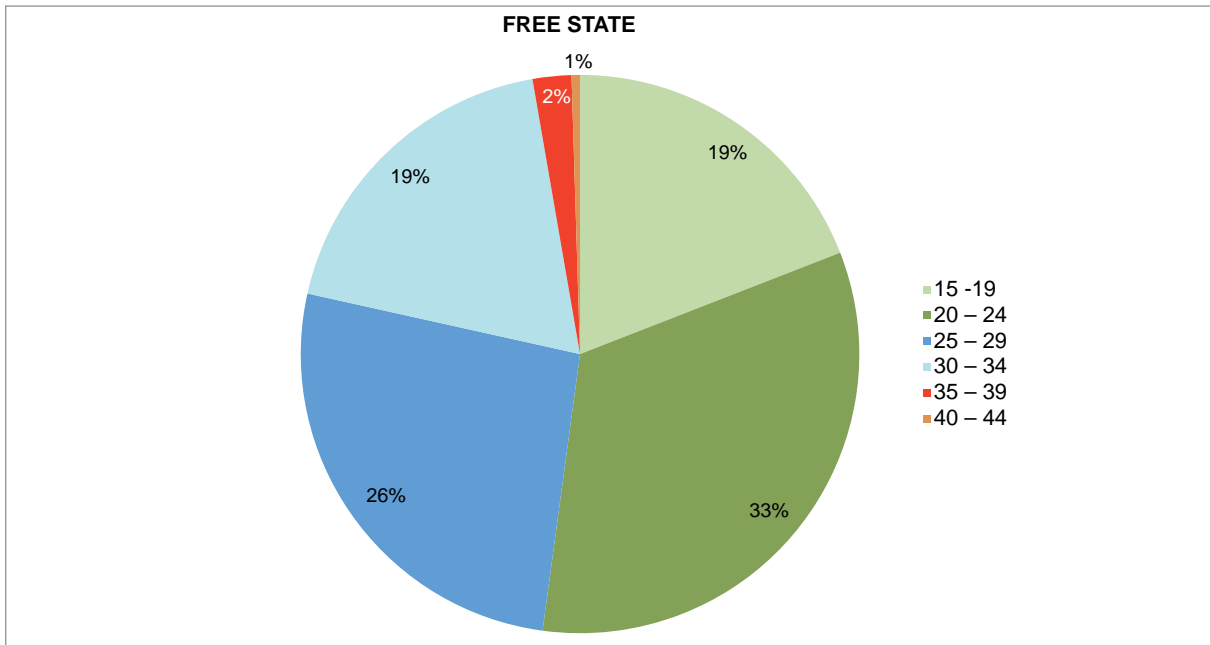


Figure 29: Distribution of pregnant survey participant by age group, Free State, 2013.

The Free State provincial HIV prevalence amongst antenatal women decreased from 30.1% (95%CI: 28.1–32.1) in 2009 to 29.8% (95%CI: 27.6–32.0) in 2013, a slight decline by 0.3% as shown by the provincial HIV epidemic curve in Figure 30.

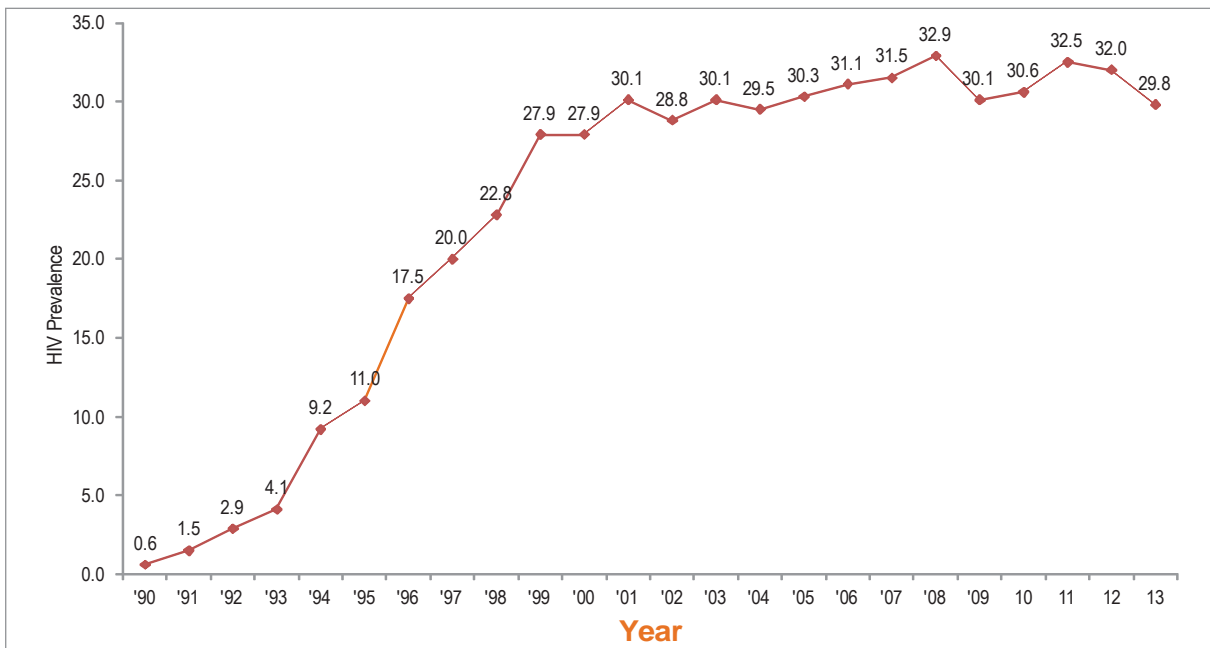


Figure 30: HIV prevalence epidemic curve among antenatal women in the Free State, SA 1990 to 2013.

HIV PREVALENCE BY DISTRICT IN THE FREE STATE FROM 2009 TO 2013

The five-year trend of district HIV prevalence rates in this province from 2009 to 2013 shows that in 2012, four of the five districts in the Free State recorded HIV prevalence above 30% compared to three districts in 2013. Xhariep recorded a slightly lower prevalence at 25.8% which is decrease of 3.5% from 29.3% in 2012. Thabo Mofutsanyane had a decrease in HIV prevalence from 33.5% in 2012, 31.9% in 2011 to 30.1% in 2013. Results in some districts are based on sample size less than 400, and therefore interpretation of the findings should be treated with caution, especially in the Xhariep district. Fezile Dabi HIV prevalence has significantly declined by 9.6% from 35.6% in 2011 to 26.0% in 2013 (Figure 28). The variation in change in HIV prevalence among antenatal women in the Free State province from 2009 to 2013 is presented in Figure 28.

In the Free State, there are three out of five districts that recorded a moderate decrease in HIV prevalence from 2009 to 2013. HIV prevalence in Fezile Dabi HIV prevalence decreased from 27.8% to 26.0% from 2009 to 2013. Thabo Mofutsanyane HIV prevalence decreased from 31.3% to 30.1% and Lejweleputswa HIV prevalence decreases from 33.3% to 32.3%. The remaining two districts, namely, Mangaung and Xhariep were the only two districts that recorded a moderate HIV prevalence increase by 2.6 % and 0.1% respectively.

The changes in HIV prevalence by district from 2009 to 2013 in the Free State province are shown in the choropleth maps in Figure 29.

Table 9: Change in HIV prevalence by district from 2009 to 2013 in the Free State province.

DISTRICT	2009			2013			% Change in PREV
	%HIV+	95% (CI)	N	%HIV+	95% (CI)	N	
Fezile Dabi	27.9	24.5 - 31.5	416	26.0	21.6 - 30.8	351	-1.9
Lejweleputswa	33.4	29.3 - 37.87	611	32.3	27.9 - 37.2	569	-1.1
Motheo	27.8	23.7 - 32.2	601	30.4	25.5 - 35.8	503	2.6
TM	31.3	27.9 - 35.1	603	30.1	26.4 - 34.1	634	-1.2
Xhariep	25.7	16.4 - 37.9	105	25.8	18.6 - 34.6	159	0.1
Free State	30.1	28.1 - 32.1	2336	29.8	27.6 - 32.0	2216	-0.3

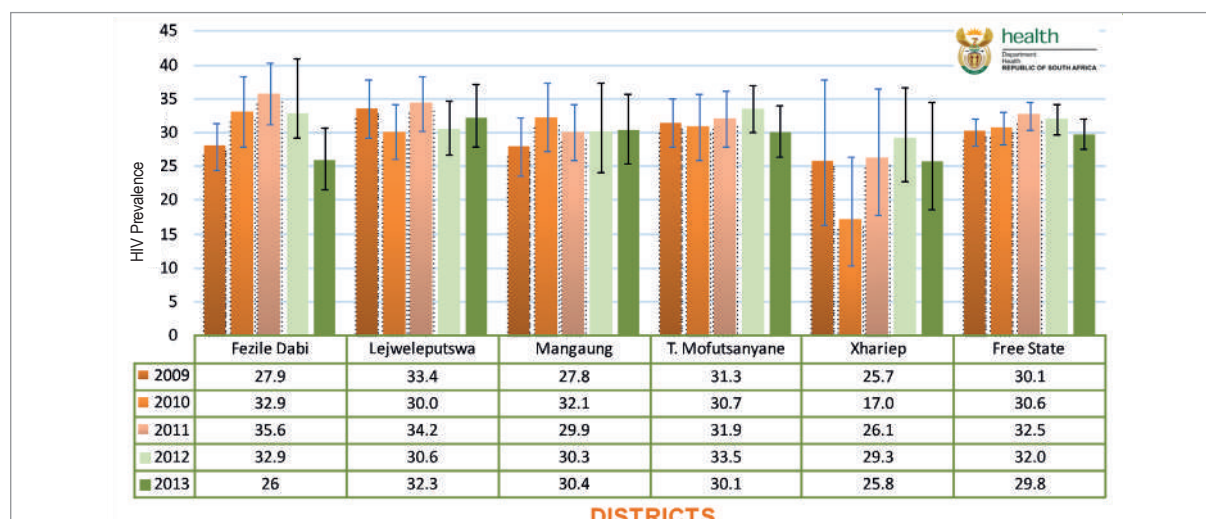


Figure 31: Districts HIV prevalence five-year trend analysis among antenatal women in the Free State, 2009 to 2013.

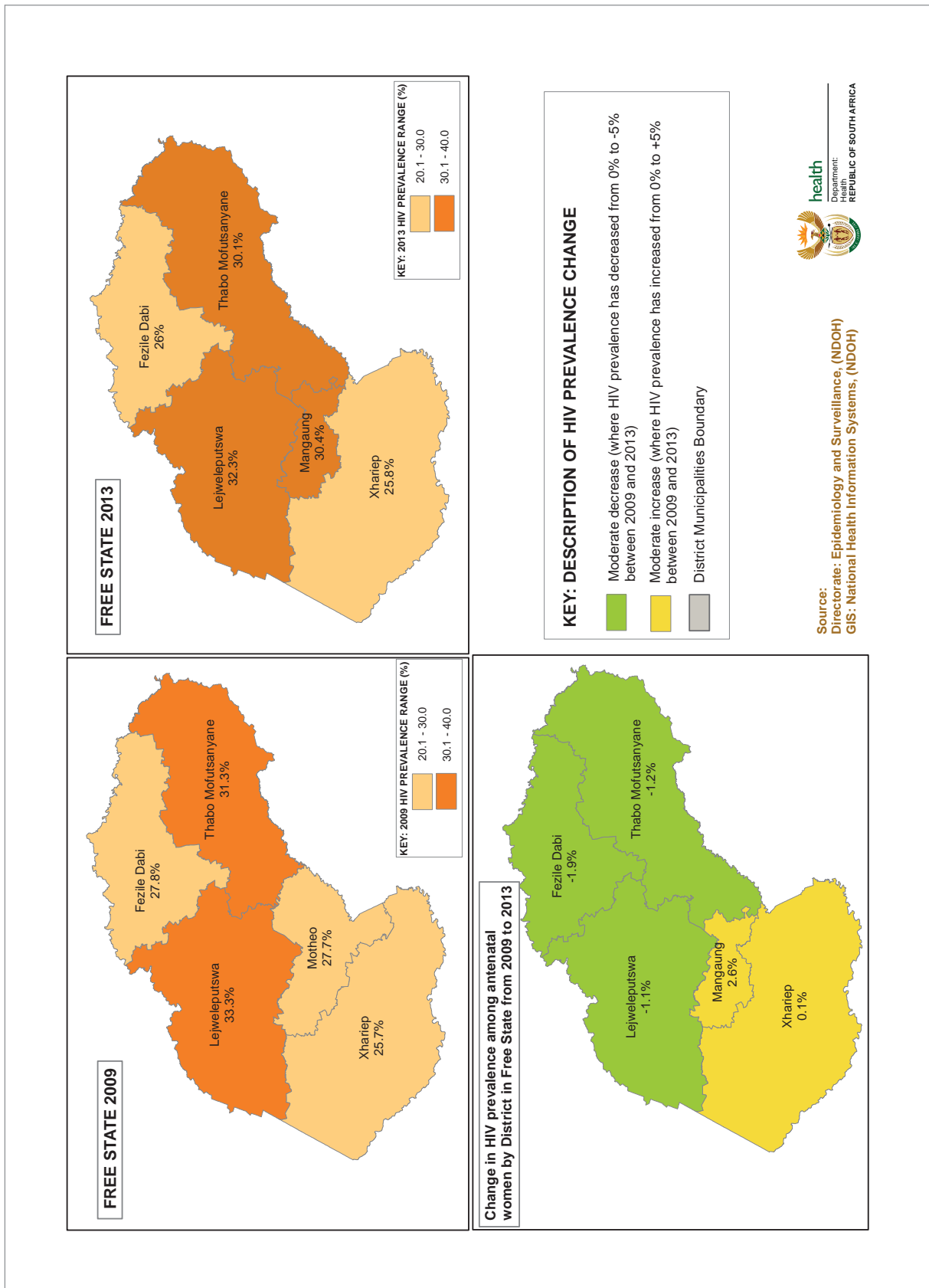


Figure 32: HIV prevalence distribution among survey participants by district in the Free State, 2009 and 2013 shown in choropleth maps that also shows the change in HIV prevalence by district over five years, i.e. between 2009 and 2013.

GAUTENG

Sampled Population in Gauteng

The age distribution of pregnant women who participated in the survey in Gauteng in 2013 is shown in Figure 33. The majority (69%) of the survey participants were women aged 15–29 years and 41% were women between 15-24 years old.

