

FREE STATE PROVINCE



**FREE STATE PROVINCE REPORT
OF THE
NATIONAL HIV AND SYPHILIS SERO-
PREVALENCE SURVEY OF WOMEN
ATTENDING PUBLIC ANTENATAL CLINICS
IN SOUTH AFRICA – 2004**

ANALYSIS OF THE FREE STATE DATASET

FINAL

INTRODUCTION

In South Africa, the national department of health has been conducting the HIV sero-prevalence survey of pregnant woman attending the ante-natal services in public sector clinics annually since 1990 and the sero-prevalence of syphilis is also done simultaneously. This unique survey method to monitor the trend of HIV epidemic is used in many countries of the world and in many instances it remains the only source of data on which the progress of the HIV epidemic is measured and understood.

The HIV sero-prevalence survey of the general population was done only once in South Africa and the result published in 2002. This survey of the general population was able to reveal the extent and distribution of the HIV prevalence in more detail among the South African population as a whole and some its subpopulations and being a once off survey it is not of much use as a surveillance tool.

Even though the antenatal survey is concerned with only with part of female population between 15 years and 49 years of the country, which is less than one-third of the total population, it is the only routine data available for trend analysis and projections related to HIV epidemic. It is important to note that this sexually active population is most vulnerable and at highest risk of exposure to HIV infection. Availability of such prevalence data for the last 14 years at provincial level of the country is a significant achievement by itself considering its usefulness as an effective monitoring and surveillance tool. Even with in some serious limitations of the survey, it can provide reasonably good understanding of the current and future trends of HIV prevalence in South Africa. The accuracy of such analysis depends on appropriate interpretation of the available data. The importance of compiling and understanding the facts and figures about the epidemic for the development of an effective and dynamic HIV control program cannot be over-emphasized.

The full report of the South African antenatal HIV and Syphilis sero-prevalence survey 2004 is published by the national department of health. This provincial report presents the results of the analysis of Free State data specifically and examines the position of the Free State province in national context.

THE NATIONAL SURVEY PROCESS

Objectives

The stated objectives of the national antenatal survey were:

- To determine an estimate of HIV and syphilis prevalence among pregnant women attending public sector antenatal clinics and

- To describe HIV and syphilis trends in terms of time, place (province) and age among pregnant women.

This provincial report also focuses on these objectives.

Study design

This is a cross-sectional study involving the collection of blood samples from pregnant women attending antenatal clinic at sentinel sites and doing serological tests for HIV and Syphilis to estimate the prevalence rate in that population group. The survey was conducted concurrently across all nine provinces from the 1st to 31st October 2004. The study was an anonymous, unlinked, cross-sectional survey. The study population included pregnant women who attend ante-natal clinics in the public health sector of South Africa.

Study administration

A national workshop of provincial coordinators was held to review the protocol, review study methods, plan field logistics and review standard operating procedures. It also prepared the team for data analysis and processing procedures. Participating laboratories and courier services were prepared to ensure that appropriate testing procedures would be adhered to and blood specimens safely and timely transported from each antenatal clinic to testing laboratories.

Quality Assurance

In the course of this survey, careful laboratory and data management quality assurance was conducted. For each of the participating laboratories, the ELISA test for HIV and RPR test for syphilis were internally and externally quality assured. Double data-capture was conducted on provincial data sets.

Sentinel population

The sentinel population for the study includes pregnant women attending a public sector antenatal clinic for the first time during the current pregnancy. The choice of the first antenatal visit is made to minimize the chance for one woman attending two clinics and being included in the study more than once. The survey builds on routine screening for blood grouping, syphilis, and full blood count (FBC) that takes place during a woman's first antenatal visit.

Sampling methodology

The probability proportional to population size sampling method was used to determine the sample size for the 2004 antenatal HIV survey. The clinic formed the primary sampling unit in the sampling frame; this method is adopted to ensure a representative sample that is weighted for rural urban distribution. The first 40 antenatal attendees who qualify for inclusion in the study were included in the sample.

Inclusion criteria

Consecutive first time antenatal clinic attendees from all sentinel sites were included in the survey until the target of 40 specimens was reached. Women attending each of the participating clinics for the first time in the current pregnancy were eligible for inclusion in the study. Blood was taken as part of the routine screening done for pregnant women.

HIV testing

The HIV testing methodology employed is the World Health Organisation (WHO) recommended procedure for antenatal surveys. As required by that protocol blood specimens were tested with one ELISA (Abbot Axysm System for HIV-1/HIV-2) in all provinces. Sera found to be reactive on the first assay were retested with the second ELISA test, whereas those shown to be non-reactive on the first test were considered HIV antibody negative and therefore not retested.

Syphilis testing

Syphilis testing was conducted using the RPR test.

Data processing and analysis

Data analysis was conducted using the STATA and SPSS software packages. Data entry was standardized using EPI-INFO program designed and piloted with the provinces during the planning session. Data analysis was conducted at both the provincial and national levels to verify accuracy.

THE FREE STATE PROVINCE REPORT

The report of the HIV and Syphilis sero-prevalence survey of women attending antenatal services at the public facilities of the Free State for the year 2004 is presented in following sections:

- Provincial analysis in the context of the national survey
- The results of the provincial analysis of HIV sero-prevalence
- The results of the provincial analysis of Syphilis sero-prevalence
- Discussion on the significance of the findings

The report will be concluded with few recommendations in the light of the survey results. The raw data and the summary analysis of the findings of the survey related to the Free State province in more detail are appended at the end of the report.

FREE STATE PROVINCE IN THE CONTEXT OF THE NATIONAL SURVEY

Altogether 16,061 blood samples were included in the 2004 survey nationally as seen in table 1 and 1016 blood samples were collected from Free State province.

Table1: The distribution of antenatal survey participants of 2003 and 2004 by province

Province	Sample 2003	Sample 2004
Eastern Cape	1,919	1,710
Free State	1,039	1,016
Gauteng	3,146	3,168
Kwa Zulu Natal	3,406	3,522
Limpopo	1,890	1,894
Mpumalanga	1,241	1,115
Northern Cape	623	494
North West	1,388	1,190
Western Cape	1,991	1,952
Total	16,643	1,6061

Survey Sample and provincial estimates

The sample size realized in the national study is very much within the probability proportional to the population size procedure and is expected to yield statistically significant provincial estimates.

