ZIMBABWE NATIONAL AND SUB-NATIONAL

HIV ESTIMATES REPORT

2017

AIDS & TB PROGRAMME

MINISTRY OF HEALTH AND CHILD CARE

July 2018

Foreword

The Ministry of Health and Child Care (MOHCC) in collaboration with National AIDS Council (NAC) and support from partners, produced the Zimbabwe 2017 National, Provincial and District HIV and AIDS Estimates. The UNAIDS, Avenir Health and NAC continued to provide technical assistance and training in order to build national capacity to produce sub-national estimates in order to track the epidemic.

The 2017 Estimates report gives estimates for the impact of the programme. It provide an update of the HIV and AIDS estimates and projections, which include HIV prevalence and incidence, programme coverages, AIDS-related deaths and orphans, pregnant women in need of PMTCT services in the country based on the *Spectrum Model version 5.63*.

The 2017 Estimates report will assist the country to monitor progress towards the fast track targets by outlining programme coverage and possible gaps. This report will assist programme managers in accounting for efforts in the national response and policy makers in planning and resource mobilization.

Brigadier General (Dr.) G. Gwinji
Permanent Secretary for Health and Child Care

Acknowledgements

The Ministry of Health and Child Care (MOHCC) would want to acknowledge effort from all individuals and organizations that contributed to the production of these estimates and projections.
We are particularly grateful to the National AIDS Council (NAC) for funding the national and sub-national capacity building and report writing workshop.

We are also grateful to the National HIV and AIDS Estimates Working Group for working tirelessly to produce this report. The following organizations are members of the TWG which is led by the Ministry of Health and Child Care (MOHCC) AIDS & TB Unit; United Nations Joint Programme on HIV and AIDS (UNAIDS), National AIDS Council (NAC), Department of Community Medicine, University of Zimbabwe (UZ), Biomedical Research and Training Institute (BRTI), Imperial College London, Avenir Health, Centers for Disease Control and Prevention (CDC) Zimbabwe, United States Agency for International Development (USAID), United Nations Children's Fund (UNICEF), World Health Organization (WHO), Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) and Zimbabwe National Statistics Agency (ZIMSTAT).

This estimates report is intended to assist programme managers, policy makers and advocates in understanding the effects of funding levels and allocation patterns on program impact. It also helps understand epidemic impact on sustainable development. It outlines trends in incidence, prevalence, programme coverage and need.

Dr. O Mugurungi

Director, AIDS and TB Program

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Acronyms

AIDS	Acquired Immuno-Deficiency Syndrome
HIV	Human Immuno-deficiency Virus
PMTCT	Prevention of Mother-to-Child Transmission
PLHIV	People Living with HIV
EPP	Estimation and Projection Package
UNAIDS	Joint United Nations Programme on HIV and AIDS
NAC	National AIDS Council
M&E	Monitoring and Evaluation
ANC	Antenatal Care
CD4	Cluster of Differentiation 4
AEM	Asian Epidemic Model
ART	Anti-Retroviral Therapy
AIM	AIDS Impact Model
ZDHS	Zimbabwe Demographic Health Survey
PROMISE	Promoting Maternal–Infant Survival Everywhere
EID	Early Infant Diagnosis
TB	Tuberculosis
WHO	World Health Organization
ZIMPHIA	Zimbabwe Population-based HIV Impact Assessment

Executive Summary

The 2017 HIV Estimates process was led by the Ministry of Health and Child Care and National AIDS Council. This report is designed to describe the the epidemic at national and sub-national level. It gives estimates for HIV prevalence, incidence, AIDS-related deaths, programme coverage and impact.

13.3%
Adult HIV prevalence

10.5% | 16.1%

The 2017 national and sub-national HIV and AIDS estimates were generated using the Spectrum software version 5.63. HIVE model was used to estimate district prevalence and all other key indicators were estimated with excel worksheet. Programme impact was estimated by comparing with the counterfactual.

People Living with HIV

The total number of people living with HIV (PLHIV) in Zimbabwe was estimated to be 1.33 million in 2017.

1.25 million Adults were living with HIV in 2017

Children under 15 years of age account for 5.8% (76,600) of all people living with HIV.

An estimated 59% (738,400) of all adults aged 15+ living with HIV in Zimbabwe are women.

Adult HIV Prevalence

The HIV prevalence rate among people aged 15-49 was estimated at 13.3.% in 2017. HIV epidemic is geographically diverse, ranging from a prevalence of 23.0% in Bulilima district in Mat South region to approximately 9.3% in Gokwe North in Midlands region. These new estimates confirm a decline in HIV prevalence among both men and women at National level. The HIV prevalence is almost twice higher in females (12.6%) aged 15-24 than their male (6.8%) conterparts..

Annual New HIV Infections

23.4%
of new HIV infections among children occured in **Midlands province**

There were approximately 36,700 new HIV infections that occurred among adults and 4,300 among children in 2017. Harare,Mashonaland East, and Midlands provinces contributed about 46% of the total new adult infections.

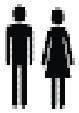
Trends in New HIV Infections

4300 20200 16500

Zimbabwe has seen a decline in HIV incidence rates among adults aged 15 - 49 from 1.0% in 2010 to 0.49% in 2017 possibly due to the scale up of various prevention and treatment programmes. In terms of absolute numbers, the new HIV infections among all adults 15+years declined nationally from 61,700 in 2010 to 36,700 in 2017. Among children a declined was noted from 11,900 in 2010 to 4,300 in 2017.

Treatment Needs

The number of HIV-positive pregnant women in need of PMTCT services in 2010 was 54,200. In 2017, approximately 63,400 HIV positive pregnant women required PMTCT services.



The number of adults in need of ART is estimated to have reached 1,249,200 in 2017.

ART needs among children (0-14 years) is estimated to be 76,600

AIDS Related Deaths

Annual AIDS related deaths have declined by 62.9% from 59,600 in 2010 to 22,100 in 2017 The decline is attributable to the wider coverage of ART.

Impact and progress towards target

Using the current numerator of PLHIV receiving ART, the country have achieved the second 90.

In 2017, an estimated 66,600 deaths were averted by ART in both adults and children.

Sustained Action Needed for ending AIDS by 2030

Current data is showing that the country is on track to achieve fast track targets. Revitalising prevention focusing on HIV hot spots in order sustain the decline in HIV incidence. Key population size estimates should be established in order to provide programmes with baselines for targeting. Emerging epidemics must be addressed effectively and prevention efforts intensified in high prevalence areas.

1. Background

Current evidence point that Zimbabwe has a mature generalized epidemic which is tracked by a comprehensive monitoring and evaluation system. The comprehensive national monitoring, evaluation and information systems use the following data sources; DHIS 2, surveillance data, Demographic and Health Surveys, Multiple Indicator Cluster Surveys, special surveys targeting different sub-populations and cross sectional surveys. These information sources provide data but not all national indicators needed to understand the national HIV epidemic, programme coverage and the impact of the national response. National Monitoring and Evaluation (M&E) routine data systems however have limitations in generating estimates such as numbers of people living with HIV, those in need of treatment by age and sex, new HIV infections, incidence rates, AIDS deaths number of orphans, women needing Mother-to-Child (MTCT) services and programme coverage, because they reflect facility based information only. Modelled HIV estimates provides information for these key indicators. The HIV estimates for 2017 are based on following data sources:

- Census data
- ZDHS and ZIMPHIA
- ANC survey
- Routinne programme monitoring data
- National and international studies

Since 2013 the generation of HIV Estimates has become an annual process. Zimbabwe has been supported by UNAIDS and its partners to generate key HIV estimates using the Spectrum model. The software takes into account nationally representative prevalence, fertility among HIV+ women and year to year changes in programme uptake variables. HIV estimates generated from year to year are not comparable because of the changes and improvement in the model. The Spectrum 5.63 model is an improved age-sex version of the software that takes into account improved assumptions in the software based on evolving research and improved curve fitting model.

The changes in the estimation techniques from the last estimates include the following:

- Fertility Adjustment – Fertility rate reduction among HIV+ women
- Sex disagregated children ART data
- Use of ANC trends data
- Routine data from each ANC site that was previously HSS site
- Use of routine pregnant women testing data
- Lost to follow up for ART clients each year
- ART returntion at delivery
- MTCT rates calculator
- Prevalence trend models: R-spline

Purpose of the Estimates and Projections

The main purpose of the estimates and projections is to generate strategic information essential for policy, planning and advocacy. The projections show the magnitude of the HIVepidemic and the demographic and epidemiological impacts.

Specific Objectives of the Estimates

The specific objectives of the HIVestimates and projections are:

- To provide timely information on the magnitude, future trends and impact of HIV on health and development.
- To provide information on how HIV affects different population groups and people in different geographic locations.
- To model the impact of the HIV epidemic with and without effective interventions like PMTCT and ART
- To provide estimates of key epidemiological data which serve as a basis for setting national and sub national targets.
- To provide coverage data that is used to report against national and international targets

2. Methodology for HIV Estimates in Zimbabwe

The 2017 HIV Estimates used a combination of Spectrum model, HIVE model and excel workbook. The Spectrum modelling software is a combination of the Estimation and Projection Package (EPP) and the AIDS Impact Model (AIM). The Spectrum AIM model version 5,63 was used to generate estimates of the demographic impact of HIV, including the population burden of HIV infection, the number of new infections, AIDS deaths, and program coverages. EPP was used to derive provincial and national incidence and prevalence estimates.