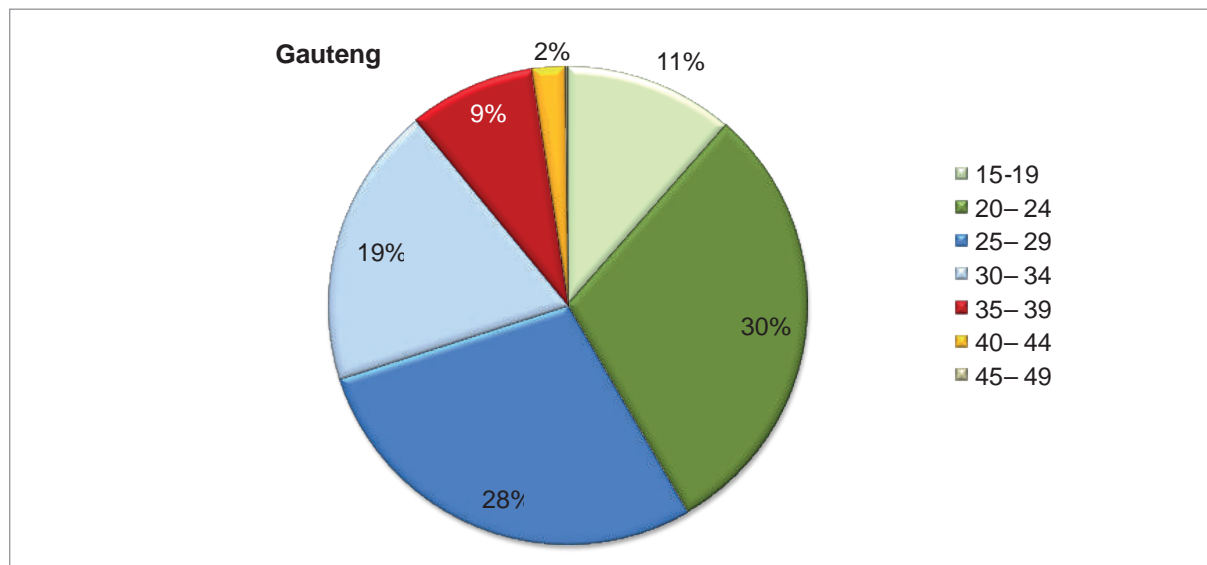


Figure 33: Distribution of pregnant women survey participants by age group, Gauteng, 2013

In 2013, the Gauteng provincial HIV prevalence amongst antenatal women was 28.6% (95%CI: 27.0–30.3) which decreased by 1.2% from 29.8% (28.6–31.1) in 2009. The overall prevalence in Gauteng is stabilising around 29%-30% in the past five years, as shown in the Gauteng HIV epidemic curve in Figure 34.

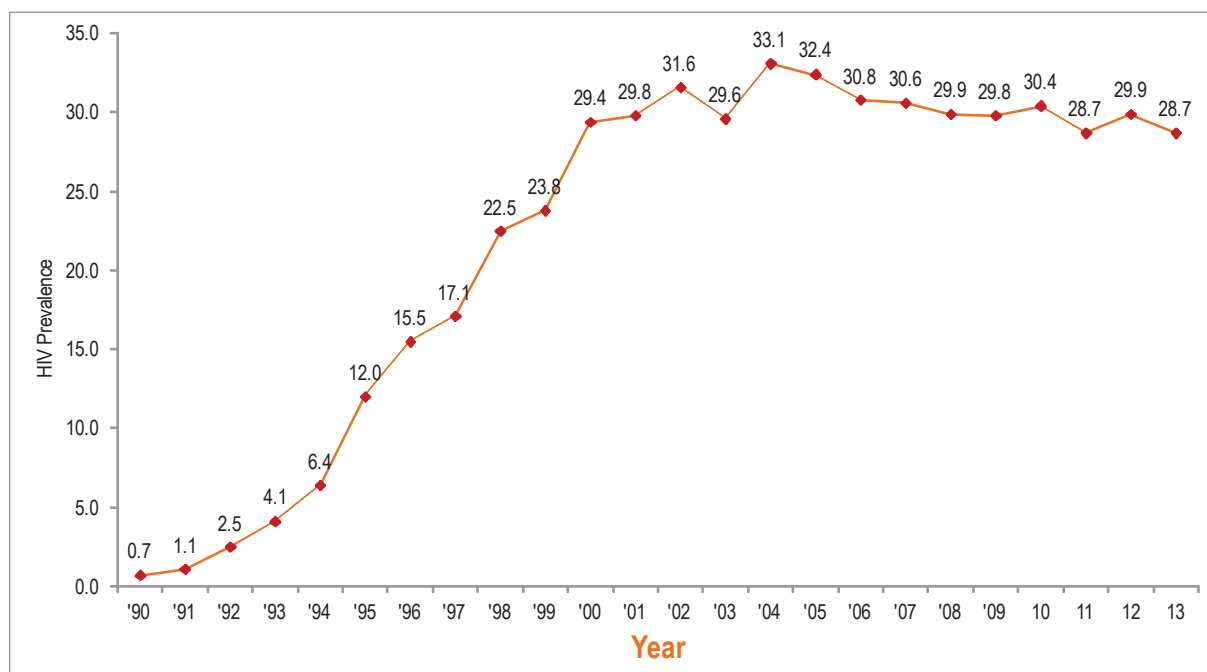


Figure 34: HIV prevalence epidemic curve among antenatal women in Gauteng, SA 1990–2013.

HIV PREVALENCE BY DISTRICT IN GAUTENG FROM 2009 TO 2013

In Gauteng, only two out of five districts recorded an increase in HIV prevalence. West Rand increased by 2.9% and Sedibeng increased by 0.3% from 2009 to 2013 respectively. However, The City of Tshwane recorded the highest decrease in HIV prevalence by 2.3% from 25.7% in 2009 to 23.4% in 2013. The City of Johannesburg recorded a slight decrease in HIV prevalence from 28.9% in 2009 to 27.3% in 2013 and Ekurhuleni HIV prevalence decreased from 34.0% in 2009 to 33.5% in 2013, as presented in Figure 32.

The HIV prevalence recorded in the five districts in Gauteng remained very high in 2013, and the lowest was 23.4% in the City of Tshwane and the highest was 33.5% in Ekurhuleni.

Table 10: Change in HIV prevalence by districts from 2009 to 2013 in the Gauteng province.

Districts	2009			2013			% Change in PREV
	%HIV+	95% (CI)	N	%HIV+	95% (CI)	N	
Co J	29.0	27.0 - 31.0	2489	27.3	24.7 - 30.1	2500	-1.7
Ekurhuleni	34.0	31.5 - 36.7	1896	33.5	30.4 - 36.6	1647.0	-0.5
Metsweding	33.3	24.9 - 43.0	120	Metsweding district merged with City of Tshwane			
Sedibeng	28.9	25.9 - 32.2	667	29.2	24.8 - 33.9	621	0.3
Tshwane	25.7	23.1 - 28.6	1466	23.4	20.1 - 27.1	1423	-2.3
West Rand	30.1	26.2 - 34.3	549	33.0	27.3 - 39.3	539	2.9
Gauteng	29.8	28.6 - 31.1	7187	28.6	27.0 - 30.3	6730	-1.2

The changes in HIV prevalence by district from 2009 to 2013 in the Gauteng province are shown in the maps in Table 11 and Figure 33.

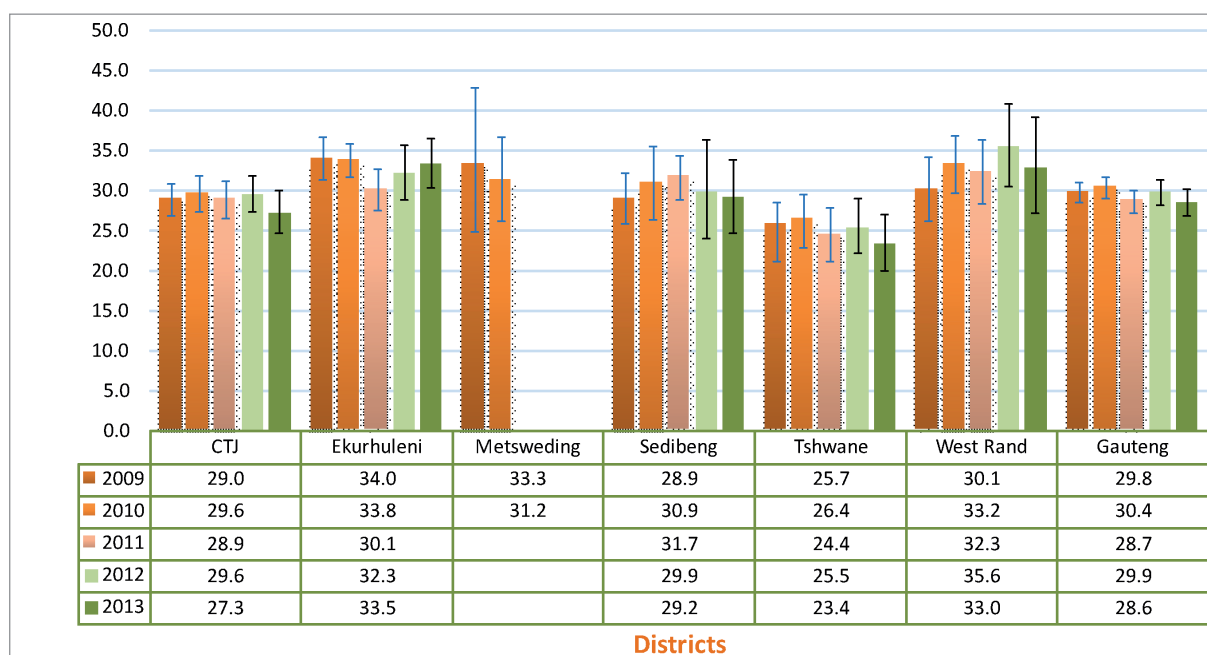


Figure 35: Districts HIV prevalence five-year trend analysis among antenatal women in Gauteng, 2009 to 2013.

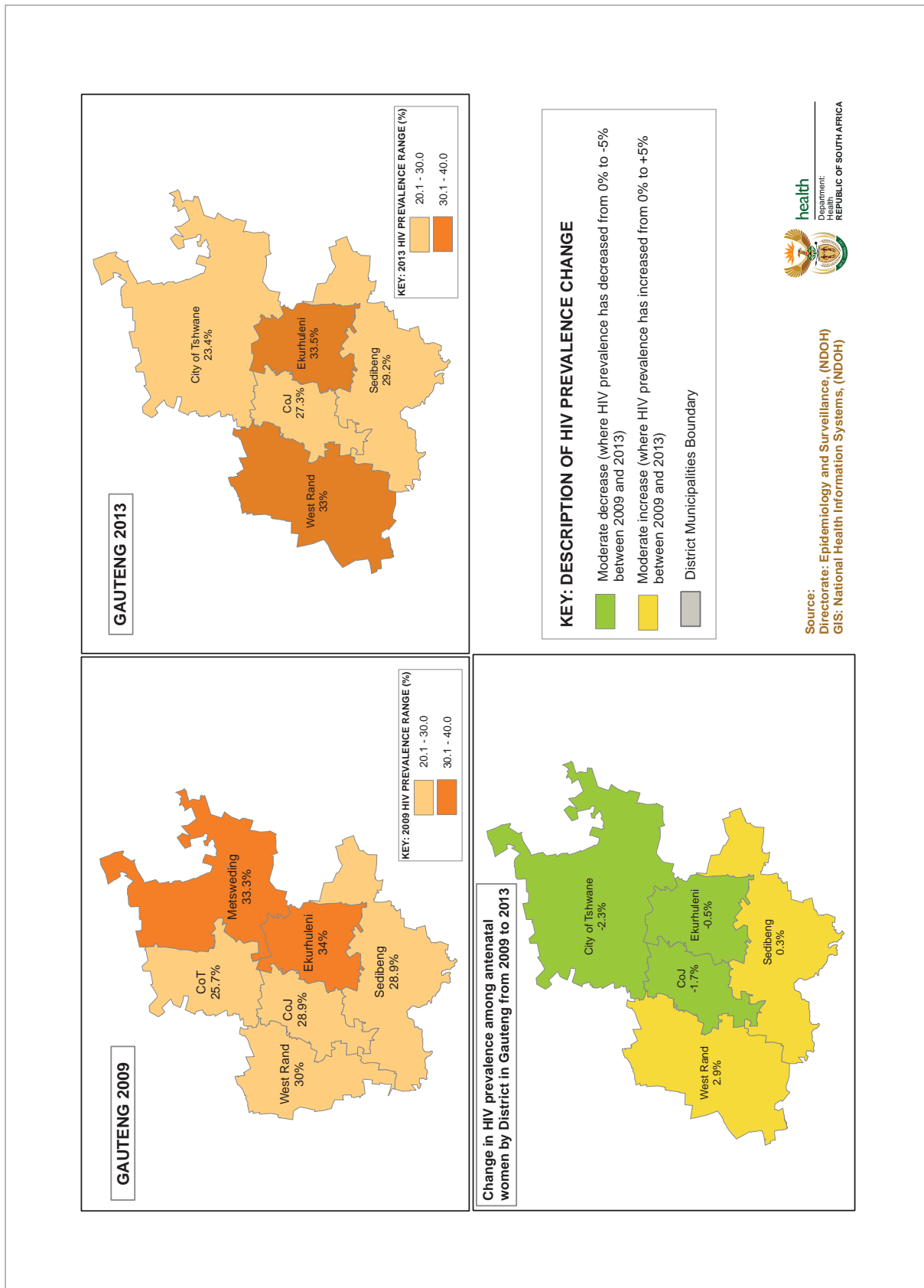


Figure 36: HIV prevalence distribution among survey participants by district in Gauteng, 2009 and 2013 shown in choropleth maps that also show the change in HIV prevalence by district over five years, i.e. between 2009 and 2013.

KWAZULU-NATAL

Sampled Population in KwaZulu-Natal

The age distribution of pregnant women who participated in the survey in KwaZulu-Natal in 2013 is shown in Figure 37. The majority (78.5%) of the survey participants were women aged 15–29 years and 54.5% were women between 15–24 years old.