The Table 2 presents the number of sentinel sites (clinics) and samples collected from five districts of the province. This sample size is low for district level estimation and this limitation should be considered in the interpretation of the district level finding and it will be more evident

when analysis of smaller sub-population groups such as ethnic group, age group or Syphilis sero-prevalence are done. This issue is further elaborated later in the results of the provincial HIV sero-prevalence section.

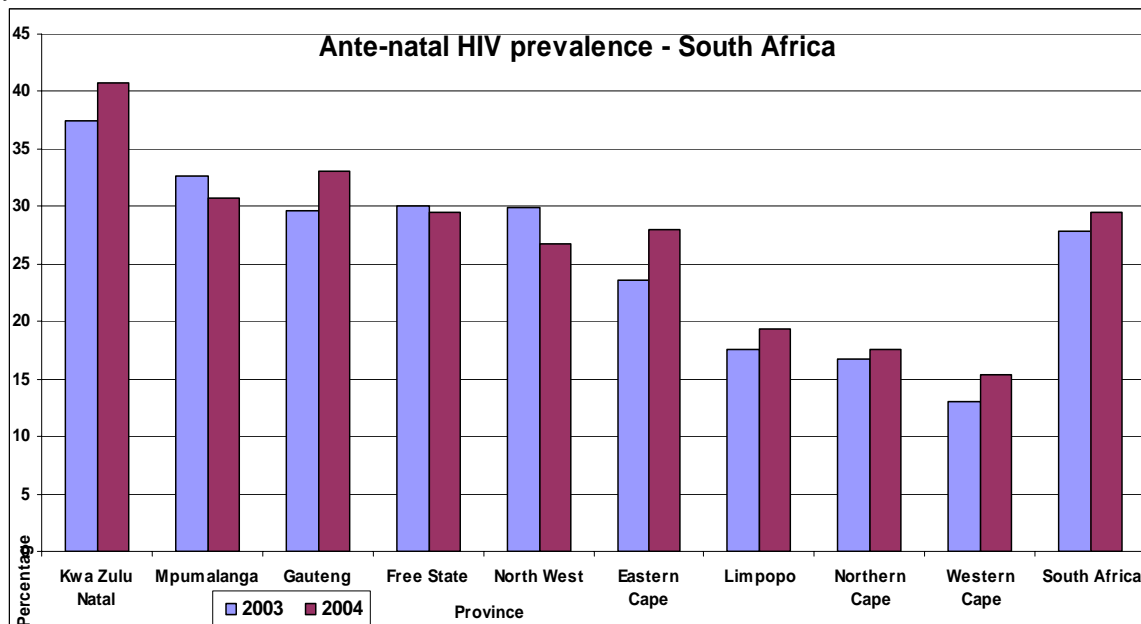
Table 2: Sentinel sites and sample size of various districts in the Free State province.

District	Number of sentinel sites	Number of participants
Xhariep	3	32
Motheo	9	258
Lejweleputswa	7	212
Thabo Mofutsanyane	17	284
Northern Free State	8	230
Total	44	1016

Tables A1 and A10 of the appendix enumerate the Free State component of the raw data of the national ante-natal survey given according to the clinics where it is collected.

The provincial estimates along with national point estimate of HIV sero-prevalence is depicted in figure-1 for the years 2003 and 2004. Accompanying table presents the results with Confidence Interval of provincial point estimates, which is an indication of its statistical significance.

Figure 1: HIV prevalence of women attending ante-natal service in public sector clinics for the years 2003 and 2004



The epidemic may be considered to be on its upward curve in the provinces such as Western Cape, Eastern Cape, Northern Cape and Limpopo with relatively lesser prevalence in the previous years, so is the aggregate South Africa prevalence.

Table 3: Provincial estimates of HIV sero-prevalence among women attending antenatal clinics in south Africa – Sentinel Survey 2004

Province	2003		2004	
	Point Estimate	Confidence Interval	Point Estimate	Confidence Interval
Kwa Zulu Natal	37.5	35.2 to 39.8	40.7	38.8 to 42.7
Mpumalanga	32.6	28.5 to 36.6	30.8	27.4 to 34.2
Gauteng	29.6	27.8 to 31.5	33.1	31.0 to 35.3
Free State	30.1	26.9 to 33.3	29.5	26.1 to 32.9
North West	29.9	26.8 to 33.1	26.7	23.9 to 29.6
Eastern Cape	23.6	21.1 to 26.1	28.0	25.0 to 31.0
Limpopo	17.5	14.9 to 20.0	19.3	16.8 to 21.9
Northern Cape	16.7	11.9 to 21.5	17.6	13.0 to 22.2
Western Cape	13.1	8.5 to 17.7	15.4	12.5 to 18.2
South Africa	27.9	26.8 to 28.9	29.5	28.5 to 30.5

The Free State, North West and Mpumalanga provinces are showing a tendency towards stabilization with a decrease in their point estimates. The estimates of Kwa Zulu Natal and Gauteng surprisingly are showing further increase, which may be difficult to explain if it is compared with the estimates of HSRC study in 2002.

The graphs (Figure 2 & 3) show the trend of HIV prevalence from the sentinel survey since 1990 for South Africa and Free State province. This trend analysis is the most important use of the sentinel surveys.

Figure 2: Point estimates of the HIV sero-prevalence of antenatal sentinel survey of South Africa since 1990