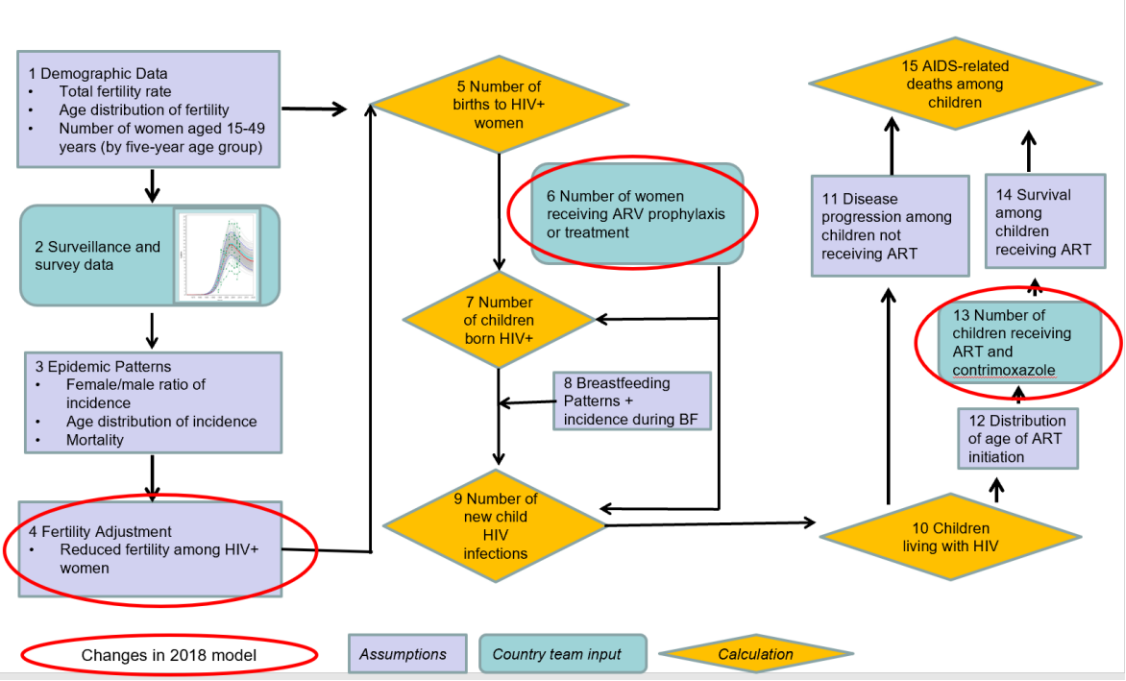
The HIVE model, which is a geospatial modelling of the epidemic was used to give district estimates of HIV prevalence and relative incidence risk with uncertainty intervals.

The excel workbook was also used to calculate district estimates for number of people living with HIV, the number of new infections, AIDS deaths, coverage of antiretroviral therapy (ART) and need for PMTCT.

The AIDS Impact Model (AIM) of Spectrum

The AIDS Impact Module (AIM) of Spectrum has data inputs that include, ART retention at delivery, patient movement, lost to follow up, children receiving ART by 5 year age disaggregation, and a tool that scales the reduction in fertility based on aggregated ANC-RT prevalence data - Fertility rate reduction among HIV+ women. Updates were done to the child model which affected parameters highlighted below.

Figure 1: Structure of child model in Spectrum AIDS Impact Module



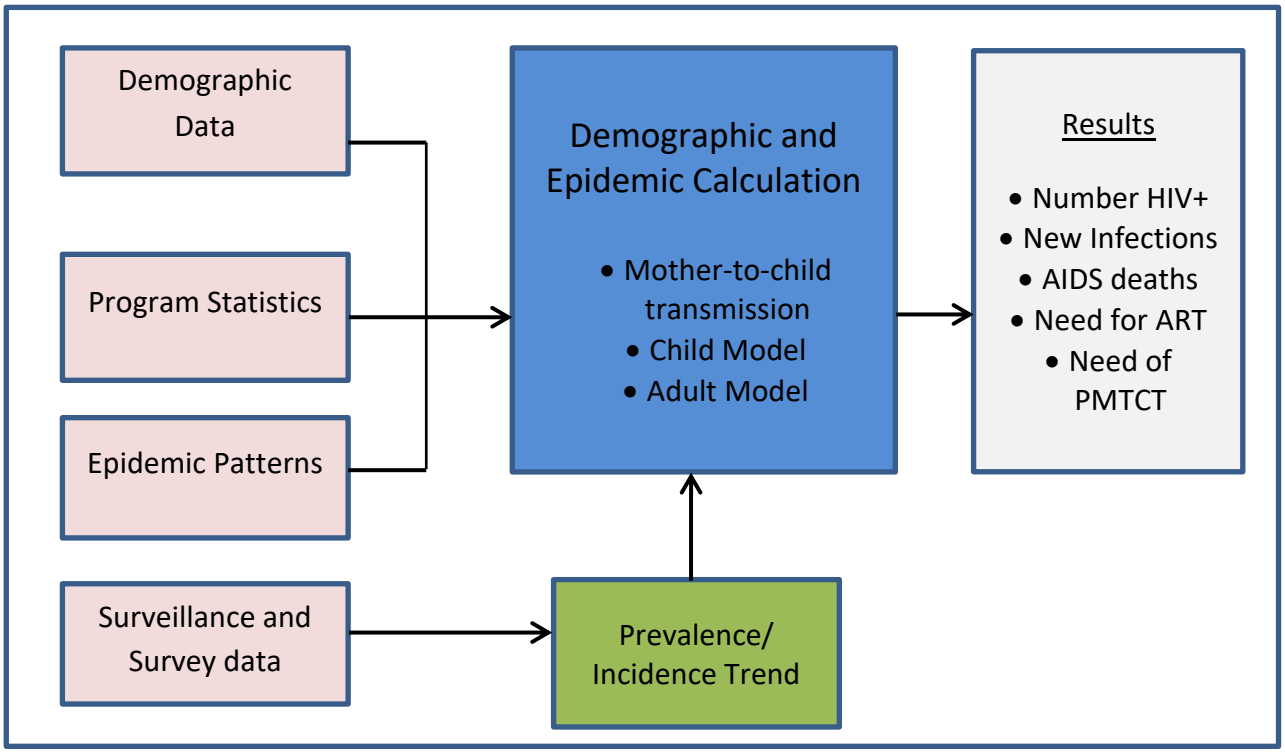
Some of the data input for the AIM were:

- Demographic data since 1970 matching Census 2012 population data
- Adult HIV prevalence and incidence modeled in EPP software- HIV prevalence in antenatal sentinel surveillance and routine pregnant women testing; HIV prevalence in the general population since 1970
- Number or percent of adults receiving anti-retroviral therapy (ART) since 2004
- Number or percent of children receiving ART and/or cotrimoxazole since 2004
- Utilization of Prevention to Mother to Child Transmission Programmes (PMTCT) since 2002
- Patient movement from/to other regions
- Percentage lost to follow up for ART clients each year
- ART retention at delivery
- **Additional PMTCT Data include**:
  - i. Number of first ANC visits
  - ii. Number receiving at least one HIV test
  - iii. Number testing positive from 1st HIV test (not necessarily 1st ANC visit)

iv. Number known to be HIV+ at first ANC visit (including on ART)

v. Number on ART prior to first ANC

Figure 2: HIV Estimates and Projections Process (Model Input and Outputs)



The HIV Estimation and Projection Package (EPP)

National estimate incidence trends were estimated using EPP with age-sex model (ASM) for generalised epidemics that incorporated routine antenatal program data (ANC-RT) in addition to ANC sentinel surveillance (ANC-SS). The model used an additional variance in ANC-SS prevalence to capture non-sampling error and improve the EPP model fit. All sub-national curves were fir using R-Spline.