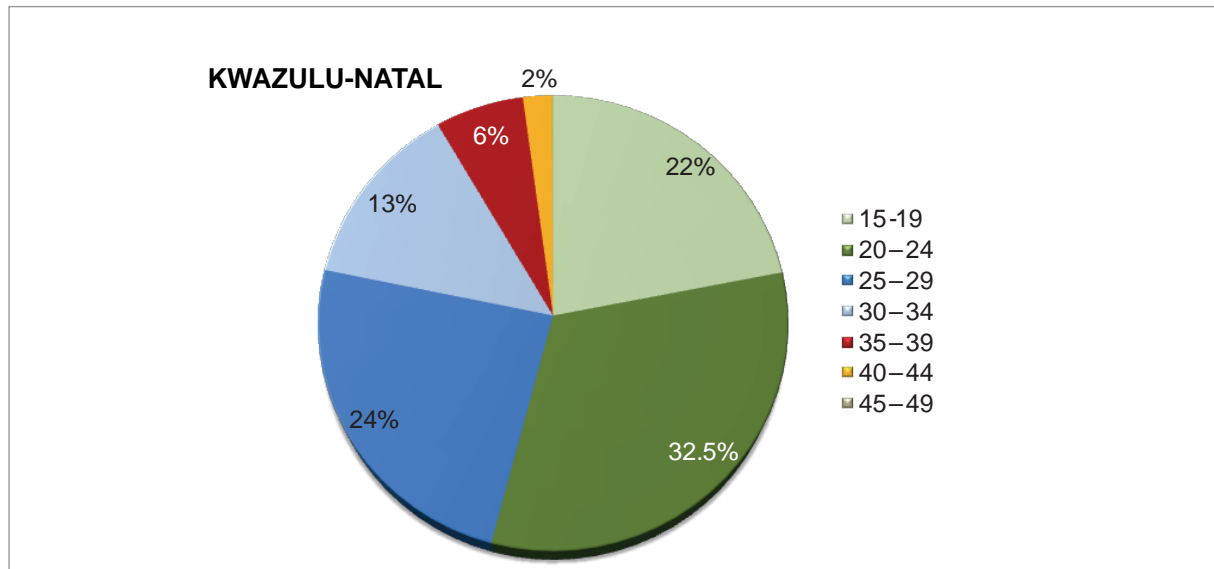


Figure 37: Distribution of pregnant women survey participant by age group, KwaZulu-Natal, 2013.

In 2013, out of every five pregnant women attending antenatal care in public health clinics, two of them were HIV positive in KwaZulu-Natal. This province has recorded the highest HIV prevalence in the country since 1990. The overall provincial HIV prevalence increased from 37.4% in 2011 and 2012 to 40.1% in 2013, which was a moderate increase by 2.7% as shown in the HIV epidemic curve in Figure 38.

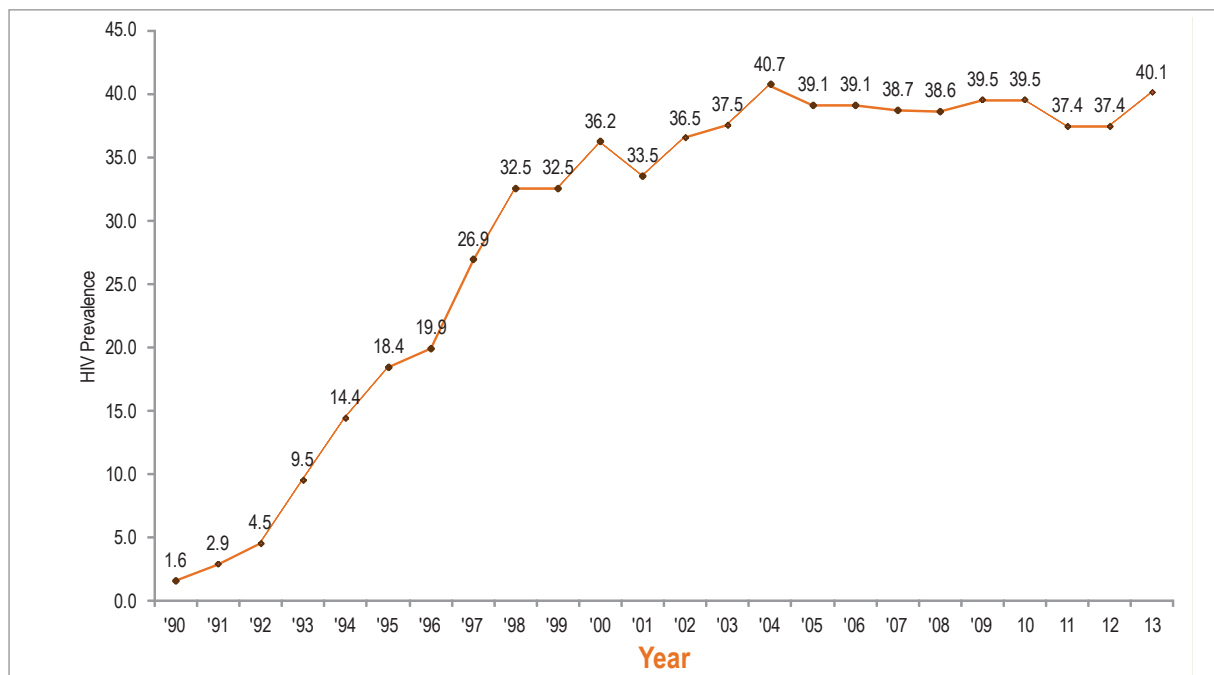


Figure 38: HIV prevalence epidemic curve among antenatal women in KwaZulu-Natal, SA 1990–2013.

HIV prevalence by district in the KwaZulu-Natal from 2009 to 2013

Among the 11 districts in KwaZulu-Natal, the impact of the HIV epidemic when a five-year comparison was done between 2009 and 2013, showed that the most significant decrease in HIV prevalence is in UThukela district which decreased by 6.4%, i.e. from 46.4% in 2009 to 40.0% in 2013, but still remains very high. ILembe district has recorded the highest HIV prevalence of 45.9% in the 52 districts. Since 2009 to 2013, there was a significant increase in HIV prevalence in ILembe, and UMzinyathi significantly increased by 7.5% from 28.2% in 2009 to 35.7% in 2013. There was no significant change in HIV prevalence among antenatal women in seven of the 11 districts from 2009 to 2013, namely, Amajuba, Zululand, UMkhanyakude, UThungulu, UMgungundlovu, EThekwini and Sisonke as presented in Table 11 and Figure 36.

Table 11: Change in HIV prevalence by district from 2009 to 2013 in KwaZulu-Natal province.

DISTRICT	2009			2013			% Change in HIV prev
	%HIV+	95% (CI)	N	%HIV+	95% (CI)	N	
Amajuba	37.3	33.3 - 41.6	410	37.8	27.7 - 38.3	418	0.5
Harry Gwala	35.2	29.3 - 41.6	324	36.6	32.5 - 41.1	333	1.4
Ugu	40.2	36.0 - 44.6	435	39.9	34.2 - 45.9	484	-0.3
UMkhanyakude	39.7	33.1 - 46.6	396	44.1	39.6 - 48.6	404	4.4
UMzinyathi	28.2	22.2 - 35.1	340	35.7	28.4 - 43.8	336	7.5
UThukela	46.4	41.1 - 51.8	444	40.0	35.0 - 45.2	428	-6.4
UThungulu	37.7	33.0 - 42.6	597	38.9	34.4 - 43.5	620	1.2
Zululand	36.7	30.4 - 43.5	586	38.1	32.1 - 44.6	582	1.4
eThekwini	41.5	38.9 - 44.0	2140	41.1	38.3 - 43.9	2196	-0.4
iLembe	40.6	36.5 - 44.9	421	45.9	36.5 - 55.6	414	5.3
uMgungundlovu	40.9	36.2 - 45.7	651	42.4	34.8 - 50.5	702	1.5
KwaZulu-Natal	39.5	38.1 - 41.0	6744	40.1	30.4 - 41.8	6917	0.6

The changes in HIV prevalence by district from 2009 to 2013 in KwaZulu-Natal province are shown in the choropleth maps in Figure 37.

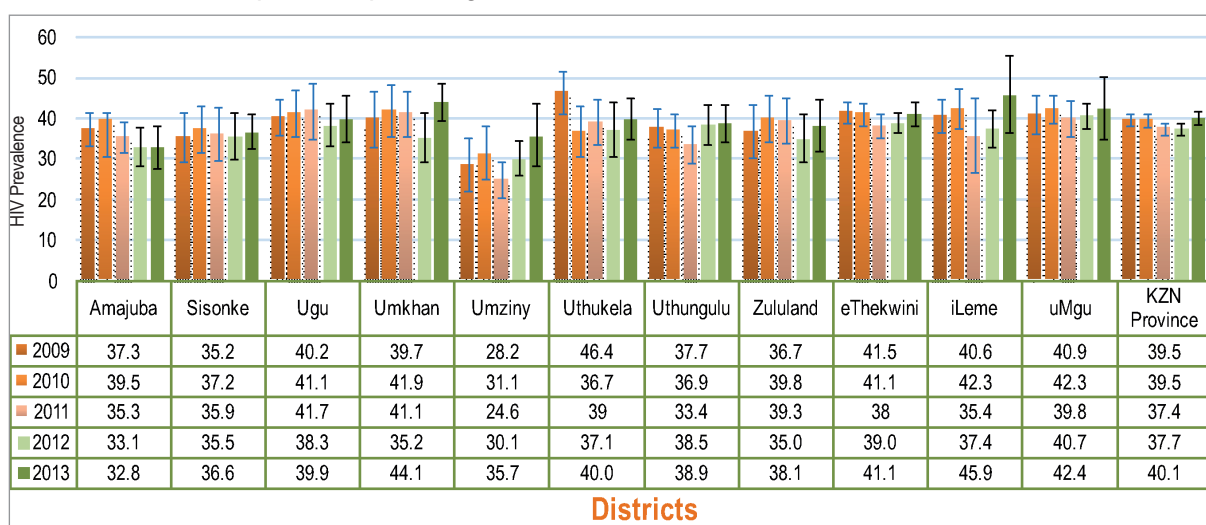


Figure 39: Districts HIV prevalence five-year trend analysis among antenatal women in KwaZulu-Natal, 2009 to 2013.

Umkhan = UMkhanyakude, Umziny = UMzinyathi, Umg = uMgungundlovu

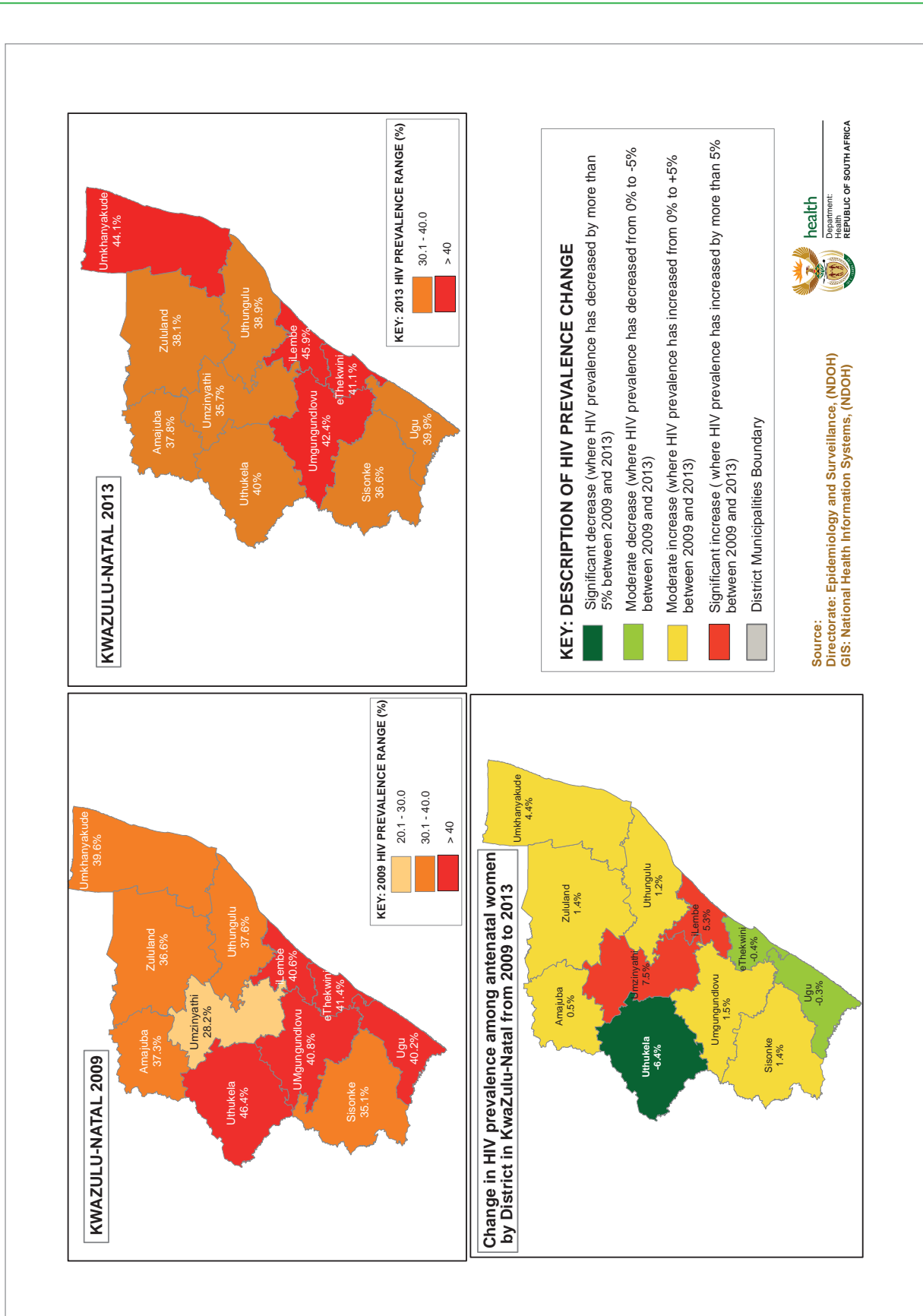


Figure 40: HIV prevalence distribution among survey participants by district in KwaZulu-Natal, 2009 and 2013 shown in choropleth maps that also show the change in HIV prevalence by district over five years, i.e. between 2009 and 2013.

LIMPOPO

Sampled population in Limpopo

The age distribution of pregnant women who participated in the survey in Limpopo in 2013 is shown in Figure 41. The majority (72%) of the survey participants were women aged 15–29 years and 48% were women between 15-24 years old.