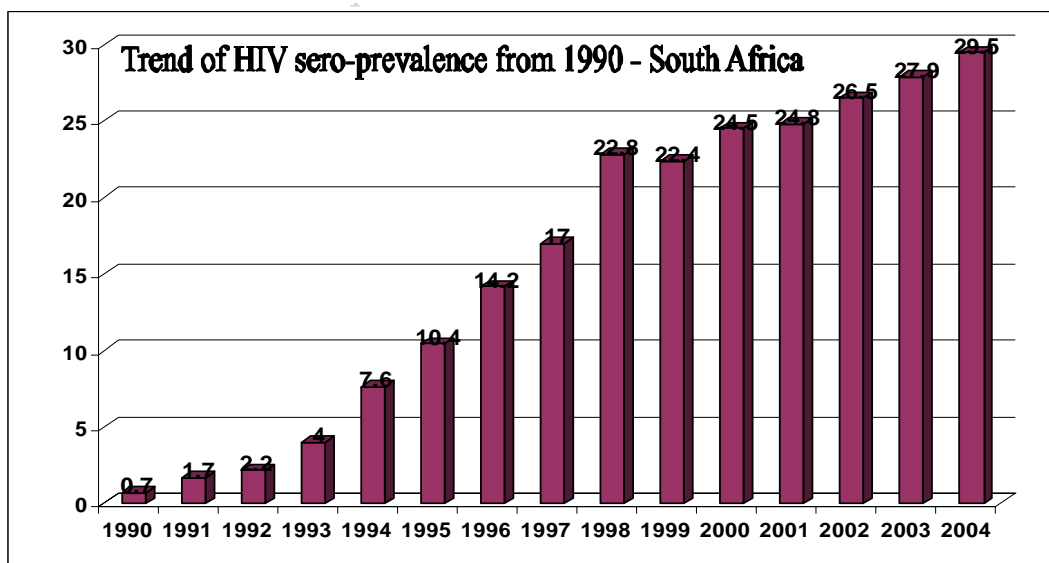
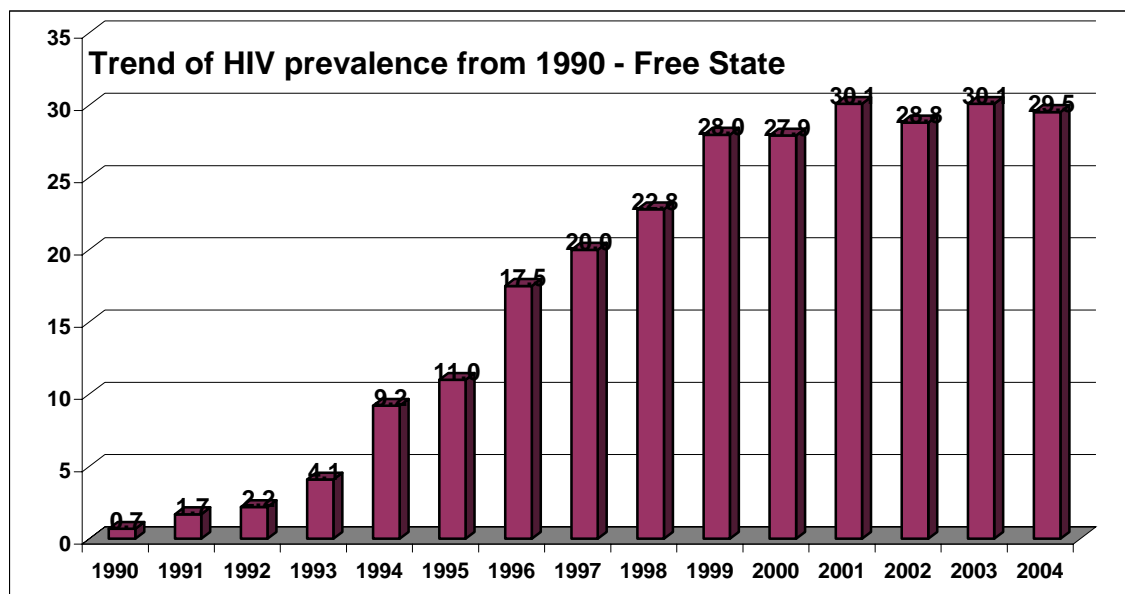


Figure 3: Point estimates of the HIV sero-prevalence of antenatal sentinel survey of Free State province since 1990



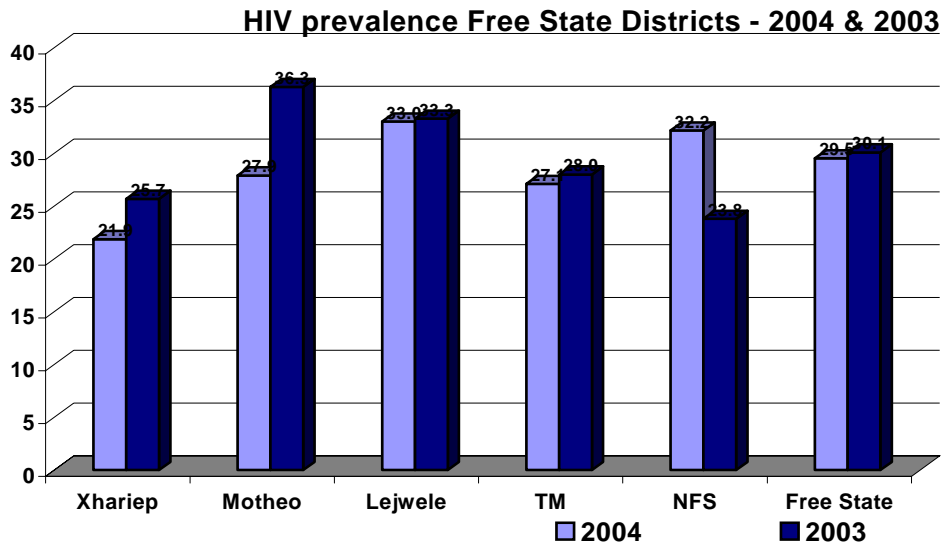
The trend of HIV prevalence of South Africa is still on the rise and that of Free State province may be considered reaching the plateau or even beginning to decline, at least in the population of pregnant women.

ANALYSIS OF HIV SERO-PREVALENCE OF THE FREE STATE PROVINCE

Summary analysis of the Free State data is given in more detail in the Tables A1 to A9 of the appendix. Analysis is done for the district, age group, ethnic group and highest education subpopulations.

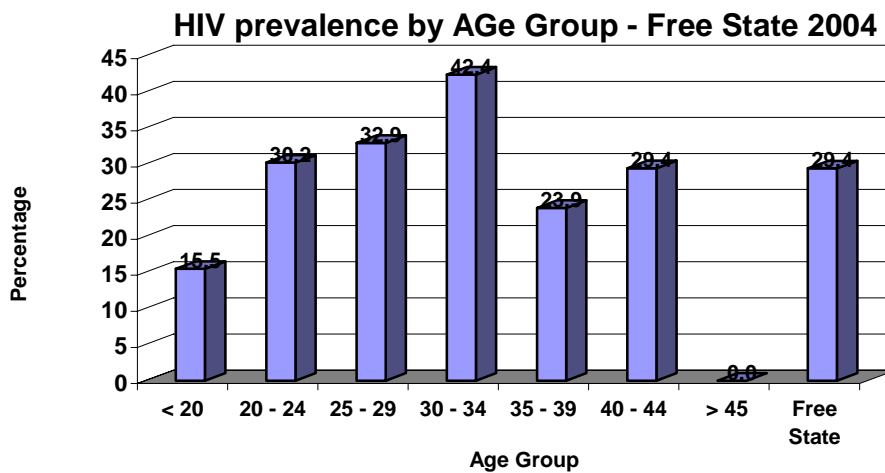
The HIV sero-prevalence of women attending ante natal clinics for the districts of the Free State province is charted in Figure 4. It compares the 2004 prevalence with that of 2003. The small decrease in the provincial estimate is due to the decreases in Motheo and Xhariep districts compared to that of previous year. The Lejweleputswa district remains the high prevalence area with very little change and Northern Free State shows large increase. High prevalence of Motheo district in 2003 was a once off phenomenon and shows substantial decrease this year. The statistical significance of these changes are doubtful and may be influenced by the sample size and sampling method.