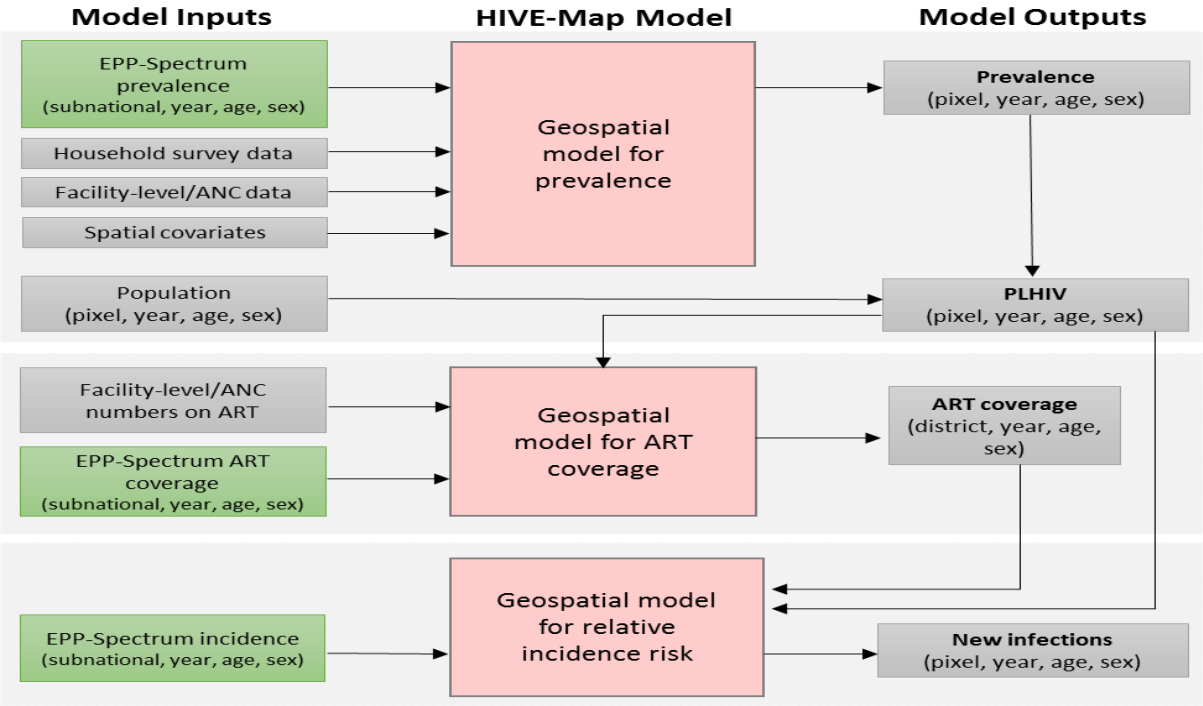
The Sub-national HIV Estimation

HIVE model was used to calculate prevalence from cluster-level HIV prevalence data from household surveys (e.g. DHS) and health facility-level (ANC RT) data on HIV

prevalence among pregnant women attending antenatal clinics. HIV prevalence, relative incidence risk and ART coverage were reported from the HIVE model output.

Prevalence output from HIVE was used to distribute the provincial spectrum model outputs in excel spreadsheet.

Figure 3: HIVE Model Estimates Process (Model Input and Outputs)



The following are model inputs for the HIVE:

For Prevalence and PLHIV

- Survey ZDHS (2005, 2010, 2015)
- Sentinel ANC (annually 1989 to 2002, 2004, 2006, 2009, 2012)
- Routine ANC (2015, 2016)
- Geolocation data at a 5x5 km pixel
- Covariates (ANC bias correction, night time lights, elevation, vegetation, aridity, accessibility, population and year)

For ART Coverage

- Routine ANC (2015, 2016)
- ART coverage results from Spectrum (2017)

- HIVE-Map PLHIV results (2017)

For Relative Incidence Risk

- Incidence estimates from EPP-Spectrum (2017)
- HIVE-Map ART coverage & PLHIV results (2017)
- Estimates and data used from 2017 Zimbabwe subnational Spectrum files

3. Results

The results of the 2017 estimates and projections provides recent data on prevalence, incidence, programme coverage and impact. This report also provides provincial and district HIV estimates and projections.

3.1 Prevalence

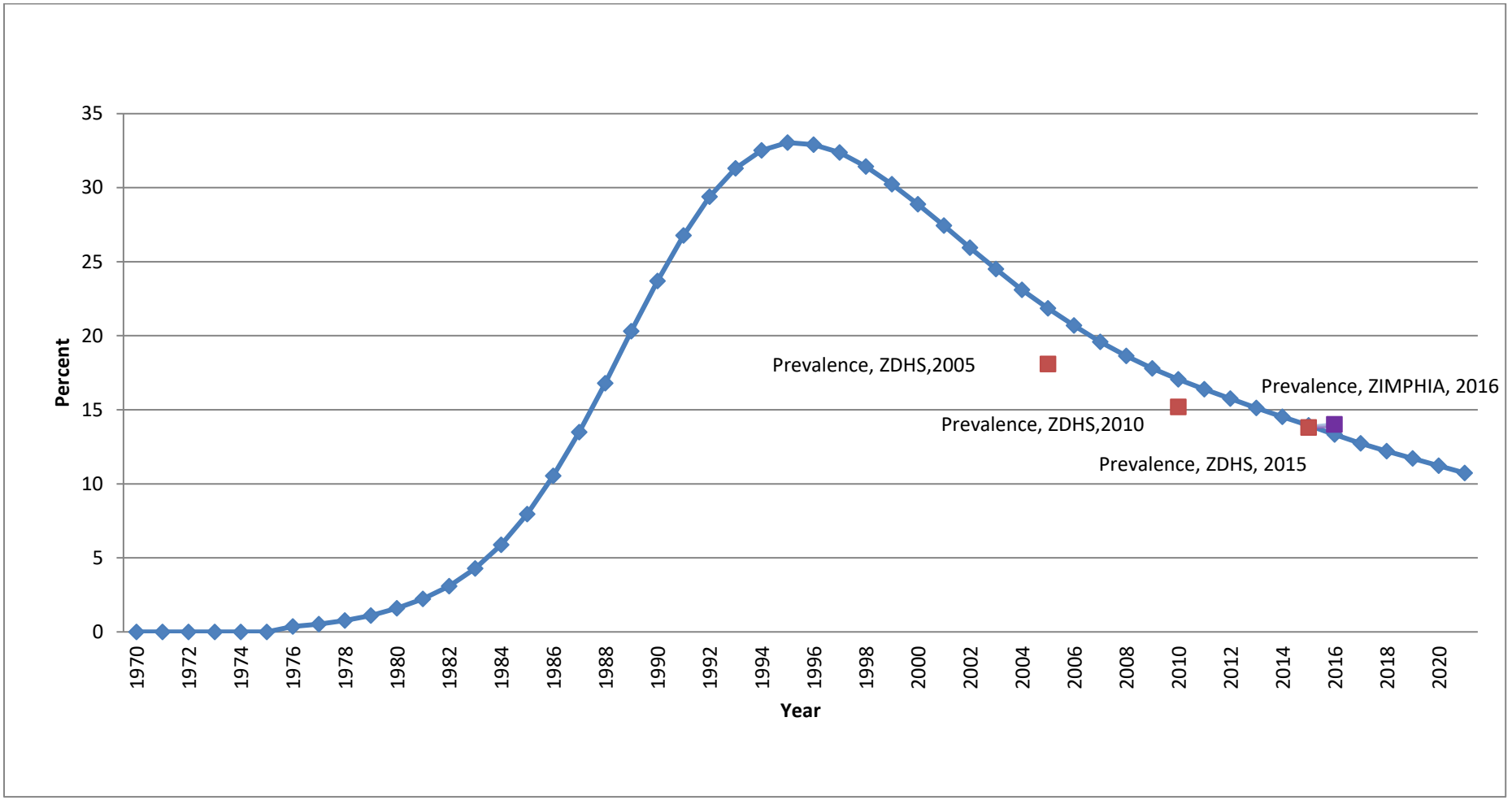
Table 1: Estimated Prevalence in Adults and Children

HIV Prevalence	2014 % (95% CI)	2015 % (95% CI)	2016 % (95% CI)	2017 % (95%CI)
Prevalence adult 15-49 years	14.25 (12.23-15.8)	14.00 (11.96-15.48)	13.68 (11.75-15.2)	13.33 (11.46-14.81)
HIV Prevalence 15-24 years	5.37 (3.53-8.16)	5.20 (3.42-7.9)	4.97 (3.27-7.56)	4.69 (3.08-7.13)
Prevalence males 15-24 years	3.62 (1.88-5.15)	3.54 (1.94-5.06)	3.42 (1.95-4.85)	3.27 (1.93-4.6)
Prevalence females 15-24 years	7.10 (3.67-9.92)	6.83 (3.55-9.58)	6.50 (3.41-9.15)	6.10 (3.22-8.59)
Perevalence children 0-14 years	1.60 (1.35-1.95)	1.48 (1.24-1.79)	1.36 (1.14-1.65)	1.25 (1.05-1.52)

The table shows a declining trend for the HIV prevalence for all age groups. For the age group 15-24, the female HIV prevalence is almost twice male prevalence.