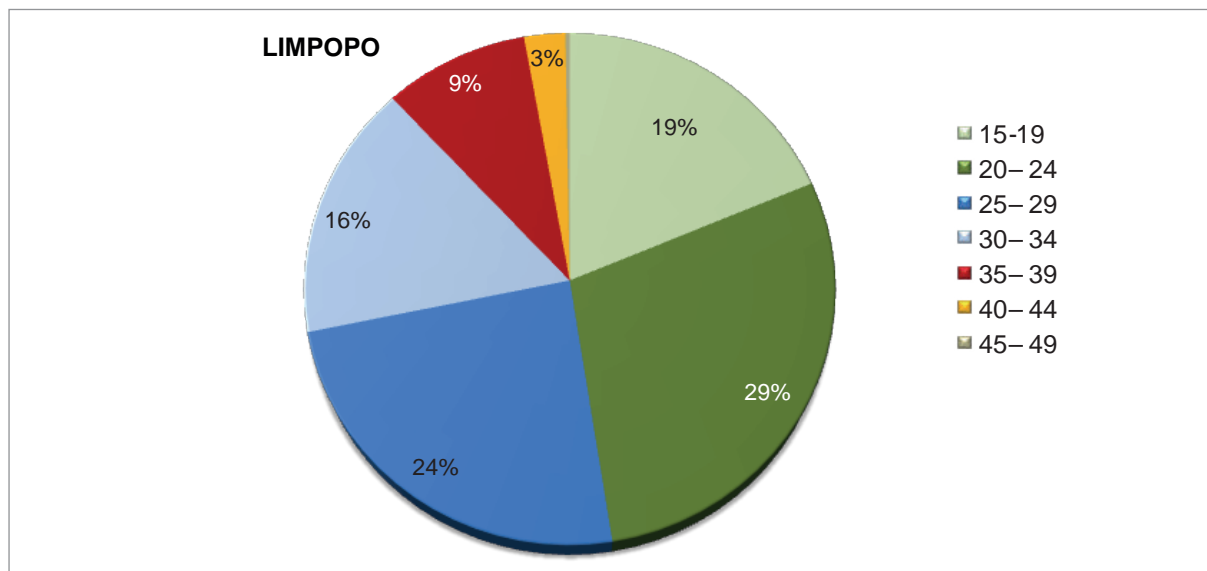


Figure 41: Distribution of pregnant women survey participant by age group in Limpopo, 2013.

In 2013, the Limpopo provincial HIV prevalence amongst antenatal women was estimated at 20.3% (95%CI: 18.9–21.9). The overall provincial HIV prevalence in Limpopo moderately decreased by 1.1% from 21.4% (95%CI: 19.7–23.1) in 2009, as shown by the HIV epidemic curve in Figure 42.

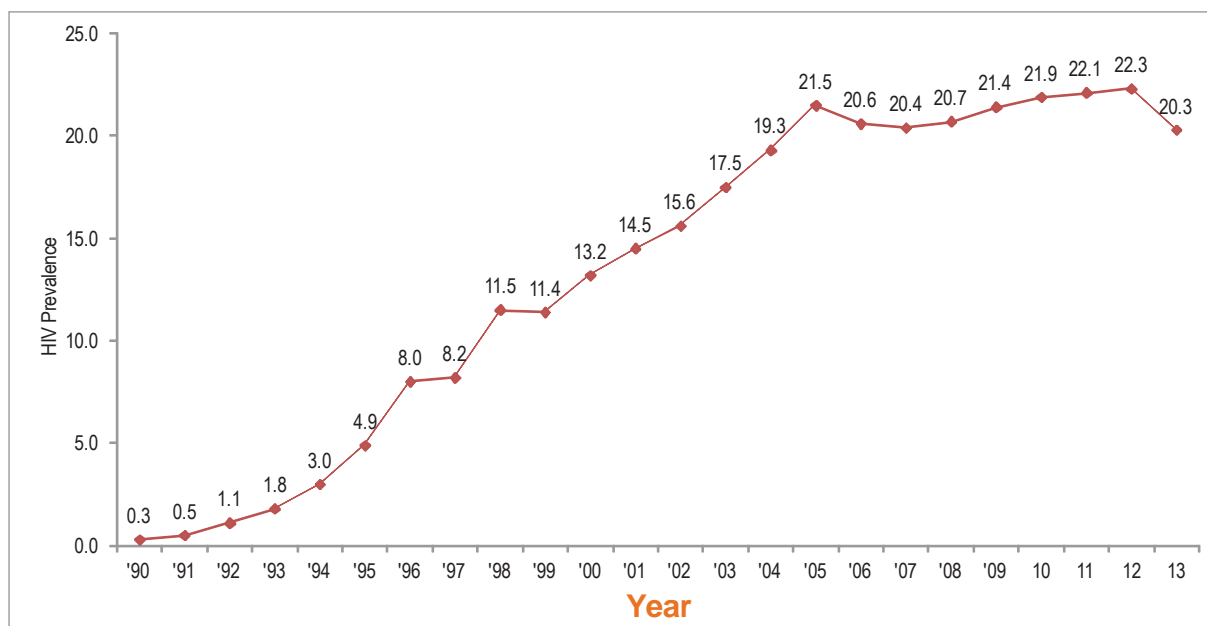


Figure 42: HIV prevalence epidemic curve among antenatal women in Limpopo, SA 1990–2013.

HIV prevalence by district in Limpopo from 2009 to 2013

In Limpopo, Capricorn, Mopani and Waterberg have recorded HIV prevalence less than 30.0% in the past five years and there is a moderate decrease in HIV prevalence recorded from 2009 to 2013. There is a moderate increase in HIV prevalence in Sekhukhune and 0.7% in Vhembe from 2000 to 2013 respectively, as shown in Table 12 and Figure 43.

Erratic changes in HIV prevalence rates were seen in the Vhembe district which has consistently recorded the lowest HIV prevalence, from 14.6.0% in 2011 to 17.1% in 2012 and 15.0% in 2013. Sekhukhune had a similar trend, from 18.9% in 2011 to 23.0% in 2012 and 18.1% in 2013. This could be attributed to small and variable sample sizes. Waterberg district continues to record the highest HIV prevalence in Limpopo, although a notable decrease of 3% from 30.3% in 2011 to 27.3 % in 2012 and 2013 was noted.

Table 12: Change in HIV prevalence by district from 2009 to 2013 in the Limpopo province.

DISTRICT	2009			2013			% Change in Prev.
	%HIV+	95% (CI)	N	%HIV+	95% (CI)	N	
Capricorn	23.8	20.8 - 27.1	887	21.1	17.9 - 24.6	741	-2.7
Mopani	26.2	21.8 - 31.2	698	24.6	20.3 - 29.5	639	-1.6
Sekhukhune	16.6	13.5 - 20.3	493	18.1	16.1 - 20.3	681	1.5
Vhembe	14.3	11.4 - 17.8	903	15.0	12.7 - 17.6	853	0.7
Waterberg	28.8	23.4 - 34.8	431	27.3	22.9 - 32.2	410	-1.5
Limpopo	21.4	19.7 - 33.1	3412	20.3	18.9 - 21.9	3324	-1.1

The changes in HIV prevalence by district from 2009 to 2013 in the Limpopo province are shown in the choropleth maps in Figure 44.

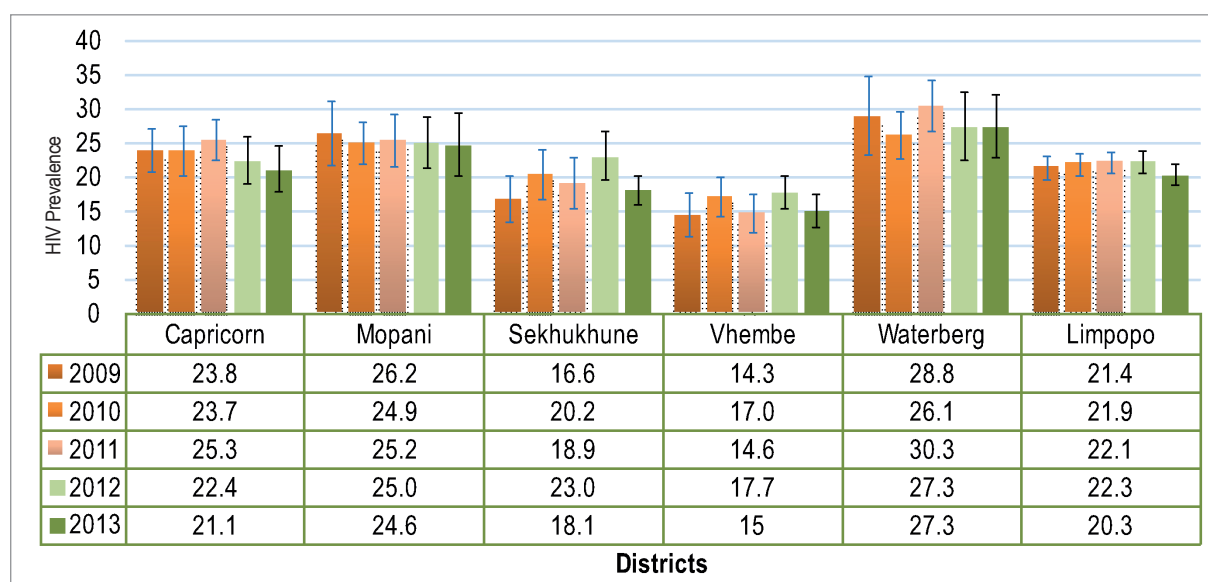


Figure 43: Districts HIV prevalence five-year trend analysis among antenatal women in Limpopo, 2009 to 2013.

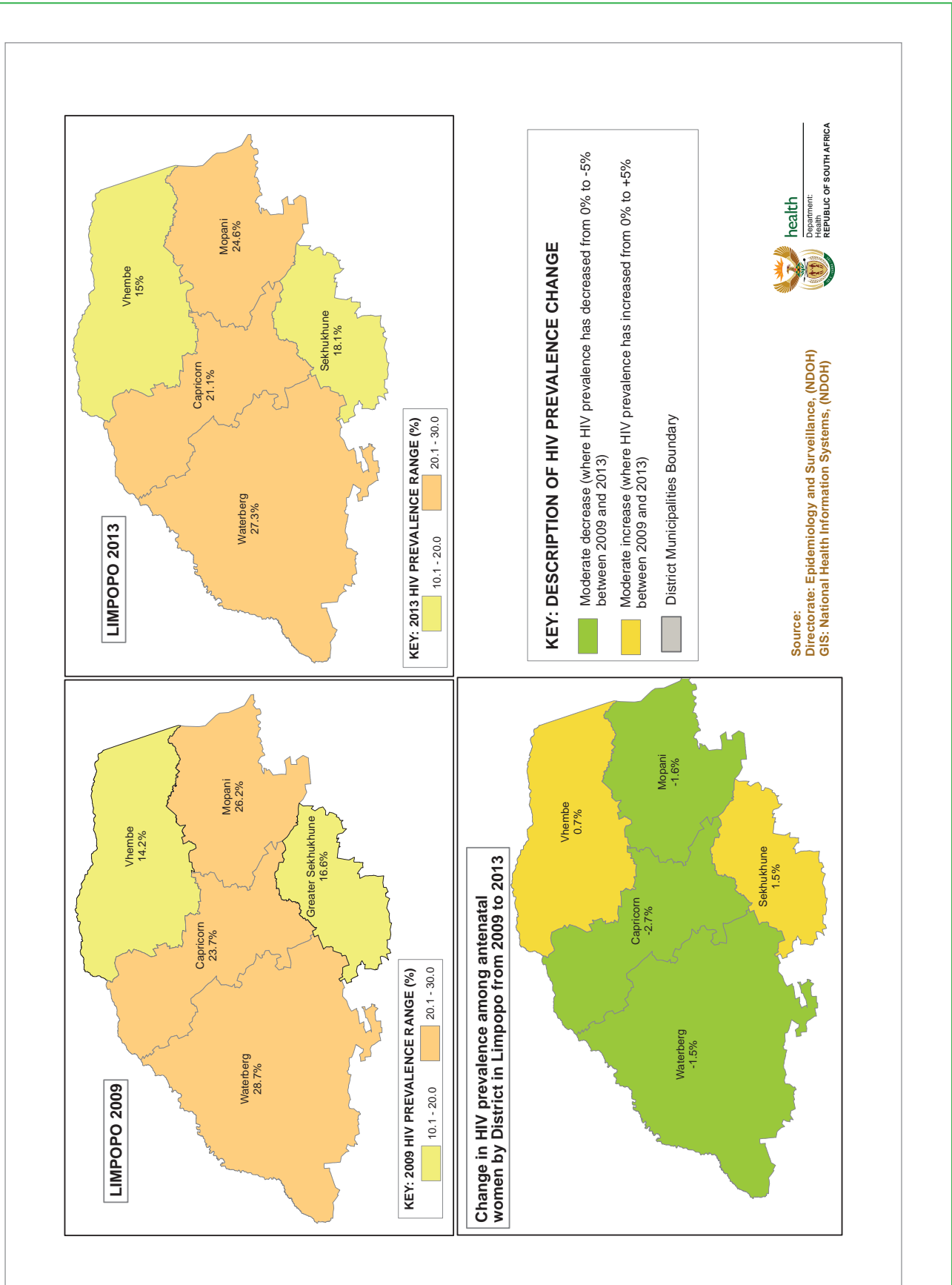


Figure 44: HIV prevalence distribution among survey participants by district in Limpopo, 2009 and 2013 shown in choropleth maps that also shows the change in HIV prevalence by districts over five years, i.e. between 2009 and 2013.

MPUMALANGA

SAMPLED POPULATION IN MPUMALANGA

The age distribution of pregnant women who participated in the survey in Mpumalanga in 2013 is shown in Figure 45. The majority (75%) of the survey participants were women aged 15–29 years and 50% were women between 15-24 years old.