Figure 4: HIV prevalence at district level of the women attending antenatal service in public sector clinics of the Free State province.



In 2004, the age group with high prevalence is 30-34. The prevalence among the below 20 year age group is consistently low in recent years. The 0% for the >45 age group is due to small sample size that only one pregnant woman in that age group was present in Free State sample and she was HIV negative.

Figure 5: HIV status of women attending antenatal clinic according to the age group of their husband / partner among participants of the 2004 sentinel survey in Free State



The analysis of the data according to ethnic group shows 30.1% prevalence among the African population (Table A6 of the appendix). Almost 96 percent of the blood samples came from the African population and remaining 4% from all other population groups. Because of this skewness

of the sample, the results cannot be considered representative of the general population of the women aged between 15 and 49 years.

As a proxy indicator of the male prevalence, age of husband or partner of the women participated in the study was analyzed as seen in the table 4. It shows that largest percentage of men partners of the women with positive tests came from the age group between 30 and 34.

Table 4: Analysis of the age of husband/partner of the women participating in the antenatal HIV sero-prevalence survey – Free State province 2004

Age Group of husband/partner of the mother tested	Total test done (mother) against partner's age group	Positive (mother) against partner's age group	Percentage of HIV positive mothers against the age group of their partners
< 20	37	3	8.11
20 - 24	229	47	20.52
25 - 29	267	80	29.96
30 - 34	193	81	41.97
35 - 39	128	36	28.13
40 - 44	70	25	35.71
45 and older	44	17	38.64
Total	968	289	29.86

Incidentally, highest prevalence among the women also was seen in the same age group of 30-34 (Figure 5). Age group above 40 years is showing larger percentages in this analysis.

Table 5: HIV positive mothers according to the highest education obtained among the participants of the antenatal HIV sero-prevalence survey - Free State province 2004

Highest education / Grade	Total test done	Positive tests	Percentage positive in highest education category
0	30	10	33.33
1	2	1	50.00
2	4	2	50.00
3	4	1	25.00
4	21	6	28.57
5	19	7	36.84
6	39	13	33.33
7	65	23	35.38
8	87	31	35.63
9	120	37	30.83
10	182	52	28.57
11	160	52	32.50
12	267	63	23.60
Tertiary education	16	2	12.50
TOTAL	1016	300	29.53

The highest educational attainment of the participants of the study is presented according to their HIV status in table 5. The analysis according to the grades passed gives smaller samples in each group leading to misleading results. Majority of the mothers are below grade 12 and 32% prevalence is seen among them compared to 23% among matriculates.

FREE STATE COMPONENT OF THE SURVEY SAMPLE

This study was designed nationally for provincial level summary and the sample size and the sampling method used reflect this purpose. This report is an extension of the national data analysis and attempts to use the provincial data for district level analysis. Thus it is important to understand the representivity of the available samples from the subpopulations analyzed to understand the limitations of the estimates presented. The proportion of the sample and the proportion of the respective subpopulation in the Free State province as percentage are presented in tables 6, 7 and 8.

Table 6: Comparison of the percentages of sample size (test done) and the district population of the Free State – Sentinel survey 2004

District	Percentage of tests done over provincial total	Percentage of provincial population in the district
Xhariep	3.15	5.00
Motheo	25.39	26.91
Lejweleputswa	20.87	24.27
Thabo Mofutsanyane	27.95	26.81
Northern Free State	22.64	17.01

The first column lists the percentage of sample over the total provincial sample according to the subpopulation of district, age group or ethnic group. The second column gives the percentage of that subpopulation in the province. Large difference in the corresponding proportions listed below is an indication that the samples are not representative.

Table 7: Comparison of the percentages of sample size (test done) and the district population of the Free State – Sentinel survey 2004

Age Group	Percentage of tests done over the provincial total	Percentage distribution of female population in given age group
15 - 19	17.97	19.20
20 - 24	32.57	17.89
25 - 29	23.54	16.01
30 - 34	15.00	14.88
35 - 39	9.14	11.78
40 - 44	1.69	10.70
45 - 49	0.10	9.54

Differences in the proportions of the district population and sample size that is listed in table 7 vary around 2%. The situation is very different in case of age group analysis, which shows large differences. Still lesser but significant differences are seen in the table comparing the percentages of sample size and population of ethnic group.

Table 8: Comparison of the percentages of sample size (test done) and the population according to ethnic group of the Free State – Sentinel survey 2004

Ethnic Group	Percentage distribution of samples	Percentage distribution of ethnic groups among female population aged between 15 and 49
Black	95.77	88.80
Asian	0.10	0.13
Coloured	1.18	3.04
White	1.38	8.02
Unknown	1.57	

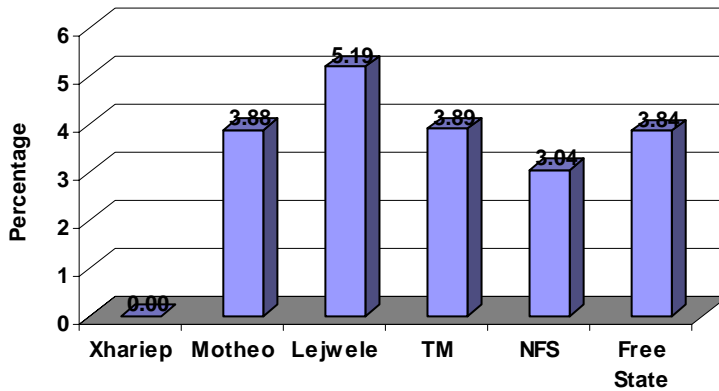
Small number of participants and the positive tests (sample size related phenomenon) in the subpopulation analysis produces statistically non-significant results. Many such examples can be seen in the tables presented in the Annexure. Examples are Asian population in ethnic group analysis and > 45 age group in age group analysis.