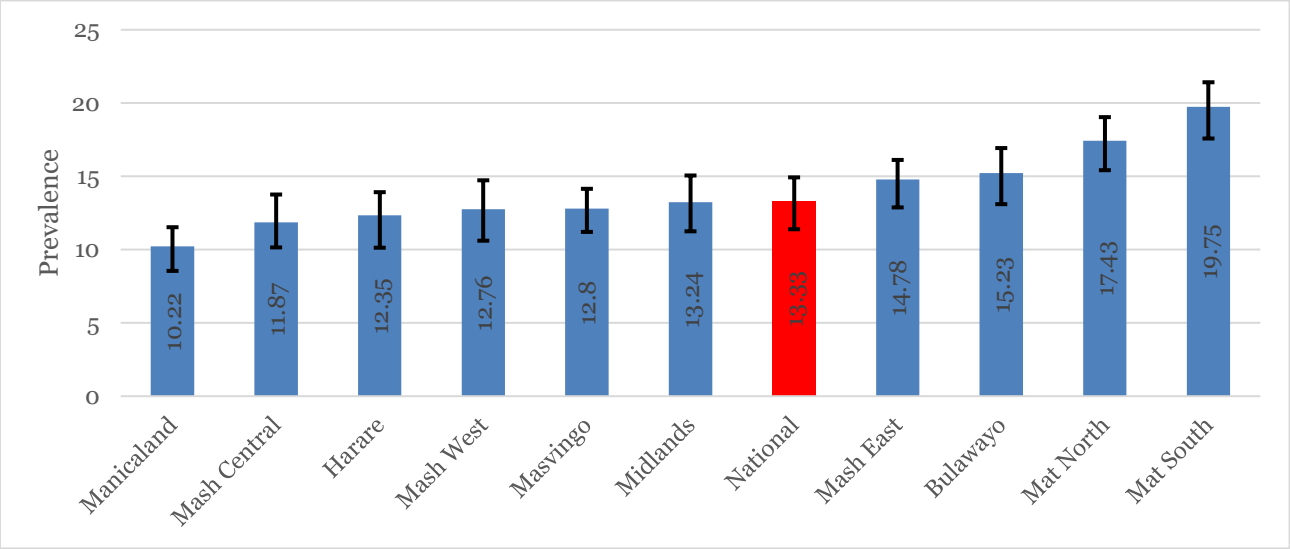
Adult HIV Epidemic Curve

Figure 4: Trends in Adults (15-49 years) HIV Prevalence with ZDHS data points



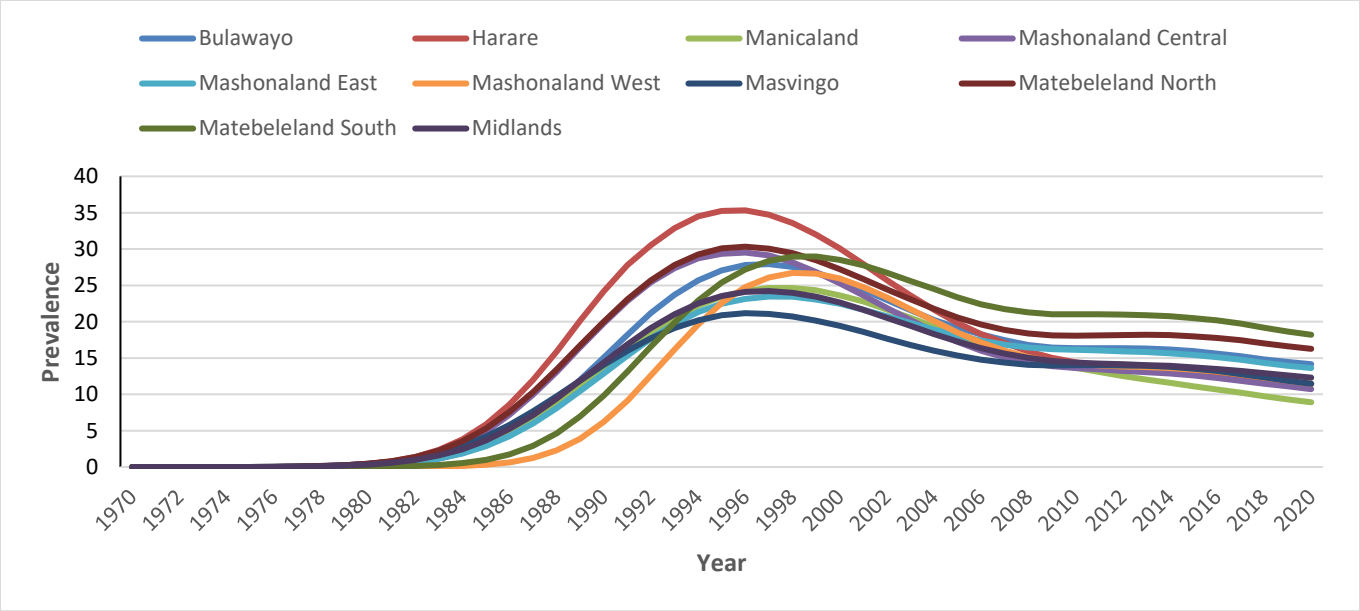
The HIV epidemic gradually increased up to 1983 and sharply increased to a peak in 1995. This was followed by a sharp decline till 2007 and thereafter the decline has been gradual.

Figure 5: Estimated HIV Prevalence in Adults by Province 2017



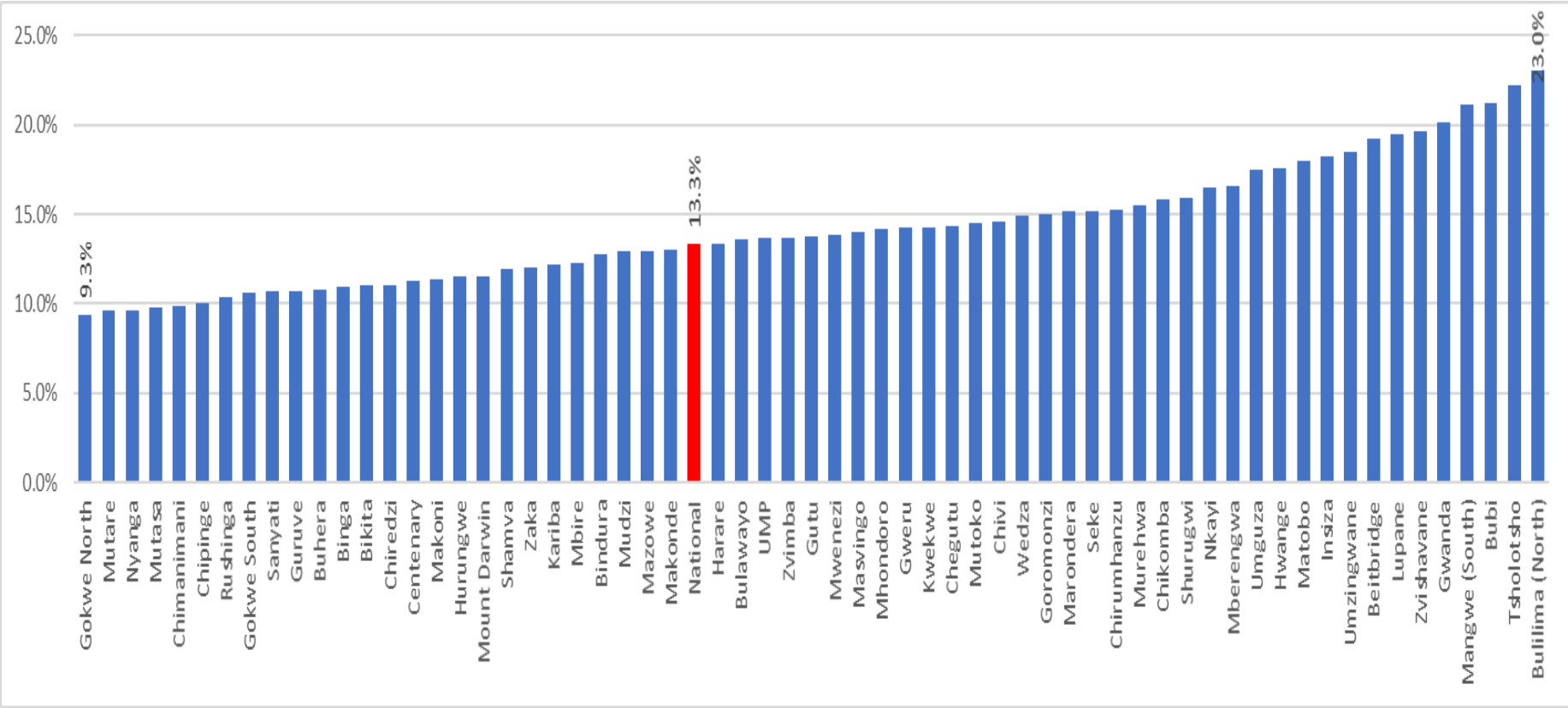
The prevalence for the age group 15-49 years across provinces ranges from 10.2% in Manicaland to 19.8% in Matabeleland South. The national HIV prevalence was estimated to be 13.3%. Matabeleland South and North have significant high HIV prevalence relative to the national.

Figure 6: Estimated Prevalence by Province



Trends in adult HIV prevalence, varied by province over time although it showed a similar trend. The highest peak was recorded by Harare in 1996 followed by Matebeland North Province during the same year. The projections are showing that we are going to sustain the significantly high HIV prevalence upto 2020.

Figure 7: Estimated Prevalence by District



The epidemic varies with geography as shown above. Relative to national prevalence, Harare, Bulawayo and 34 districts have higher prevalence.