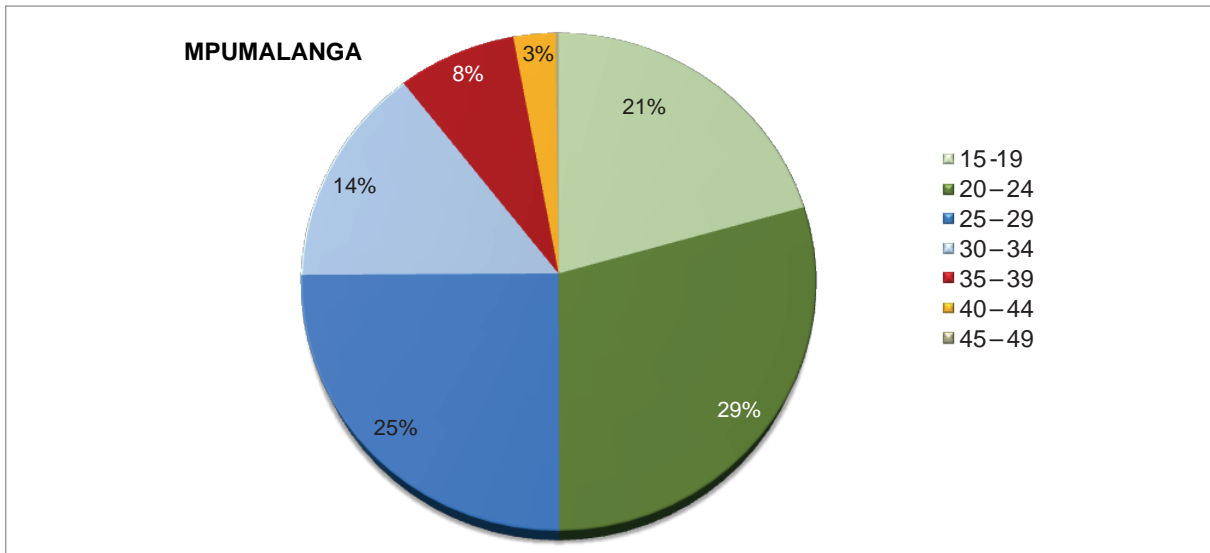


Figure 45: Distribution of pregnant women survey participants by age group in Mpumalanga, 2013.

In 2013, the Mpumalanga provincial HIV prevalence amongst antenatal women was 37.5% (95%CI: 35.1-40.0). This is a moderate increase of 2.8% from 34.7% (95% CI: 32.5-36.9) in 2009. However, the HIV prevalence in this province has always been very high, above 30% since 2003 as shown in the Mpumalanga HIV epidemic curve in Figure 46.

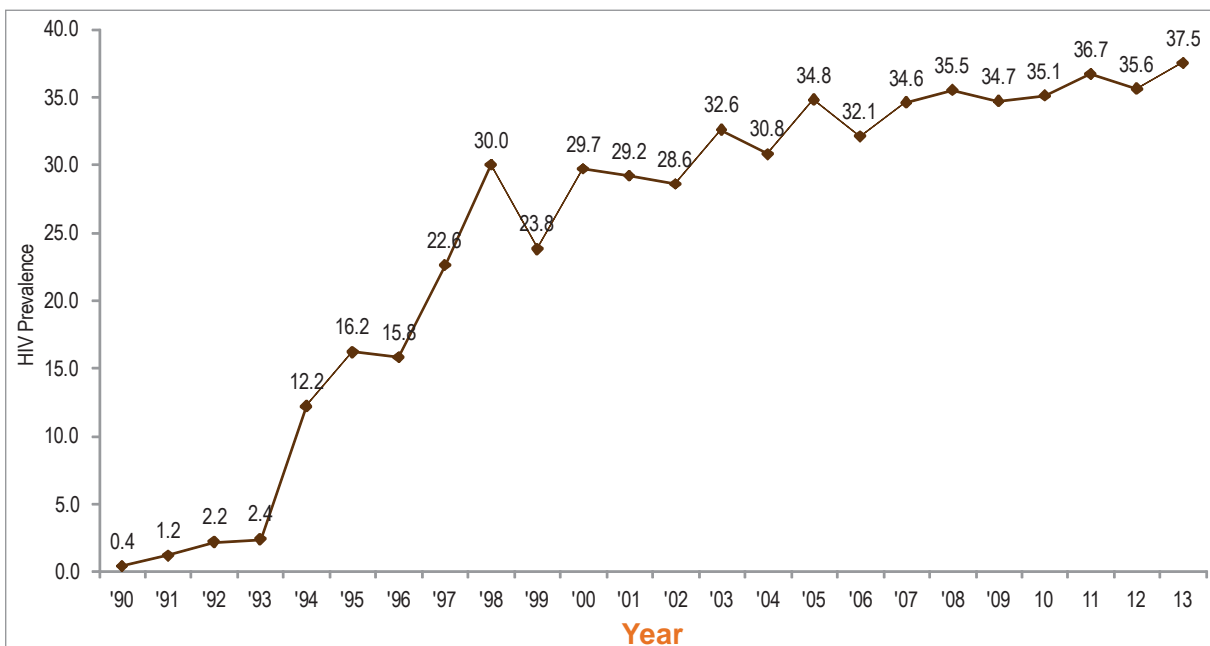


Figure 46: HIV prevalence epidemic curve among antenatal women in Mpumalanga, SA 1990 to 2013.

HIV prevalence by district in Mpumalanga 2009 to 2013

All three districts have moderately increased HIV prevalence from 2009 to 2013. The highest HIV prevalence increase was by 3.8% in Ehlanzeni followed by an increase of 2.6% in Gert Sibande and a 1.8% increase in Nkangala district. The district HIV prevalence trend variations in the HIV prevalence over the past five years are presented in Figure 47.

Table 13: Change in HIV prevalence by district from 2009 to 2013 in the Mpumalanga province.

DISTRICTS	2009			2013			% Change in PREV
	%HIV+	95% (CI)	N	%HIV+	95% (CI)	N	
Ehlanzeni	33.8	30.1 - 37.6	921	37.6	34.2 - 41.1	993	3.8
Gert Sibande	38.2	34.7 - 41.9	560	40.8	36.1 - 45.6	564	2.6
Nkangala	32.6	29.1 - 36.3	568	34.4	29.5 - 39.6	631	1.8
Mpumalanga	34.7	32.5 - 36.9	2049	37.5	35.1 - 40.0	2188	2.8

Two districts in Mpumalanga, viz., Ehlanzeni and Gert Sibande recorded the sixth and seventh highest HIV prevalence among the 52 health districts in the country.

The changes in HIV prevalence by district from 2009 to 2013 in the Mpumalanga province are shown in the choropleth maps in Table 13 and Figure 48.

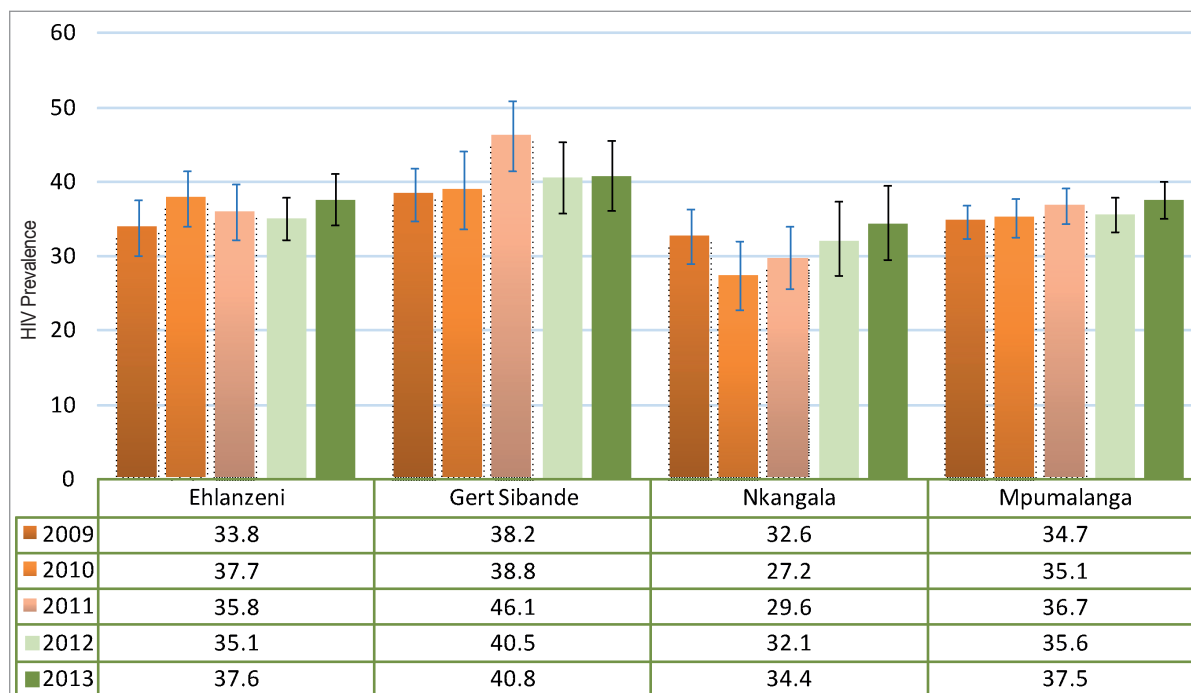


Figure 47: Districts HIV prevalence five-year trend analysis among antenatal women in the Mpumalanga province between 2009 to 2013.

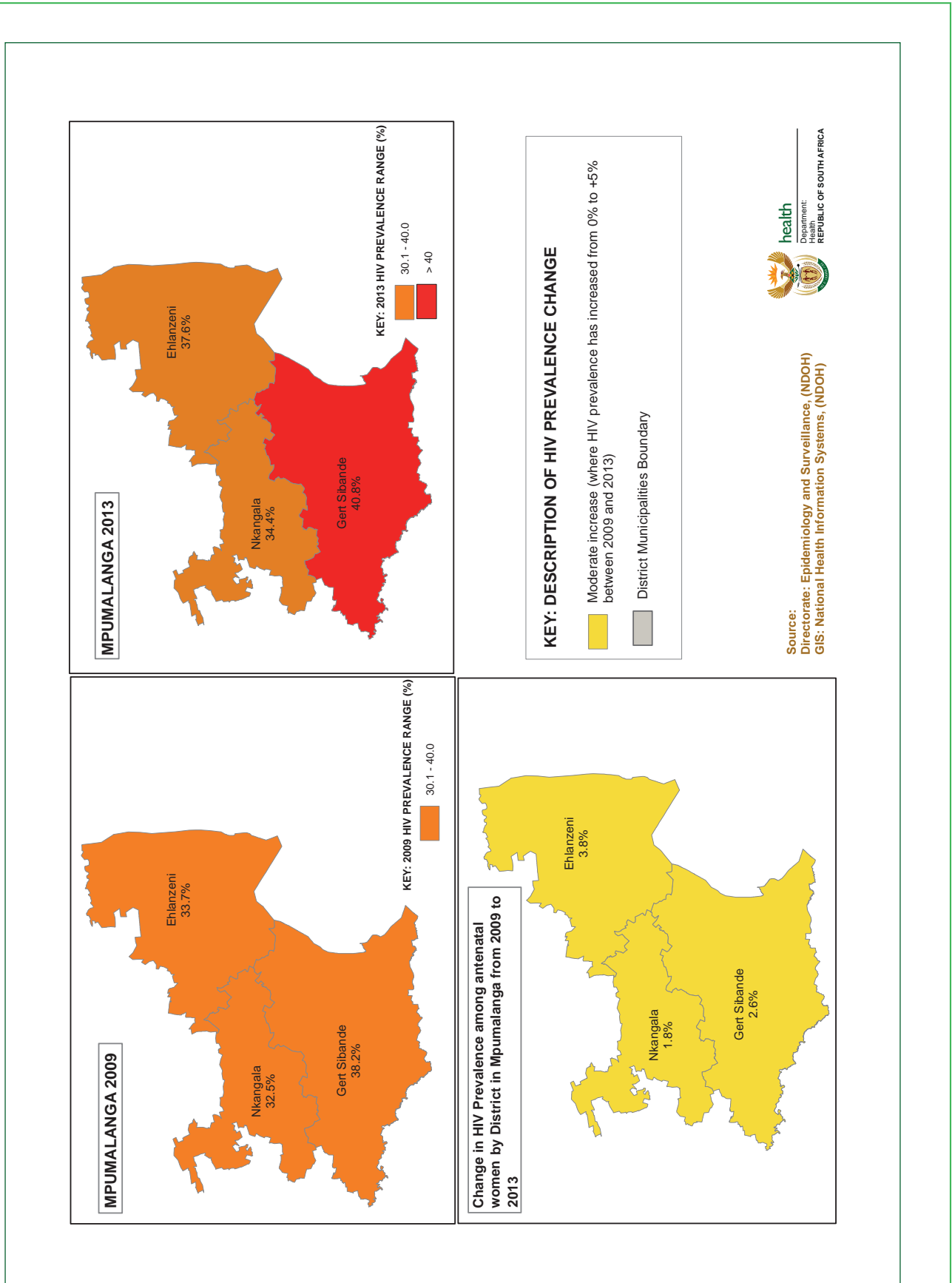


Figure 48: HIV prevalence distribution among survey participants by district in Mpumalanga, 2009 and 2013 as shown in choropleth maps that also show the change in HIV prevalence by districts over five years, i.e. between 2009 and 2013.

NORTH WEST

SAMPLED POPULATION IN THE NORTH WEST

The age distribution of pregnant women who participated in the survey in the North West in 2013 is shown in Figure 49. The majority (70%) of the survey participants were women aged 15–29 years and 48% were women between 15-24 years old.