ANALYSIS OF SYPHILIS SERO-PREVALENCE OF THE FREE STATE PROVINCE

The result of the RPR test done for syphilis on the blood samples collected is presented here. Altogether 1015 samples were tested in Free State where 39 turned positive, 3.84% prevalence among the mothers attending antenatal clinic. The district and age group prevalence are presented below.

Figure 6: Syphilis sero-prevalence at district level of the women attending antenatal service in public sector clinics of the Free State province - 2004

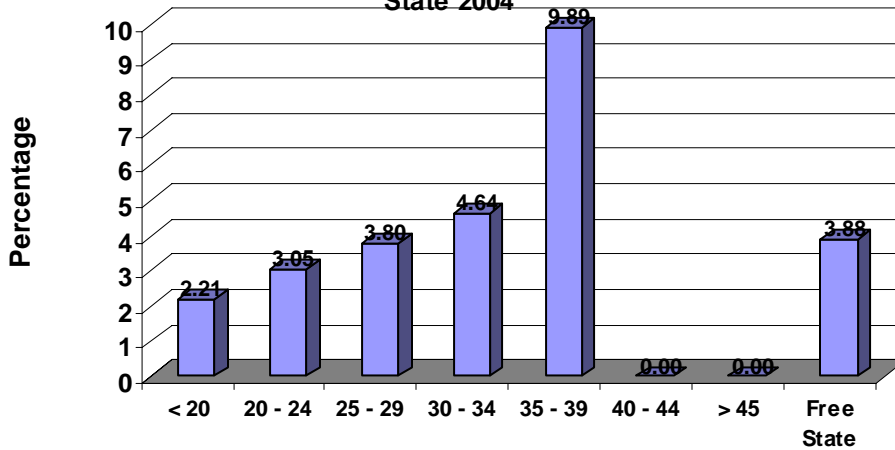
Syphilis prevalence - Sentinal Survey Free State districts 2004



Higher prevalence is seen in the Lejweleputswa district as in case of HIV sero-prevalence.

Figure 7: Syphilis sero-prevalence according to age group of the women attending antenatal service in public sector clinics of the Free State province - 2004

Syphilis Prevalence of Age Groups - Sentinal Survey Free State 2004



Interestingly, 35-39 years age group is showing higher prevalence. The age groups above to years of age shows 0% because all the blood samples of this group turned negative for RPR test. It is more due to small sample size, rather than absence of syphilis among this group. The sub-population estimates of this section of the study cannot be considered statistically significant due to small sample size and very low prevalence.

More detailed analysis of the syphilis sero-prevalence is given in the appendix.

DISCUSSION AND CONCLUSION

This survey, even though limited to the specific subpopulation of the country, is considered to be a useful surveillance tool. It clearly indicates the trend of HIV prevalence among the study population, the women attending the ante-natal clinic in the public sector. It is important to note that the study population does not fully represent the 15 to 49 year old women and only those attending public sector clinics are included. A section of the 15-49 age women with different epidemiological and socio-economic profile are excluded. Thus the application of this prevalence percentage to all women aged between 15 to 49 years may be misleading to an extent. Still the data can be used for trend analysis of the said population group without reservation and the general population with necessary adjustment.

Another important consideration is the fact that the study population represents the population at highest risk for HIV infection. The national sero-prevalence survey of the general population conducted of 2002 indicated that the women in the urban informal settlement to have highest prevalence of 28.4, which lies within the confidence interval of national ante-natal survey results of recent years. It may be concluded that the results of the two surveys are in agreement and the ante-natal survey sample represent the "urban informal settlement" sample of the general survey of 2002.

THE ESTIMATION OF HIV INFECTION IN THE FREE STATE PROVINCE

The interpretation of the Free State ante-natal survey estimates for 2004 may be done as follows. The Free State female population between 15 and 49 years of age according to mid-year estimate is 802,000. The point estimate of 29.39% prevalence seen in the survey means that 235,743 women are HIV positive in this population and it will be between 209,322 to 263,858 women if we consider the confidence interval range of 26.1 and 32.9. The true prevalence may be little less if the prevalence among the women not attending the public sector facility is assumed to be less as explained earlier. More detailed interpretation is presented in table 9 where prevalence of ante-natal survey of 2004 among different age group is used.

Table 9: Application of the Free State estimates of 2004 antenatal survey to the corresponding population groups

Age Group	Female Population	Prevalence 2004 (%)	Estimated number of HIV positive females
15-19	154,000	15.47	23,823
20-24	143,500	30.18	43,313
25-29	128,400	32.91	42,258
30-34	119,300	42.38	50,564
35-39	94,500	23.91	22,598
40-44	85,800	29.41	25,235

45-49	76,500	0.00	0
Total HIV positive for females 15 to 44 years			207,791

The estimated number of HIV positive women aged between 15 and 49 is less here because there was no positive blood sample in this survey for the age group 45 and above.

It clearly demonstrates that the sentinel survey cannot give a definite prevalence estimate of the general population. The prevalence of different age groups of male population and the prevalence among the female below the age of 15 and above the age of 49 should be known to complete the picture.

THE TREND OF HIV EPIDEMIC IN THE FREE STATE PROVINCE

As explained earlier, the interpretation of the trend of HIV prevalence or the current direction of the HIV prevalence curve can be done more accurately using the sentinel survey estimates. The table 10 lists the results of the sentinel survey from 1990 for the Free State province. Along with the HIV sero-prevalence, the variation of the prevalence on yearly and 5 yearly basis is also listed.