3.2 Population Living with HIV in Zimbabwe

Table 2: Estimated Number of People Living with HIV & AIDS

	2014	2015	2016	2017
HIV Population Adults + Children	1,285,205	1,302,105	1,315,883	1,325,823
Adult Population Adults 15+	1,194,760	1,216,615	1,234,982	1,249,172
HIV population (10-19 years)	85,099	81,552	77,943	74,460
HIV Population (15-49)	1,005,850	1,014,440	1,016,238	1,014,395
HIV Population Female 15+	703,467	717,172	728,927	738,399
HIV+ pregnant women (15-24 years)	16,160	15,800	15,320	14,816
HIV Population (0-14)	90,445	85,489	80,902	76,650

Estimated HIV population adults + children increased from 2014 to 2017, the slight increase across years can be explained by few new infections by year and a steady mortality rate. The same trend was recorded for HIV Population (Female 15+ years). In terms of adult population (15+ years) there was an increased up to 2016, however, the number decreased in 2017. HIV population (10-19 years) increased from 2014 to 2015. Thereafter, a declining trend was noted in 2016 and 2017. HIV population (15-49 years) increased from 2014 to 2016. This was followed by a decline in 2017. Contrary to other HIV subpopulations, the estimated HIV population (0-14 years) showed a declining trend over the years reviewed. This is could be as a result of effective comprehensive PMTCT programs in place.

Figure 8: National HIV Population in Zimbabwe

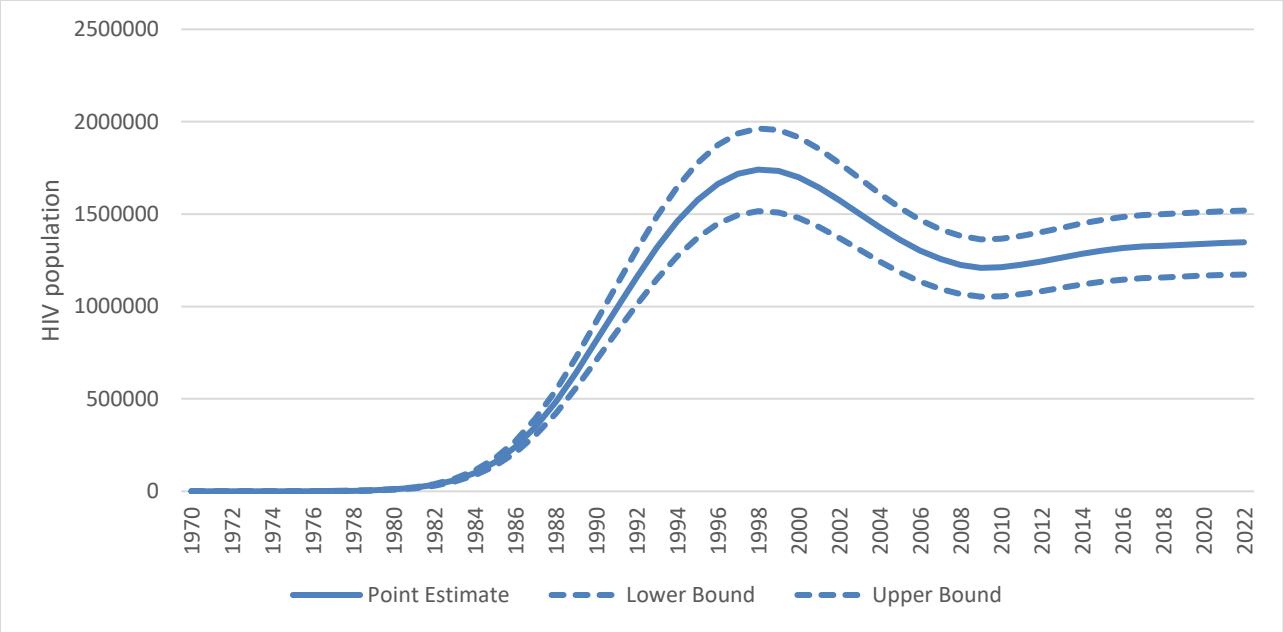
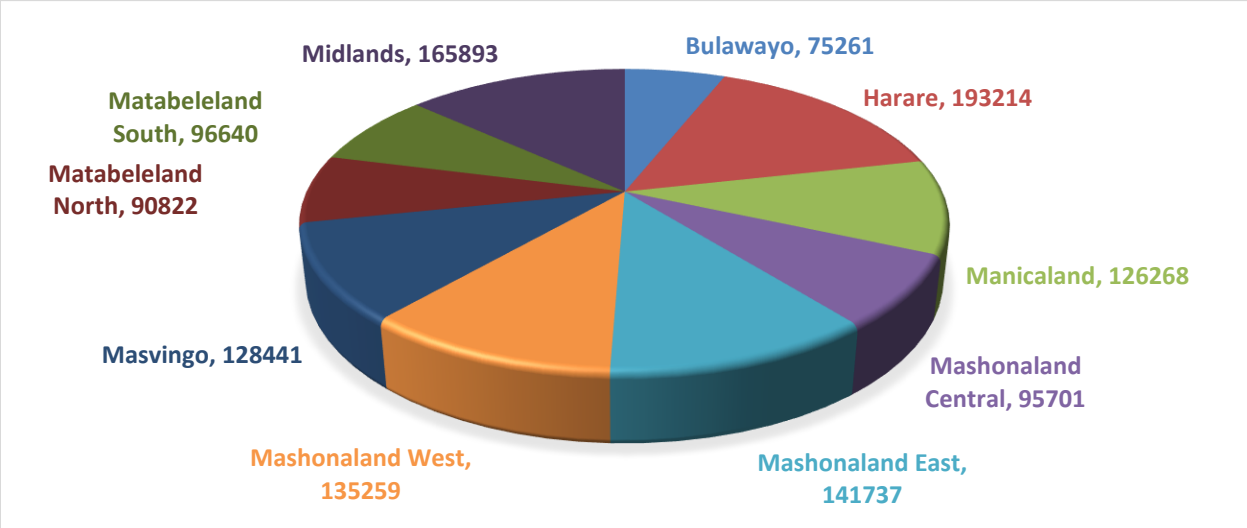


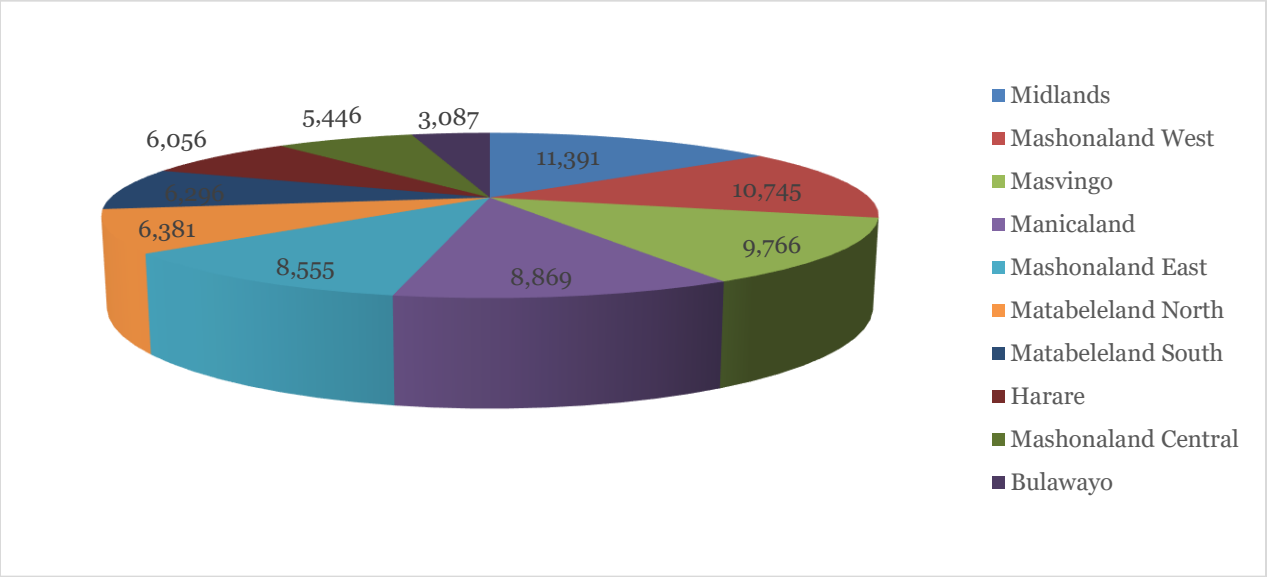
Figure above shows a sharp increase in numbers of people living with HIV from 1985 to 1998 and then declined till 2009. Since then, a gradual increase is noted in the number of people living with HIV in the country. However, a decline is expected in 2020.

Figure 9: Estimated Number of Adults (15+ years) living with HIV & AIDS by Province



The number of adults living with HIV ranges from 75,261 in Bulawayo to 193,214 in Harare.