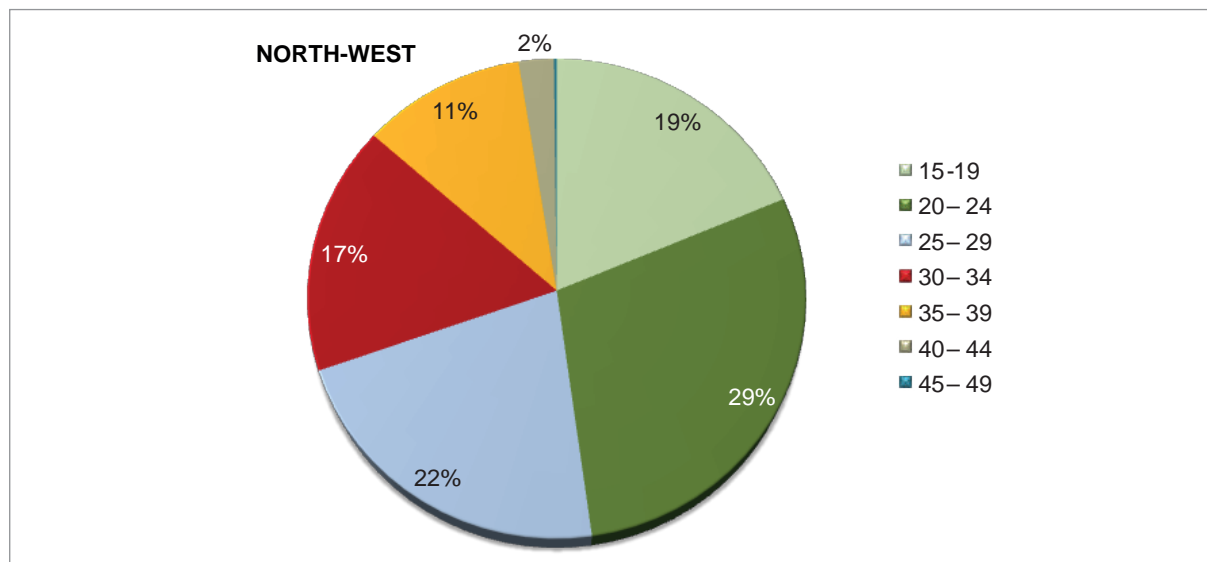


Figure 49: Distribution of pregnant women survey participants by age group in the North West, 2013.

In 2013, the North-West provincial HIV prevalence amongst antenatal women was 28.2% (95%CI: 26.3–30.2). The HIV prevalence in this province has moderately decreased by 1.8% from 30.0% (95% CI: 27.5–32.6) in 2009, as shown in the HIV epidemic curve in Figure 50.

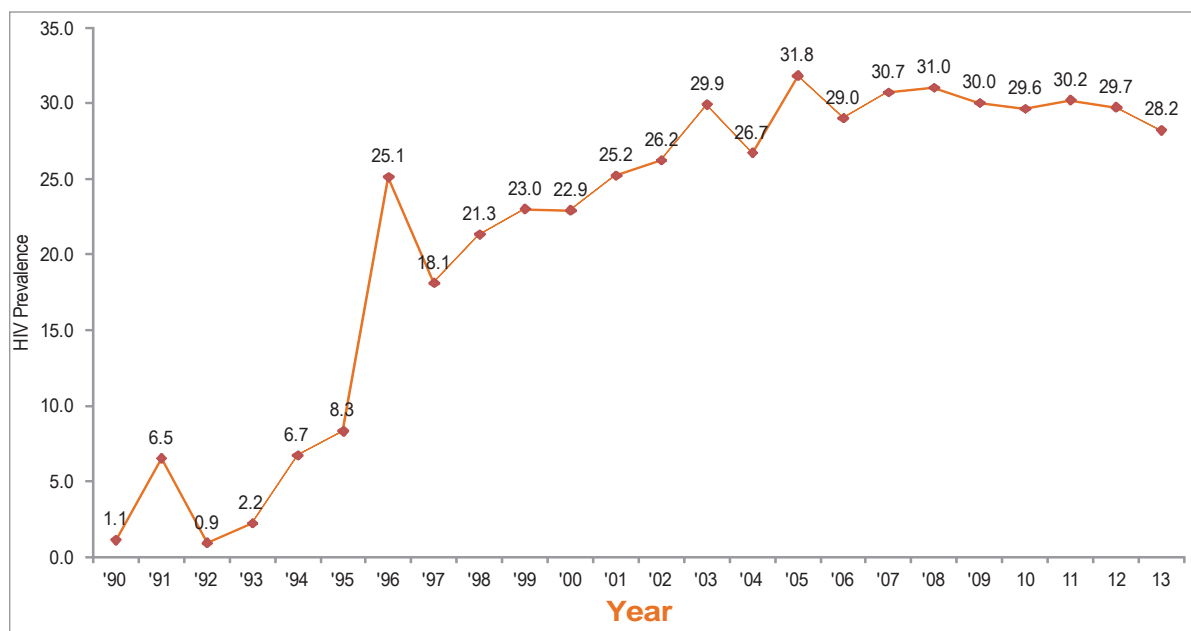


Figure 50: HIV prevalence epidemic curve among antenatal women in the North West province, SA 1990–2013.

HIV prevalence by district in the North-West from 2009 to 2013

In the North West province, three out of four districts recorded a moderate decrease in HIV prevalence, namely, a decrease by 3.4% in Bojanala from 34.9% in 2009 to 31.5% in 2013; a decrease of 2.8% in Ngaka Modiri Molema from 25.1 % in 2009 to 22.3 % in 2013 and a decrease of 2.3% in Dr. Ruth. S. Mompoti from 25.7 % in 2009 to 23.4% in 2013, as presented in Table 14 and Figures 51 and 52.

Table 14: Change in HIV prevalence by districts from 2009 to 2013 in the North West province.

Districts	2009			2013			% Change in HIV+
	%HIV+	95% (CI)	N	%HIV+	95% (CI)	N	
Bojanala	34.9	31.1 - 38.8	892	31.5	28.3 - 35.0	926	-3.4
Dr. R.S. Mompoti	25.7	20.5 - 31.8	346	23.4	19.0 - 28.4	338	-2.3
Ngaka M. Molema	25.1	20.6 - 30.1	527	22.3	18.7 - 26.1	566	-2.8
Dr. K. Kaunda	29.2	22.4 - 37.1	462	31.8	28.2 - 35.6	554	2.6
North West	30.0	27.5 - 32.6	2227	28.2	26.3 - 30.2	2384	-1.8

The changes in HIV prevalence by district from 2009 to 2013 in the North West province are shown in the choropleth maps in Figure 52.

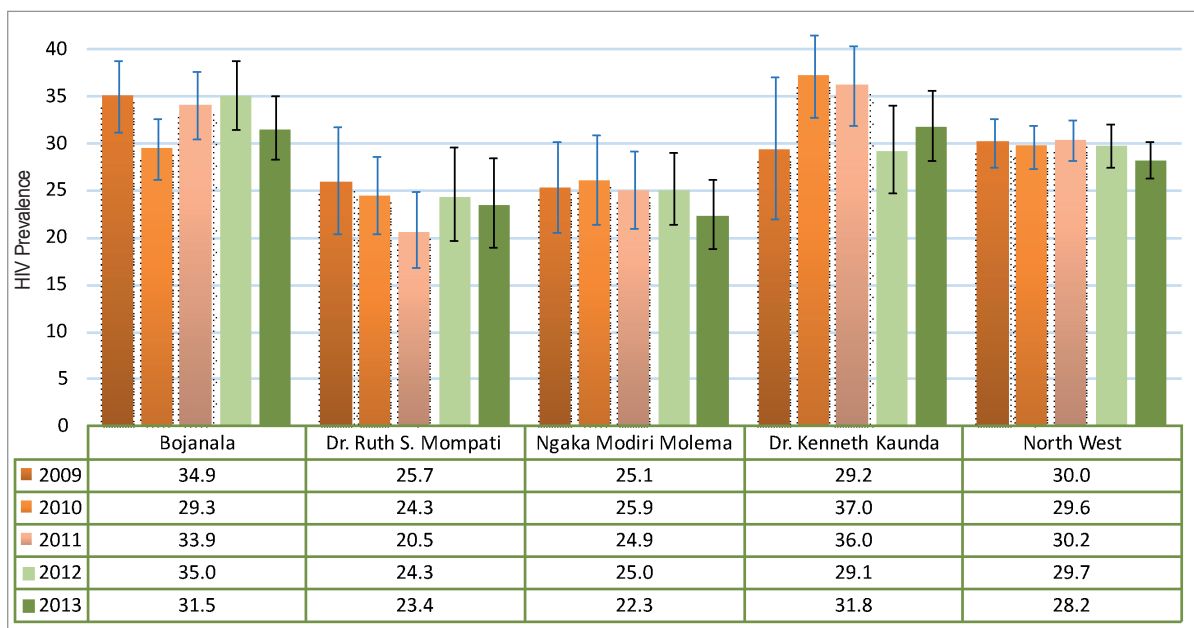


Figure 51: Districts HIV prevalence trends among antenatal women in the North West Province, 2009 to 2013.

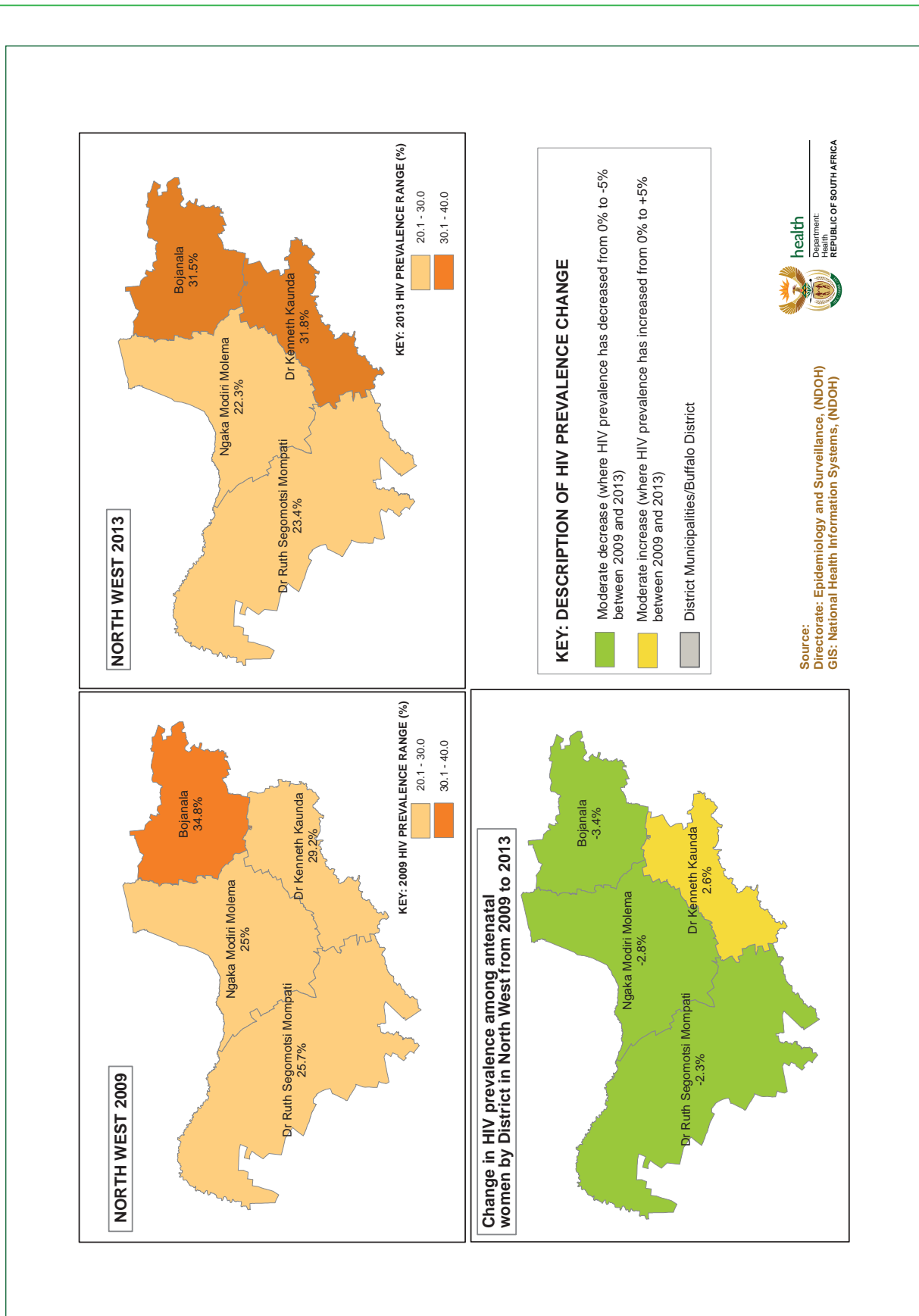


Figure 52: HIV prevalence distribution among survey participants by district in the North West province, 2009 and 2013 shown in choropleth maps that also show the change in HIV prevalence by district over five years, i.e. between 2009 and 2013.

NORTHERN CAPE

SAMPLED POPULATION IN THE NORTHERN CAPE

The age distribution of pregnant women who participated in the survey in the Northern Cape in 2013 is shown in Figure 53. The majority (70%) of the survey participants were women aged 15–29 years and 46% were women between 15-24 years old.

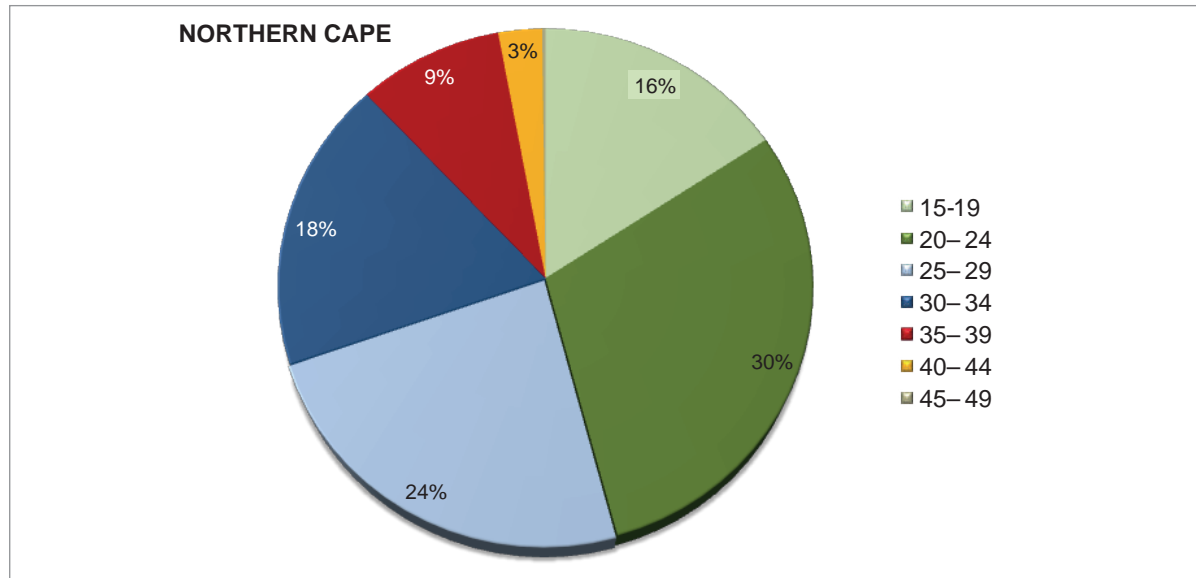


Figure 53: Distribution of pregnant women survey participants by age group in the Northern Cape, 2013.