Year	HIV prevalence estimates of Sentinel Survey - Free State		
	Estimated prevalence	Annual Change	Change in 5 years
1990	0.7		8.5 (9.2 – 0.7)
1991	1.7	1	
1992	2.2	0.5	
1993	4.1	1.9	
1994	9.2	5.1	
1995	11	1.8	18.76 (27.96 – 9.2)
1996	17.5	6.5	
1997	20	2.5	
1998	22.8	2.8	
1999	27.96	5.16	
2000	27.9	-0.06	1.57 (29.53 -27.96)
2001	30.1	2.2	
2002	28.8	-1.3	
2003	30.1	1.3	
2004	29.53	-0.57	

Looking at the prevalence column, it can be seen that the estimates from 1999 to 2004 did not change much and remains between 27 and 30 percent and the annual change column shows that the highest change was in 2001(2.2) and lowest in 2002 (-1.3). This clearly demonstrates that the

prevalence among the 15 to 49 year old females is stabilizing or showing a tendency to decline. The column listing of the change in 5 years confirms the stabilization trend and shows that the highest increase occurred between the years of 1995 and 1999.

The prevalence of HIV in a particular year is decided mainly by four factors. All persons infected in previous years that survives (up to 15 years or more in case of HIV epidemic) and those who are newly infected during the year in question produces an additive effect and death of HIV positive persons and the emigration to different geographic areas induces a subtractive effect. The net effect of the additive and subtractive forces determines the prevalence. Unlike the epidemics of cholera or influenza, the HIV positive persons can live longer and the decline in the prevalence takes longer time even if yearly increase or incidence is very much reduced. The table above demonstrates this phenomenon in that the prevalence remains high even though the year on year change is remaining low for the past 5 years.

Other results of this study that support the arguments are the low prevalence of Syphilis and decrease in the prevalence among the women below 20 years. The prevalence of syphilis is a good indicator of unprotected sex and the rate of transmission of HIV among the syphilis sufferers is very high. Thus the continuing trend of low prevalence of syphilis in Free State mothers is a positive indicator of the effectiveness of the awareness campaign and a promise of reduced transmission. Similarly the decreasing prevalence of HIV among the teenager is an indication of improved awareness and a promise of future reduction of HIV transmission.

The HIV prevalence of the Free State is expected to come down slowly and the rate of decline will be determined by the rate at which the infected people are dying and the rate at which the new infections are occurring. The alarming rate at which the HIV and AIDS victims are dying in Free State will continue for few more years and slowly settle down to smaller numbers eventually if the new infection rate is maintained or reduced further.

The trend of the sub-epidemics in other population groups will follow a similar pattern and it may be argued that the general HIV epidemic of the Free State is stabilizing and will start declining in few years time.

CONCLUSION

Even though the HIV prevalence is showing a tendency to stabilize in the Free State province, around 450,000 people of the province is currently in various stages of the disease and around 230,000 of them are women aged between 15 and 49. It is a huge burden on the society and the government and its overwhelming effect on the department of health is well known. A conservative prediction is that it is going to continue for years to come unless the current efforts towards the control of the HIV transmission is not sustained and improved. The efforts of the government and the community as whole and the preservation instinct of humanity has slowed

down the upward march of HIV prevalence in Free State and it is very important that it is sustained until the epidemic is truly under control or eliminated.

RECOMMENDATIONS

The HIV sentinel survey of women attending antenatal clinic is going on for past 15 year and several models of projection and estimations are done. A fresh look at these facts along with that of the general survey of 2002 is recommended. A detailed analysis of available data on HIV prevalence will help the policy makers and the stakeholders to understand the epidemic better.

The comprehensive HIV management plan of the province should make use of the survey findings, especially the calculation of the age group and geographical sub-epidemics.

The estimates available on the province and its subpopulations are inadequate to make any reasonable projection of the epidemic, especially the sub-epidemics. At this crucial stage of the epidemic, more detailed HIV prevalence survey to determine the estimates of the sub-populations of the province will contribute substantially towards the success of the HIV control programs of the future.

APPENDIX

The data for this analysis was collected in the Free State province as part of the national HIV and Syphilis sero-prevalence survey of woman attending antenatal service in the public sector clinics. Available raw data and the results of the analysis that is used for the preparation of the report is presented here.

ANALYSIS OF HIV TEST RESULTS

Table A1:
Raw data and percentage of positive samples of HIV sero-prevalence for the Free State province per sentinel ante-natal clinic – 2004

Sentinel Site (Clinic)	Total test done	Positive tests	Negative tests	Percentage positive tests
Xhariep district	32	7	25	21.88
Jacobsdal Clinic	7	2	5	28.57
Koffiefontein Clinic	15	3	12	20.00
Petrusburg Clinic	10	2	8	20.00
Motheo District	258	72	186	27.91
C-clinic (Botshabelo)	35	7	28	20.00
Chris de Wet Clinic (Bloemfontein)	40	8	32	20.00
Dinaane Clinic (Thaba Nchu)	18	3	15	16.67
Gaongalelwe Clinic (Thaba Nchu)	13	1	12	7.69
Heidedal CHC (Bloemfontein)	40	11	29	27.50
Ikaheng Clinic (Ladybrand)	15	6	9	40.00
J-clinic (Botshabelo)	37	12	25	32.43
Ladybrand Clinic	20	9	11	45.00
MUCPP (Bloemfontein)	40	15	25	37.50
Lejweleputswa District	212	70	142	33.02
A. M. Kruger Clinic (Odendaalsrus)	6	3	3	50.00
Bothaville Clinic	29	6	23	20.69
Hoopstad Clinic	39	13	26	33.33
Kgotsong clinic (Welkom)	34	13	21	38.24
Khotalong Clinic (Virginia)	40	15	25	37.50
Phedisanang Clinic (Odendaalsrus)	24	5	19	20.83
Tshepong clinic (Welkom)	40	15	25	37.50

Northern Free State District	230	74	156	32.17
Hill Street Clinic (Kroonstad)	42	11	31	26.19
Lusaka Clinic (Theunissen)	20	5	15	25.00
Masilo Clinic (Theunissen)	18	6	12	33.33
Parys Clinic	34	11	23	32.35
Rammulotsi clinic (Viljoenskroon)	41	21	20	51.22
Refengotso Clinic (Deneysville)	27	8	19	29.63
Sasolburg Clinic	36	10	26	27.78
Ventersburg Clinic	12	2	10	16.67
Thabo Mofutsanyane District	284	77	207	27.11
Bohlokong Clinic (Bethlehem)	40	14	26	35.00
Boitumelo Clinic (Senekal)	21	5	16	23.81
Clocolan Clinic	28	7	21	25.00
Dinkweng clinic (Qwa-Qwa)	8	2	6	25.00
Eva Mota clinic (Qwa-Qwa)	10	1	9	10.00
Harrismith Clinic	19	3	16	15.79
Hlohlolwane Clinic (Clocolan)	4	1	3	25.00
Intabazwe clinic (Harrismith)	20	1	19	5.00
Makhalaneng clinic (Qwa-Qwa)	22	3	19	13.64
Marakong clinic (Qwa-Qwa)	20	3	17	15.00
Matwabeng Clinic (Senekal)	6	2	4	33.33
Namahali clinic (Qwa-Qwa)	20	5	15	25.00
Pabalong clinic (Qwa-Qwa)	19	7	12	36.84
Petsana clinic (Reitz)	20	11	9	55.00
Reitz Clinic	8	5	3	62.50
Sekamotho Motha clinic (Qwa-Qwa)	9	2	7	22.22
Tseki Clinic (Qwa-Qwa)	10	5	5	50.00
Free State Province Total	1016	300	716	29.53