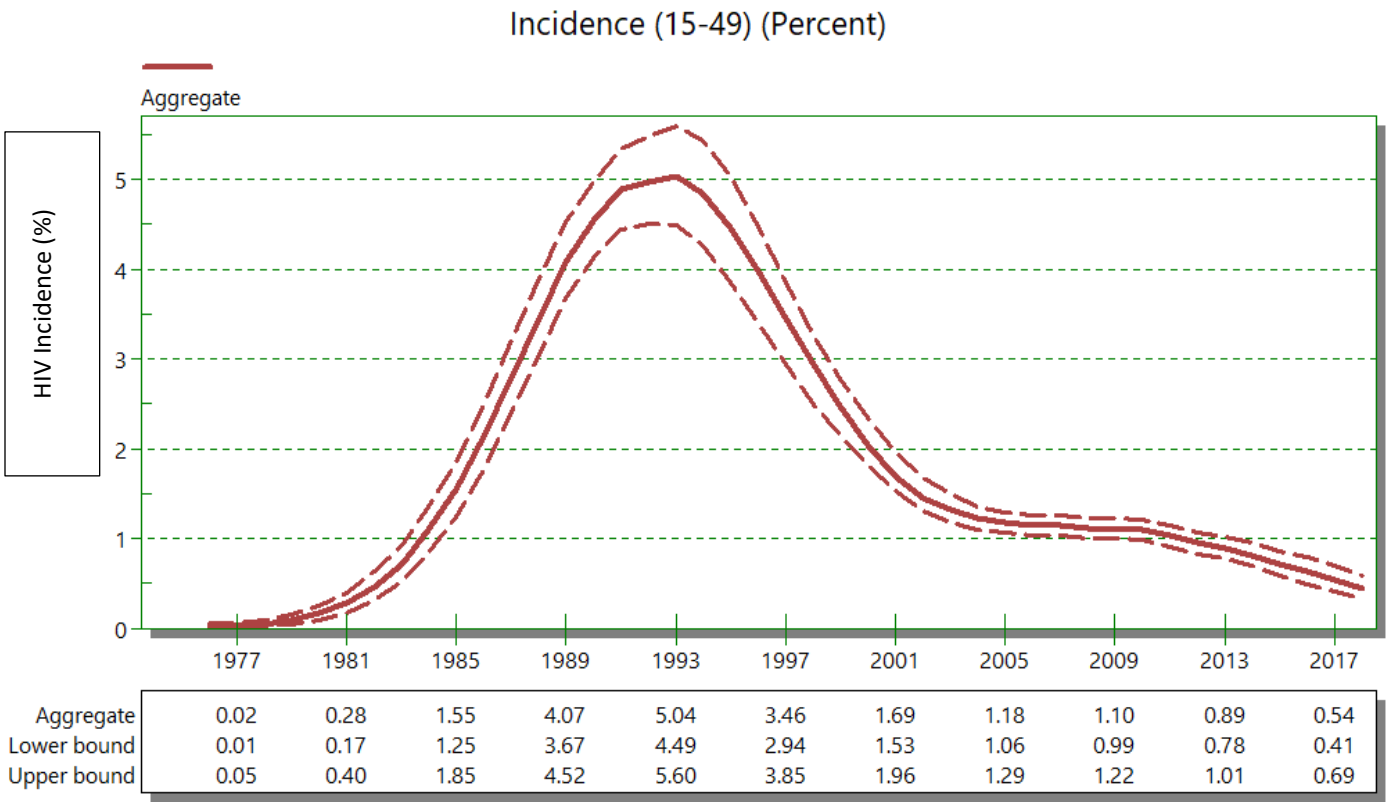
Figure 10: Estimated number of children living with HIV/AIDS by Province



The estimated number of children living with HIV is highest in Midlands province, followed by Mashonaland West province and is lowest in Bulawayo province.

3.3 HIV Incidence

Figure 11: National HIV Incidence, Ages 15-49



	1977	1981	1985	1989	1993	1997	2001	2005	2009	2013	2017
Aggregate	0.02	0.28	1.55	4.07	5.04	3.46	1.69	1.18	1.10	0.89	0.54
Lower bound	0.01	0.17	1.25	3.67	4.49	2.94	1.53	1.06	0.99	0.78	0.41
Upper bound	0.05	0.40	1.85	4.52	5.60	3.85	1.96	1.29	1.22	1.01	0.69

The HIV incidence had a sharp increase from 1982, peaked in 1994 and declined sharply from then up to 2010 and gradually declined below 1.0 thereafter. In 2017, the HIV incidence was 0.54% and it declined by 31% over the past 4 years.

Table 3: HIV Incidence by province

	Bulawayo	Harare	Manicaland	Mash Central	Mash East	Mash West	Masvingo	Mat North	Mat South	Midlands	National
2014	0.73	0.67	0.39	0.75	0.86	0.68	0.72	1.14	1.36	0.79	0.74
2015	0.59	0.62	0.34	0.66	0.75	0.59	0.62	1	1.18	0.72	0.65
2016	0.49	0.59	0.28	0.56	0.67	0.5	0.56	0.88	1.02	0.66	0.58
2017	0.44	0.5	0.23	0.44	0.62	0.38	0.46	0.78	0.83	0.6	0.49

Manicaland Province has the lowest incidence rate since 2014 and is at 0.23 as of 2017, whilst Matebeleland South has the highest incidence rate of 0.83. National the incidence rate has been declining from 0.74 from 2014 to 0.49 in 2017. This incidence rate is in line with the 2015 Zimphia results of 0.47.

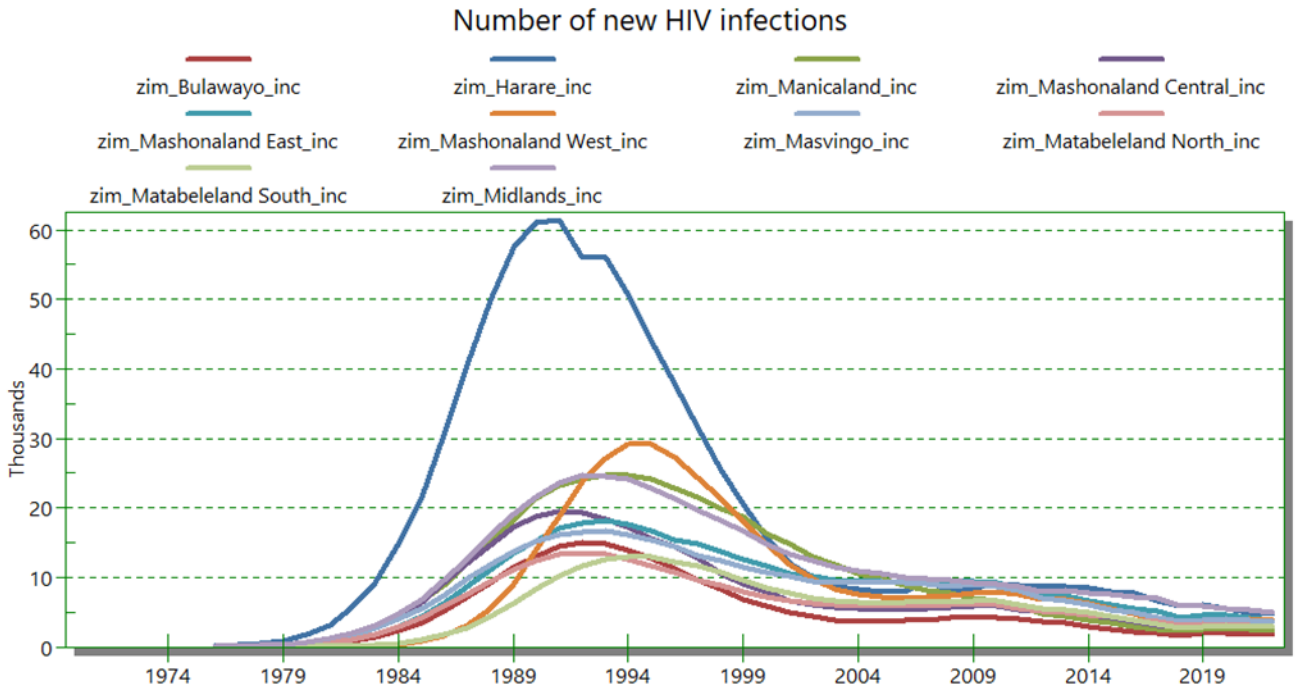
3.4 New HIV Infections

Table 4: Estimated number of new infections

	2013	2014	2015	2016	2017
Total New infections	60,448	56,044	51,095	46,493	40,974
New infections Adults 15+	54,131	50,961	46,042	41,893	36,703
New infections (0-14)	6,317	5,083	5,053	4,600	4,271