In 2013, the Northern Cape provincial HIV prevalence amongst antenatal women was 17.5% (95%CI: 14.9–20.4). There is no significant change in HIV prevalence from 2009 which is 17.2% (95% CI: 14.3–20.5). The province has consistently recorded one of the lowest antenatal HIV prevalence at around 17.0% for the past few years as shown in Figure 54.

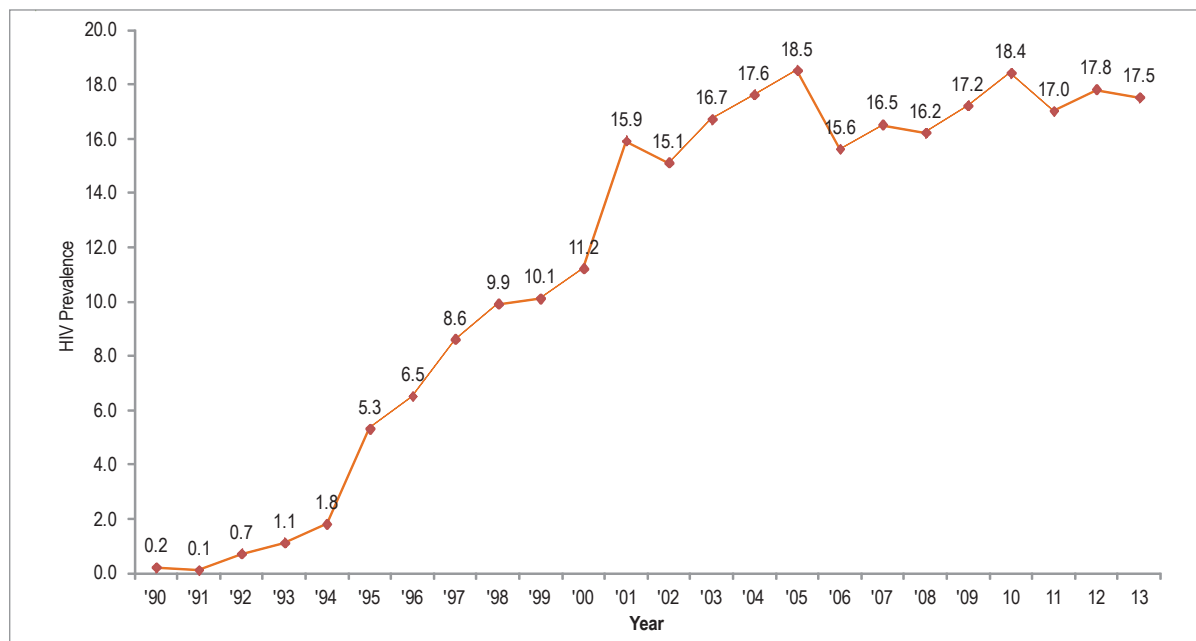


Figure 54: HIV prevalence epidemic curve among antenatal women in the Northern Cape, SA 1990 to 2013.

HIV prevalence by district in the Northern Cape from 2009 to 2013

The five-year trends in district HIV prevalence rates in the Northern Cape from 2009 to 2013 are shown in Figure 55. In 2013, the antenatal HIV prevalence in Namaqua increased from 1.5% in 2012 to 2.3% in 2013 but the sample sizes in the district are very small, making it difficult to discern any trends. This has resulted in very wide confidence intervals (shown by the long Error Bars). Nationally Namaqua district has recorded the lowest antenatal HIV prevalence among the 52 health districts as shown in Figure 15.

There was a significant decrease by 7.0% in Frances Baard from 25.1% in 2009 to 18.2% in 2013. In the former Siyanda (renamed ZF Ngcawu), the HIV prevalence significantly increased by 7.7% from 12.4% in 2009 to 20.1% in 2013. In John Taolo Gaetsewe district, HIV prevalence also significantly increased by 6% from 17.2% in 2009 to 23.2% in 2013. Pixley ka Seme district recorded a moderate increase in HIV prevalence by 3% from 12.1% in 2009 to 15.1% in 2013, a slight increase by 3% as presented in Table 14 and Figures 54 and 55.

Table 15: Change in HIV prevalence by district from 2009 to 2013 in the Northern Cape.

	2009			2013			% Change in PREV
	%HIV+	95% (CI)	N	%HIV+	95% (CI)	N	
F. Baard	25.2	20.1 - 31.1	385	18.2	14.7 - 22.3	396	-7.0
J.T. Gaetsewe	17.2	12.3 - 23.6	157	23.2	17.0 - 30.8	181	6.0
Namaqua	0.0	0.0 - 7.1	68	2.3	0.5 - 9.1	88	2.3
Pixley Ka Seme	12.1	7.2 - 19.7	206	15.1	9.4 - 23.4	251	3.0
ZF Ngcawu	12.4	8.9 - 17.0	186	20.1	14.3 - 27.5	224	7.7
Northern Cape	17.2	14.3 - 20.4	1002	17.5	14.9 - 20.4	1140	0.3

The changes in HIV prevalence by district from 2009 to 2013 in the Northern Cape province are shown in the choropleth maps in Figure 56

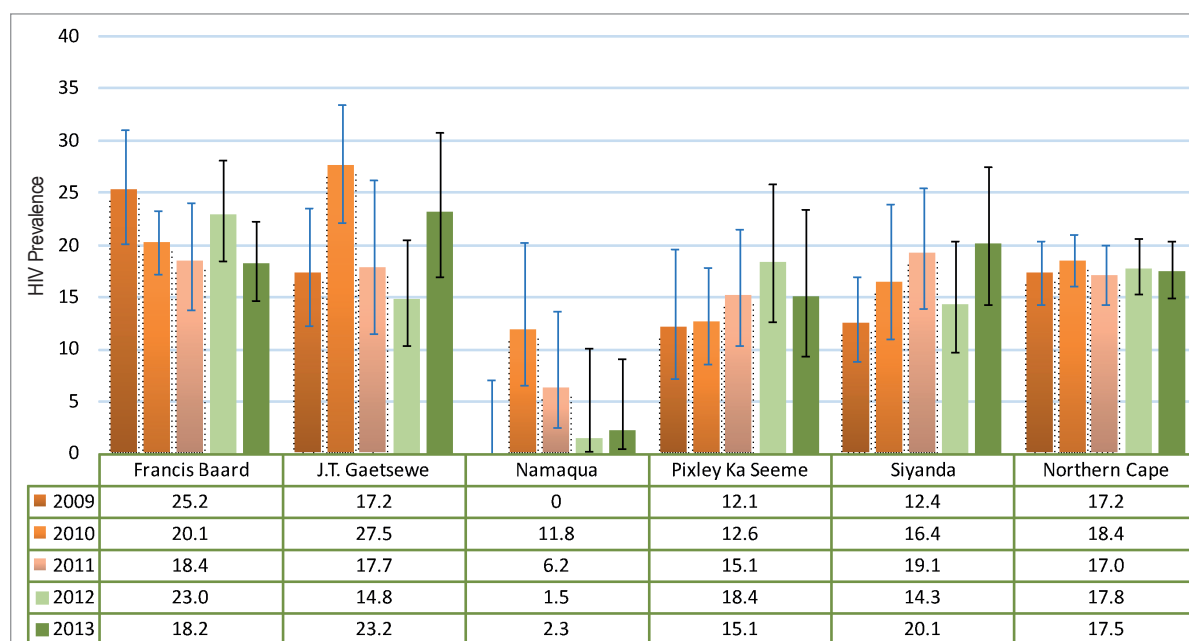


Figure 55: Districts HIV prevalence trends among antenatal women in the Northern Cape Province, 2009 to 2013.

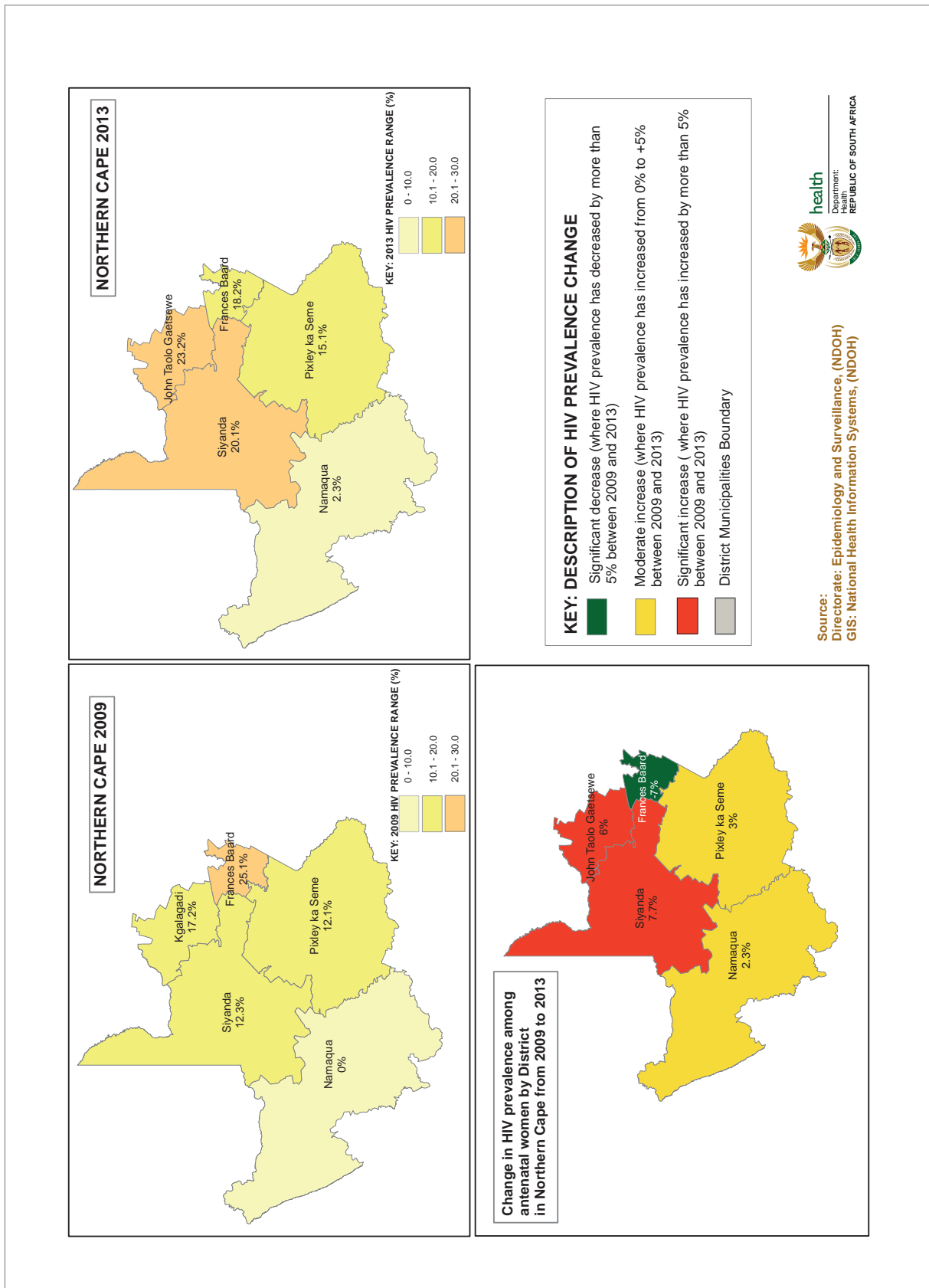


Figure 56: HIV prevalence distribution among survey participants by district in the Northern Cape province in 2009 and 2013 shown in choropleth maps that also show the change in HIV prevalence by district over five years, i.e. between 2009 and 2013.

WESTERN CAPE

SAMPLED POPULATION IN THE WESTERN CAPE

The age distribution of pregnant women who participated in the survey in the Western Cape in 2013 is shown in Figure 57. The majority (71%) of the survey participants were women aged 15–29 years and 42% were women between 15–24 years old.

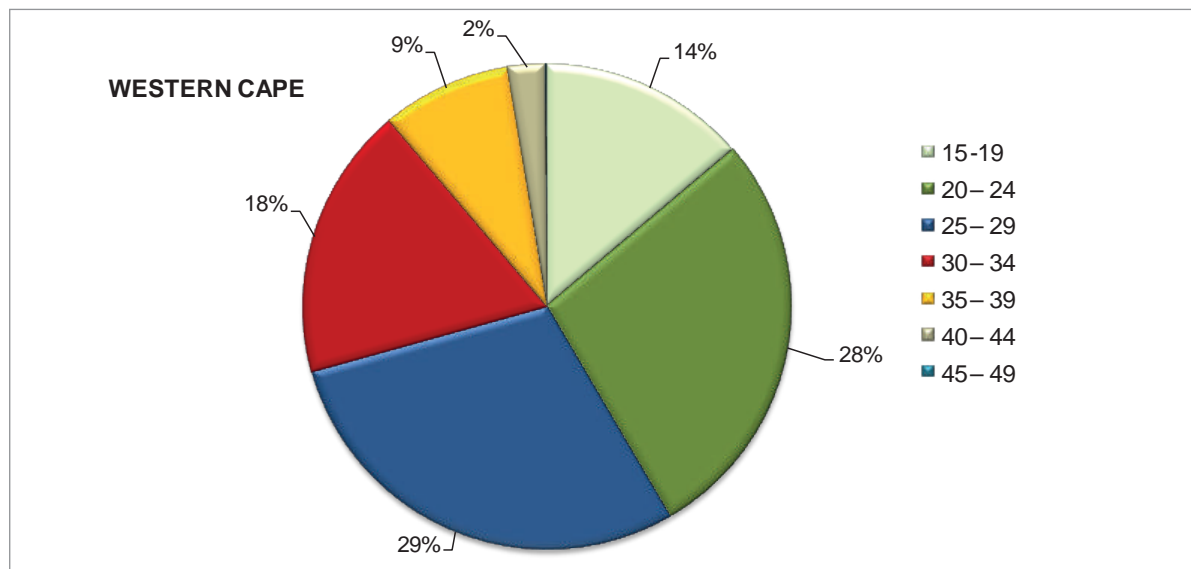


Figure 57: Distribution of pregnant women survey participants by age group in the Western Cape, 2013.