**Table A2:
Estimated HIV prevalence per districts in Free State province for HIV sero-prevalence Survey – 2004**

District	Total test done	Positive tests	Negative tests	Percentage of positive tests
Xhariep	32	7	25	21.88
Motheo	258	72	186	27.91
Lejweleputswa	212	70	142	33.02
Thabo Mofutsanyane	284	77	207	27.11
Northern Free State	230	74	156	32.17
Free State Province	1016	300	716	29.53

**Table A3:
Comparison of the distribution of sample size and positive and negative tests against the district population — HIV sero-prevalence survey 2004**

District	Percentage of tests done over provincial total	Percentage of positive tests over provincial total	Percentage of negative tests over provincial total	Percentage of provincial population in the district
Xhariep	3.15	2.33	3.49	5.00
Motheo	25.39	24.00	25.98	26.91
Lejweleputswa	20.87	23.33	19.83	24.27
Thabo Mofutsanyane	27.95	25.67	28.91	26.81
Northern Free State	22.64	24.67	21.79	17.01

**Table A4:
Estimated HIV prevalence per age group in the Free State province for HIV sero-prevalence Survey – 2004**

Age Group	Total test done	Positive tests	Negative tests	Percentage of positive
< 20	181	28	153	15.47
20 - 24	328	99	229	30.18
25 - 29	237	78	159	32.91
30 - 34	151	64	87	42.38
35 - 39	92	22	70	23.91
40 - 44	17	5	12	29.41
45 and older	1	0	1	0.00
Total	1007	296	711	29.39

The age was not available for 9 samples

Table A5:
Comparison of the distribution of sample size (tests done) and positive and negative tests over the provincial total against the population of given age groups – HIV sero-prevalence survey 2004

Age Group	Percentage of tests done over the provincial total	Percentage positive test over the provincial total	Percentage of negative test over the provincial total	Percentage distribution of female population in given age group
15 - 19	17.97	9.46	21.52	19.20
20 - 24	32.57	33.45	32.21	17.89
25 - 29	23.54	26.35	22.36	16.01
30 - 34	15.00	21.62	12.24	14.88
35 - 39	9.14	7.43	9.85	11.78
40 - 44	1.69	1.69	1.69	10.70
45 - 49	0.10	0.00	0.14	9.54

Table A6:
Estimated HIV prevalence per ethnic group in the Free State province for HIV sero-prevalence Survey – 2004

Ethnic Group	Total test done	Positive Tests	Negative Tests	Percentage Positive
Black	973	293	680	30.11
Asian	1	0	1	0.00
Coloured	12	3	9	25.00
White	14	0	14	0.00
Unknown	16	4	12	25.00
Total	1016	300	716	29.53

Table A7:
Comparison of the distribution of sample size (tests done) and positive and negative tests over the provincial total against the Free State population of given ethnic groups – HIV sero-prevalence survey 2004

Ethnic Group	Percentage distribution of samples	Percentage distribution of positive tests	Percentage distribution of negative tests	Percentage distribution of ethnic groups among female population aged between 15 and 49
Black	95.77	97.67	94.97	88.80
Asian	0.10	0.00	0.14	0.13
Coloured	1.18	1.00	1.26	3.04
White	1.38	0.00	1.96	8.02
Unknown	1.57	1.33	1.68	

Table A8: Analysis of the age of husband/partner of the women participated in the Free State province for HIV sero-prevalence Survey – 2004

Age Group of husband/partner of the mother tested	Total test done (mother) against partner's age group	Positive (mother) against partner's age group	Negative (mother) against partner's age group	Percentage of positive mothers with in the age group of their partners	Distribution of mothers tested according to the age of their partners
< 20	37	3	34	8.11	3.82
20 - 24	229	47	182	20.52	23.66
25 - 29	267	80	187	29.96	27.58
30 - 34	193	81	112	41.97	19.94
35 - 39	128	36	92	28.13	13.22
40 - 44	70	25	45	35.71	7.23
45 and older	44	17	27	38.64	4.55
Total	968	289	679	29.86	100.00

Table A9: Analysis of the highest education of the women participated in the Free State province for HIV sero-prevalence Survey – 2004

Highest education / Grade	Total test done	Positive tests	Negative tests	Percentage positive in highest education category	Distribution of total test done (sample) over the provincial total
0	30	10	20	33.33	2.95
1	2	1	1	50.00	0.20
2	4	2	2	50.00	0.39
3	4	1	3	25.00	0.39
4	21	6	15	28.57	2.07
5	19	7	12	36.84	1.87
6	39	13	26	33.33	3.84
7	65	23	42	35.38	6.40
8	87	31	56	35.63	8.56
9	120	37	83	30.83	11.81
10	182	52	130	28.57	17.91
11	160	52	108	32.50	15.75
12	267	63	204	23.60	26.28
Tertiary education	16	2	14	12.50	1.57
TOTAL	1016	300	716	29.53	100.00

ANALYSIS OF HIV TEST RESULTS

Table A10:
Raw data and percentage of positive samples of Syphilis sero-prevalence for the Free State province per sentinel ante-natal clinic – 2004