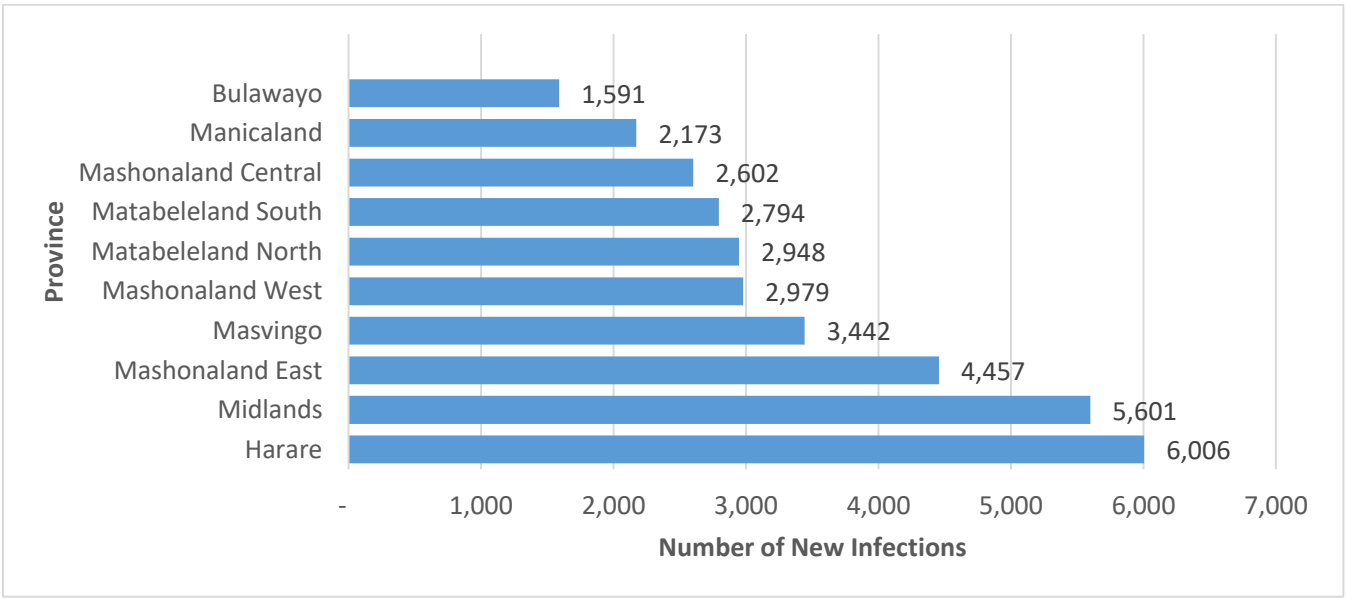
There was a decline in total New HIV infections from 46493 in 2016 to 40974 in 2017. The number of new HIV infections among adults reduced by 12.4% whilst in children it reduced by 7.2% from 2016 to 2017.

Figure 12: Estimated Total New HIV Infections by Province



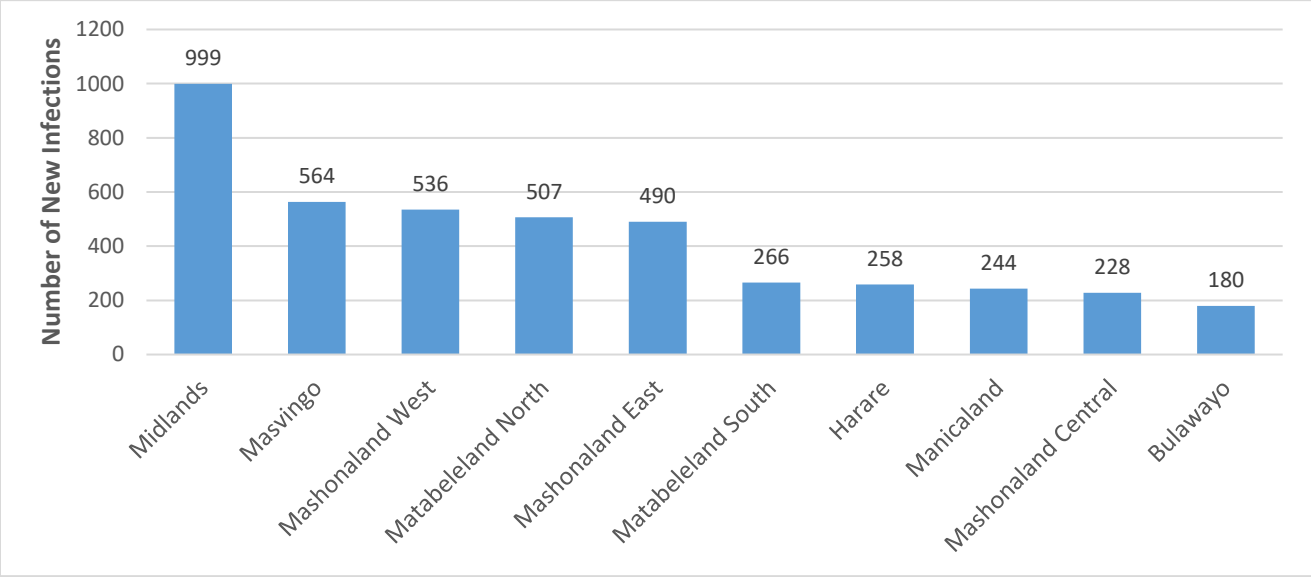
Trends in new HIV infections varies by province with the highest pick recorded in Harare and Matabeleland South had the least. The projections is showing that the new infections will stabilize in future although our target is to have zero new infections.

Figure 13: Estimated New Adult HIV Infections by Province



Harare province contributes the highest number of adult New HIV Infections followed by Midlands and Bulawayo province had the least dispide high prevalence. This may be explained by high viral load suppression in Bulawayo (62.8%) compared to Harare (57.4%) and Midlands (59.4%)[1].

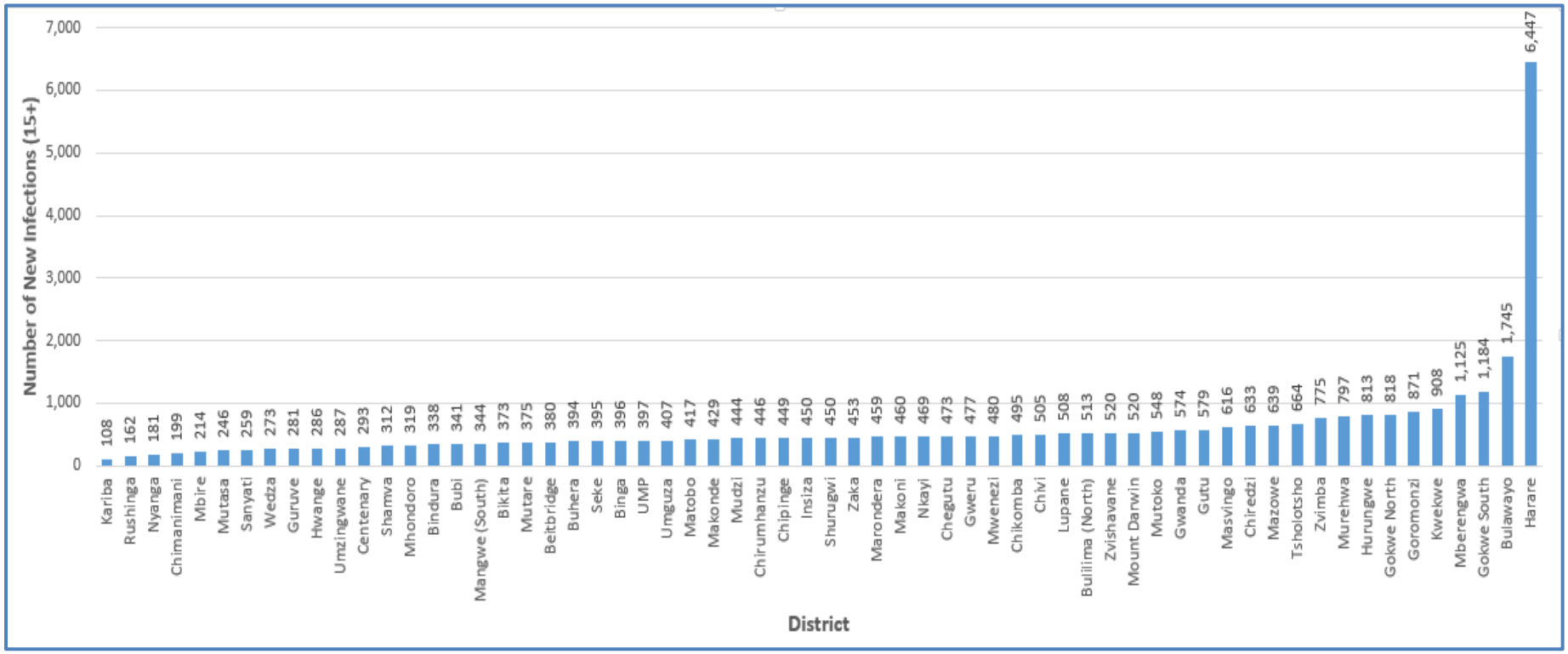
Figure 14: Estimated New Child HIV Infections by Province



Midlands contributes the highest number of New HIV infections in children since 2016 followed by Masvingo and Bulawayo had the least.