In 2013, the Western Cape provincial HIV prevalence amongst antenatal women was 18.7% (95% CI: 15.1- 23.0). The overall HIV prevalence moderately increased from 16.9% (95%CI: 13.8–20.5) in 2009 to 18.7% in 2013, an increase of 1.8% as shown in the HIV epidemic curve in Figure 58.

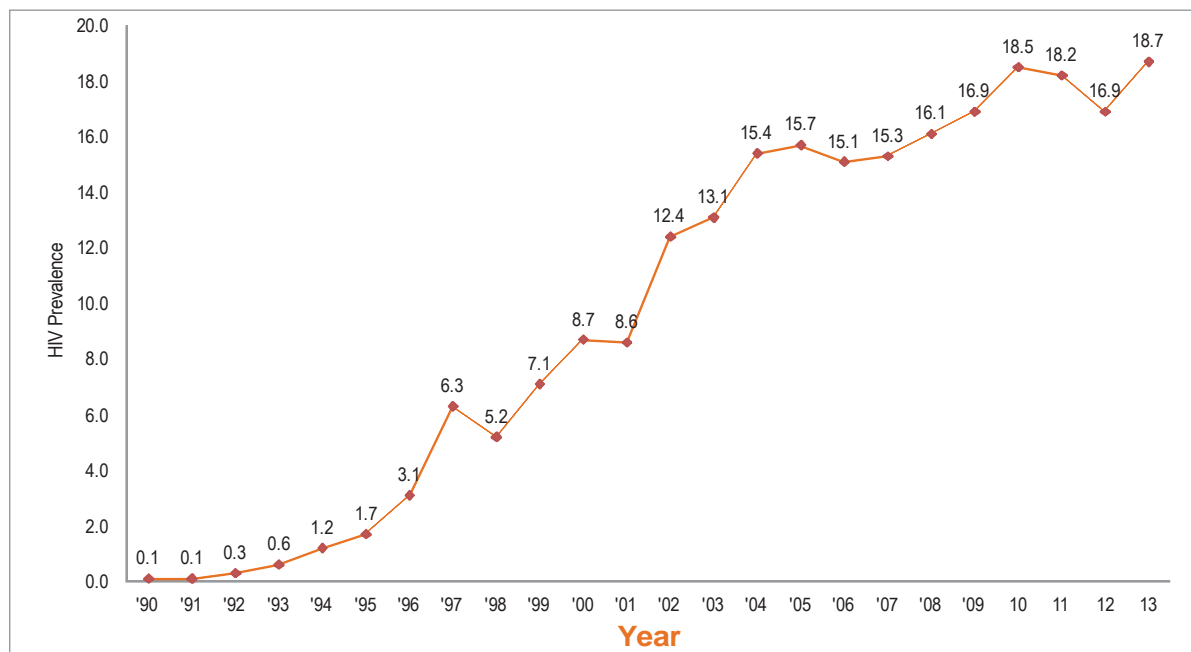


Figure 58: HIV prevalence epidemic curve among antenatal women in the Western Cape, SA 1990 to 2013.

HIV prevalence by district in the Western Cape from 2009 to 2013

The Cape Metro continues to carry the heaviest burden of HIV in the Western Cape, with more than 70% of the HIV infected pregnant women in the province. The Metro has recorded that HIV prevalence has moderately increased by 3.7% from 18.0% in 2009 to 21.7% in 2013, as presented in Table 16.

In 2009, Overberg district recorded the highest HIV prevalence of 20.7% in the Western Cape province. However, over the past five years there has been a turn-around in the HIV prevalence and this district has a significant decrease of 6.9% from 20.8% in 2009 to 13.9% in 2013. In addition, Central Karoo and Eden districts recorded a moderate decrease in HIV prevalence from 11.8% in 2009 to 6.9% in 2013 and from 18.2% in 2009 to 15.6% in 2013 respectively, as presented in Table 15 and Figures 58 and 59.

Table 16: Change in HIV prevalence by district from 2009 to 2013 in the Western Cape.

DISTRICT	2009			2013			% Change in HIV prev.
	%HIV+	95% (CI)	N	%HIV+	95% (CI)	N	
Cape Winelands	13.2	9.0 - 19.1	499	15	10.0 - 21.9	521	1.8
Central Karoo	11.8	6.8 - 19.6	51	6.9	4.4 - 10.6	58	-4.9
Eden	18.2	12.9 - 25.0	319	15.6	10.0 - 23.5	359	-2.6
Cape Metropole	18.0	13.8 - 23.1	2481	21.7	16.6 - 27.7	2350	3.7
Overberg	20.8	14.1 - 29.5	130	13.9	7.4 - 24.6	158	-6.9
West Coast	9.5	6.1 - 14.6	199	9.6	5.1 - 17.3	261	0.1
Western Cape	16.9	13.8 - 20.5	3679	18.7	15.1 - 23.0	3707	1.8

The changes in HIV prevalence by district from 2009 to 2013 in the Western Cape province are shown in the choropleth maps in Figure 60.

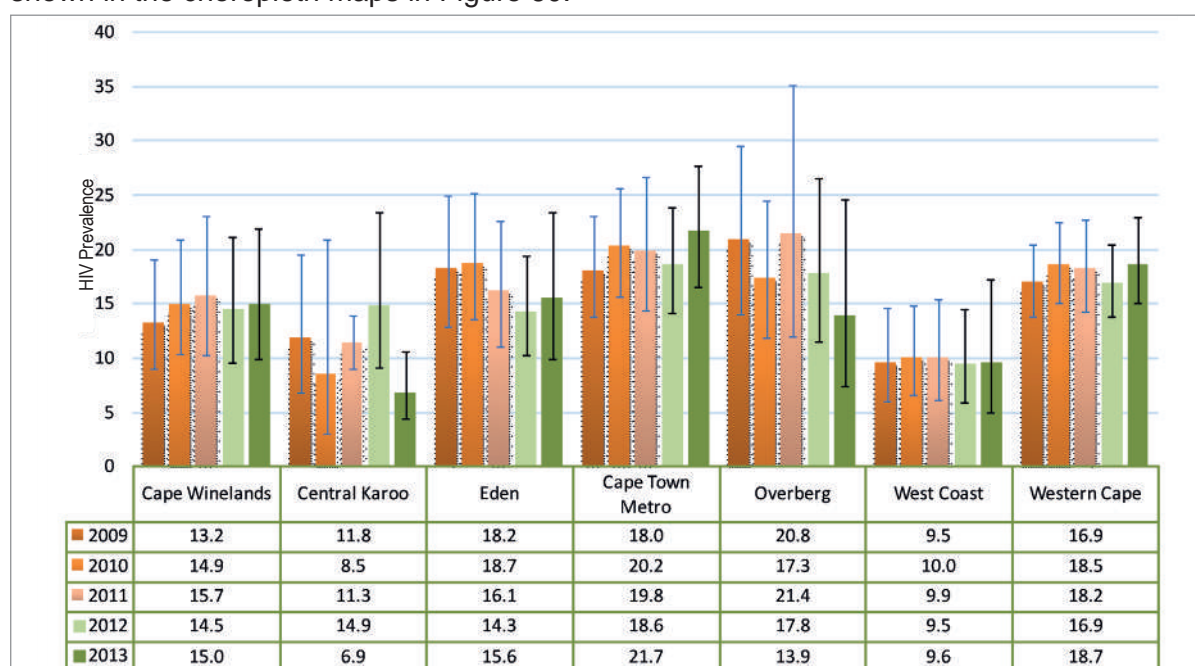


Figure 59: Districts HIV prevalence five-year trend analysis among antenatal women in the Western Cape province between 2009 to 2013.

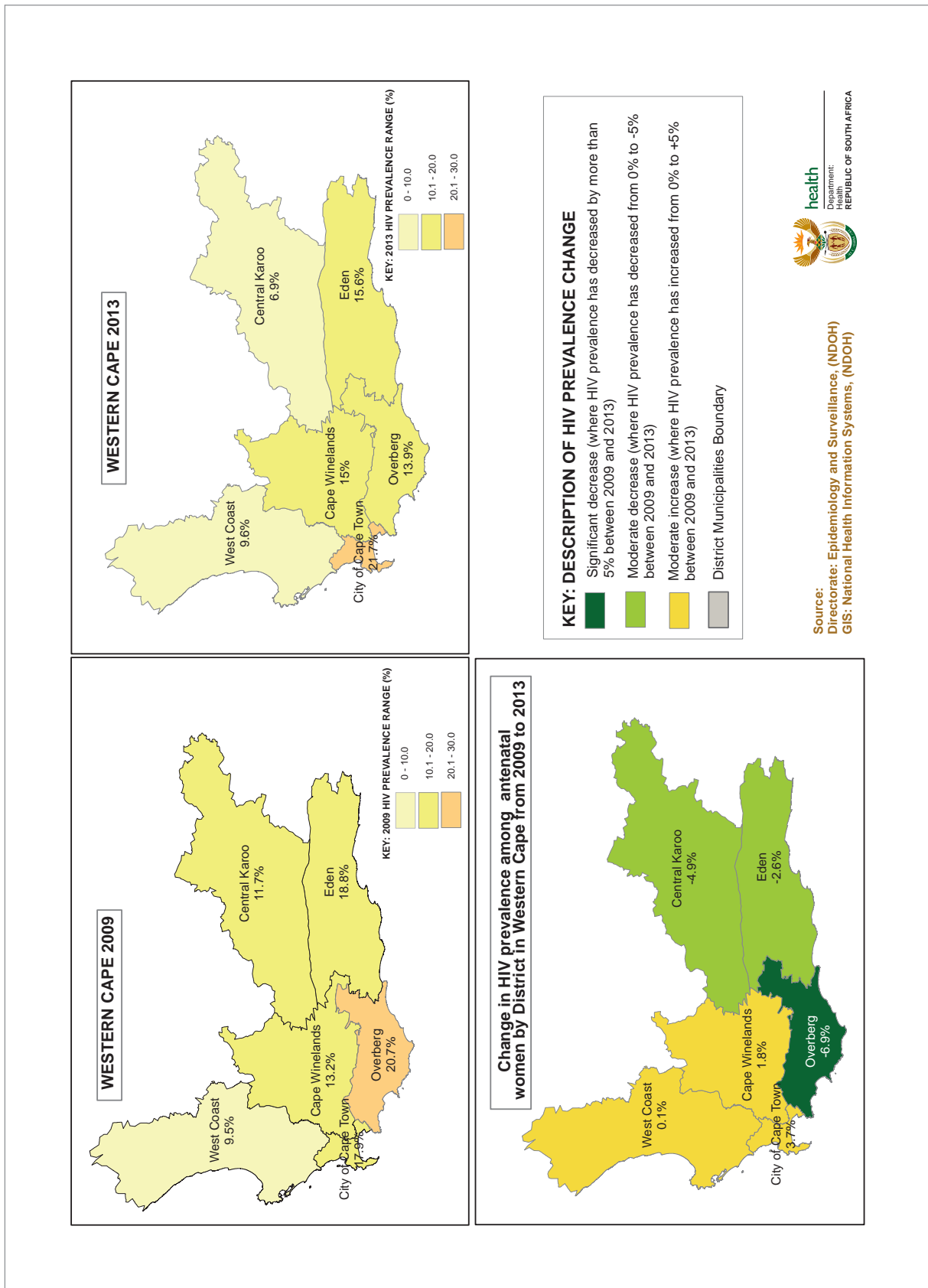


Figure 60: HIV prevalence distribution among survey participants by district in the Western Cape in 2009 and 2013 shown in choropleth maps that also show the change in HIV prevalence by district over five years, i.e. between 2009 and 2013.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

The overall HIV prevalence amongst women who presented for their first antenatal care visit in October 2013 in public health clinics was 29.7%. The epidemic curve is still plateauing and there has been no statistical difference in the national HIV prevalence estimate in the past 10 years. There are significant differences between the nine provinces and even more significant heterogeneity in HIV prevalence between the 52 health districts, with prevalence ranging from a low of 2.3% in Namaqua in the Northern Cape to a high of 45.9% in iLembe, KwaZulu-Natal.

HIV prevalence decreased marginally among women aged 15-24 years while increasing significantly among women 35-49 years. It is very worrying that the trend in young people (15-24) is not showing a decline (this age -group should not be much affected by ART). The cross sectional design of this point prevalence sentinel surveillance is purely descriptive and does not provide the association between HIV prevalence and the number of people on ART treatment.

The following recommendations are made from the implications of the findings of this, the 2013 National Antenatal Sentinel HIV Prevalence Survey

- The antenatal sentinel survey must re-introduce the measurement of other biomarkers infections among pregnant women
- To increase the usefulness of this descriptive HIV prevalence survey, more in-depth study of biomarkers, including testing for ARVs, viral load suppression, drug resistance, and incidence testing is needed. This will require increased investment in clinics and laboratories
- The antenatal sentinel survey data must be triangulated with other HIV surveillance data from other government departments when interpreting the results
- Additional research is needed to identify factors associated with the fluctuating district HIV prevalence e.g. migratory source population. This analysis should examine the following districts:
- The Department will conduct an exploratory analysis to identify factors associated with the fluctuating district HIV prevalence e.g. migratory source population. This will require investigations in the following districts:
 - i. Xhariep in the Free State where the HIV prevalence was 17% in 2010 then increased to 26.1% in 2011 and then decreased to 25.8% in 2013
 - ii. Felize Dabi in the Free State recorded HIV prevalence of 35.6% in 2011 and decreased to 26% in 2013
 - iii. Umkhanyakhude in KwaZulu-Natal HIV prevalence decreased from 41.1% in 2011 to 35.2% in 2012 and then increased to 44.1% in 2013

- iv. UMzinyathi in KwaZulu-Natal recorded HIV prevalence of 24.6% in 2011 and then increased to 35.7% in 2013.
- Further analysis of the impact of the distribution of health services, socio-economic characteristics of pregnant women, and the ecological correlation of HIV and TB and poverty will be reported in the 2014 report

In the context of expanding coverage of HIV testing, PMTCT and ART, and transition to PMTCT Option B+ for HIV-positive pregnant women, the Department will be conducting an Unlinked Anonymous Testing (UAT) based sentinel surveillance which raises ethical concerns. It recommends the use of linked testing (confidential or anonymous) with informed consent for HIV sentinel surveillance. This will require informed consent from pregnant women who are HIV tested for this antenatal sentinel surveillance survey, providing them and the clinic with their HIV test results, and referring those to available HIV care, treatment and prevention interventions if the test results are positive.

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GETTING TO ZERO

ISBN: 978-1-920031-89-3