Clinic/district	Total test done	Positive Test	Negative Test	Percentage Positive
Xhariep	32	0	32	0.00
Jacobsdal Clinic	7	0	7	0.00
Koffiefontein Clinic	15	0	15	0.00
Petrusburg Clinic	10	0	10	0.00
Motheo	258	10	248	3.88
C-clinic (Botshabelo)	35	2	33	5.71
Chris de Wet Clinic (Bloemfontein)	40	2	38	5.00
Dinaane Clinic (Thaba Nchu)	18	0	18	0.00
Gaongalelwe Clinic (Thaba Nchu)	13	0	13	0.00
Heidedal CHC (Bloemfontein)	40	3	37	7.50
Ikaheng Clinic (Ladybrand)	15	0	15	0.00
J-clinic (Botshabelo)	37	1	36	2.70
Ladybrand Clinic	20	0	20	0.00
MUCPP (Bloemfontein)	40	2	38	5.00
Lejweleputswa	212	11	201	5.19
A. M. Kruger Clinic (Odendaalsrus)	6	1	5	16.67
Bothaville Clinic	29	1	28	3.45
Hoopstad Clinic	39	2	37	5.13
Kgotsong clinic (Welkom)	34	2	32	5.88
Khotalong Clinic (Virginia)	40	2	38	5.00
Phedisanang Clinic (Odendaalsrus)	24	1	23	4.17
Tshepong clinic (Welkom)	40	2	38	5.00
Northern Free State	230	7	223	3.04
Hill Street Clinic (Kroonstad)	42	1	41	2.38
Lusaka Clinic (Theunissen)	20	0	20	0.00
Masilo Clinic (Theunissen)	18	2	16	11.11
Parys Clinic	34	2	32	5.88
Rammulotsi clinic (Viljoenskroon)	41	0	41	0.00
Refengotso Clinic (Deneysville)	27	2	25	7.41
Sasolburg Clinic	36	0	36	0.00
Ventersburg Clinic	12	0	12	0.00

Thabo Mofutsanyane	283	11	272	3.89
Bohlokong Clinic (Bethlehem)	40	1	39	2.50
Boitumelo Clinic (Senekal)	21	1	20	4.76
Clocolan Clinic	28	2	26	7.14
Dinkweng clinic (Qwa-Qwa)	8	0	8	0.00
Eva Mota clinic (Qwa-Qwa)	10	0	10	0.00
Harrismith Clinic	19	0	19	0.00
Hlohlolwane Clinic (Clocolan)	4	0	4	0.00
Intabazwe clinic (Harrismith)	20	1	19	5.00
Makhalaneng clinic (Qwa-Qwa)	21	2	19	9.52
Marakong clinic (Qwa-Qwa)	20	1	19	5.00
Matwabeng Clinic (Senekal)	6	1	5	16.67
Namahali clinic (Qwa-Qwa)	20	0	20	0.00
Paballong clinic (Qwa-Qwa)	19	0	19	0.00
Petsana clinic (Reitz)	20	1	19	5.00
Reitz Clinic	8	0	8	0.00
Sekamotho Motha clinic (Qwa-Qwa)	9	0	9	0.00
Tseki Clinic (Qwa-Qwa)	10	1	9	10.00
Free State Province	1015	39	976	3.84

Table A11: Estimated Syphilis prevalence for the districts in the Free State province for HIV sero-prevalence Survey - 2004

District	Total tests done	Positive tests	Negative tests	Percentage positive in the district
Xhariep	32	0	32	0.00
Motheo	258	10	248	3.88
Lejweleputswa	212	11	201	5.19
Thabo Mofutsanyane	283	11	272	3.89
Northern Free State	230	7	223	3.04
Free State Province	1015	39	976	3.84

Table A12: Comparison of the distribution of sample size and positive tests against the district population for the syphilis sero-prevalence study

District	Distribution of sample (test done) in the province	Distribution of positive test in the province	Distribution of population
Xhariep	3.15	0.00	5.00
Motheo	25.42	25.64	26.91
Lejweleputswa	20.89	28.21	24.27
Thabo Mofutsanyane	27.88	28.21	26.81
Northern Free State	22.66	17.95	17.01
Free State Province	100.00	100.00	100.00

Table A13: Estimated Syphilis prevalence per age group in the Free State province for HIV sero-prevalence Survey – 2004

Age Group	Total test done	Positive Tests	Negative Tests	Percentage positive tests in the age group
< 20	181	4	177	2.21
20 - 24	328	10	318	3.05
25 - 29	237	9	228	3.80
30 - 34	151	7	144	4.64
35 - 39	91	9	82	9.89
40 - 44	17	0	17	0.00
45 and older	1	0	1	0.00
Total	1006	39	967	3.88

Table A14: Comparison of the distribution of sample size (tests done) and positive tests over the provincial total against the population of given age groups for syphilis study

Age group	Distribution of sample (tests done) as percentage	Distribution of positive tests per age group as percentage	Percentage distribution of female population in given age group
< 20	17.99	10.26	19.20
20 - 24	32.60	25.64	17.89
25 - 29	23.56	23.08	16.01
30 - 34	15.01	17.95	14.88
35 - 39	9.05	23.08	11.78
40 - 44	1.69	0.00	10.70
45 and older	0.10	0.00	9.54

Table A15: Analysis of the highest education of the women participated in the Free State province for Syphilis sero-prevalence Study

Highest education / Grade	Total test done	Positive tests	Negative tests	Percentage positive in highest education category	Distribution of total test done (sample) over the total
0	29	1	30	3.33	2.96
1	2	0	2	0.00	0.20
2	4	0	4	0.00	0.39
3	3	1	4	25.00	0.39
4	21	0	21	0.00	2.07
5	16	3	19	15.79	1.87
6	37	2	39	5.13	3.84
7	60	4	64	6.25	6.31
8	81	6	87	6.90	8.57
9	114	6	120	5.00	11.82
10	177	5	182	2.75	17.93
11	153	7	160	4.38	15.76
12	263	4	267	1.50	26.31
Tertiary education	16	0	16	0.00	1.58
Total	976	39	1015	3.84	100.00

ACKNOWLEDGEMENTS:

I would like to thank the head of the department of health for making it possible for us to conduct the survey. Sincere thanks goes to Mr B. de Winnaar, Snr for his support to the Unit, and Dr C. Moorkoth for editing the first provincial draft report.

The following people are sincerely thanked.

- Mr M.H.Toli
- Me Leonore v.d. Bank
- Me Daleen Vermaak
- Me Lakile Shapu
- Me Veronica Molahloe
- Me Veda Simmons
- Me Chantelle Macalagh
- Me Mieta v. Niekerk
- Me Melody Koekemoer
- Me Francinah Hou
- Me Ts`elela Mothibi
- Mr Thulani Mazibuko
- Mr R.A. Khajoane