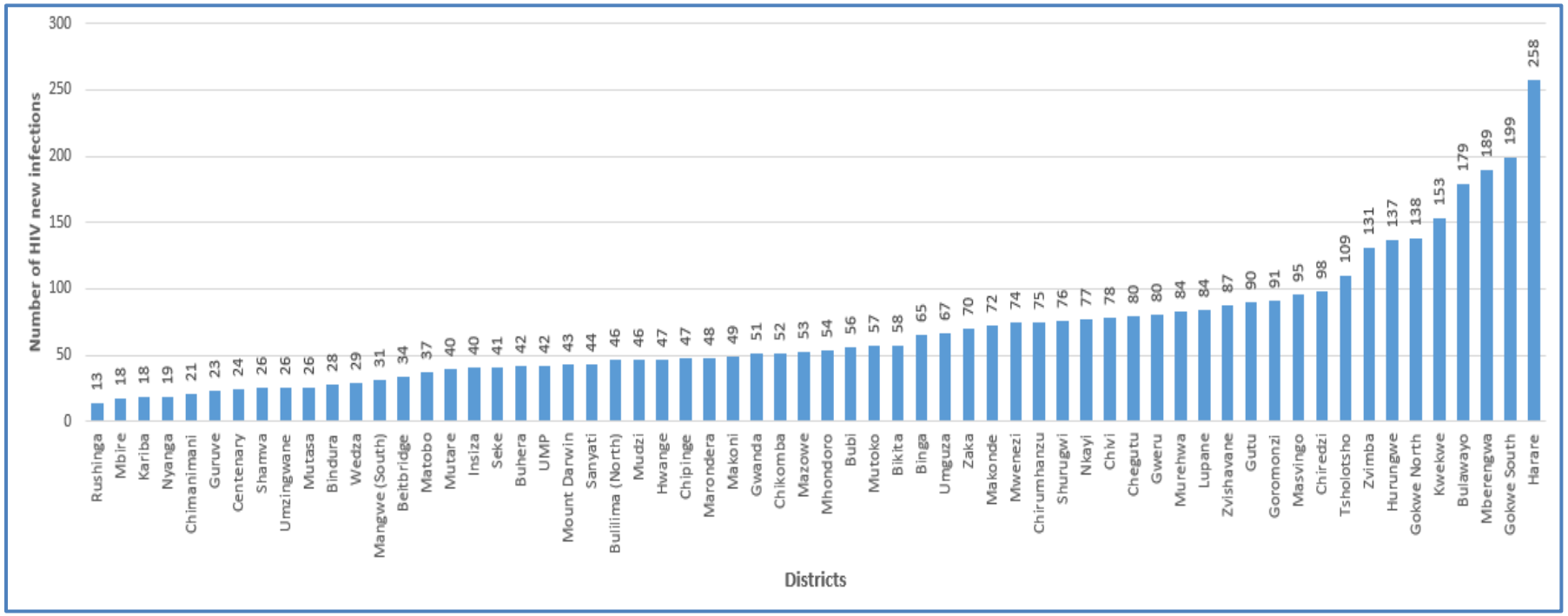
[1] MOHCC: ZIMPHIA First Report Dec 2017

Figure 15: Estimated New Adult HIV Infections by Districts (15+)



Harare and Bulawayo have the highest total number of new infections and this can be explained by population size. The lowest cases are found in Kariba and Rushinga.

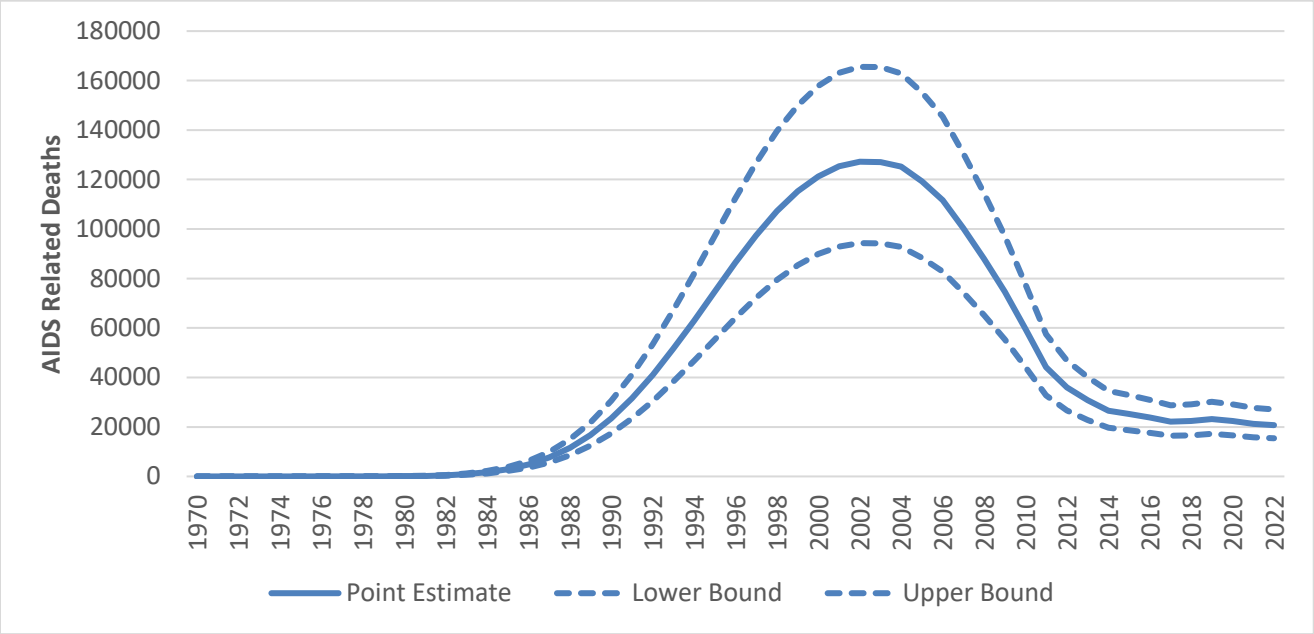
Figure 16: Estimated New Children HIV infection by districts (0-14)



Harare district has the highest number of new child HIV infections, followed by Gokwe South district while Rushinga has the lowest.

3.5 AIDS Related Deaths

Figure 17: Trend in Estimated AIDS Related Deaths



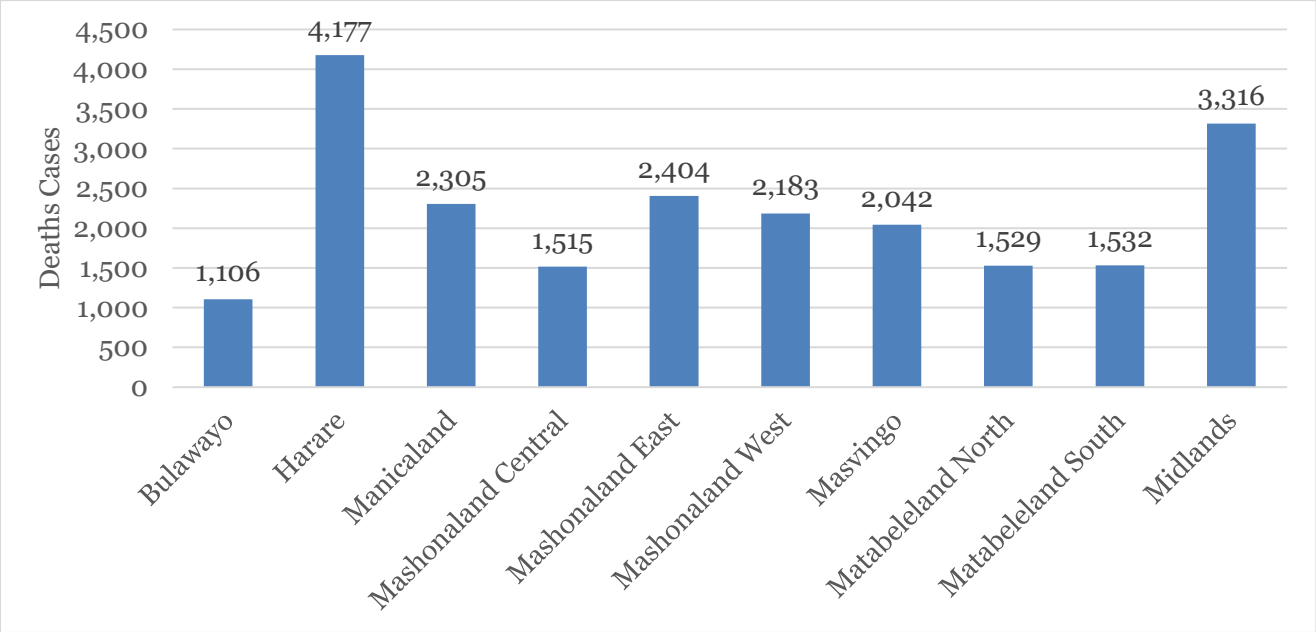
The AIDS deaths peaked in 2002 and declined sharply thereafter upto 2014. A steady decline was recorded from 2014 to 2017 and projecting into future. There is need to improve the quality of care to reduce AIDS related deaths.

Table 5: Trend in AIDS Related Deaths

Indicator	2014	2015	2016	2017
Annual AIDS Deaths (Adults and Children)	26,574	25,232	23,786	22,109
Annual AIDS Deaths 15+ years	23,286	22,099	21,074	19,689
Annual AIDS Deaths 0-14 years	3,288	3,133	2,712	2,420
Annual AIDS deaths (10-19 years)	1,995	1,851	1,673	1,522
Annual AIDS Deaths (15-24 years)	2,357	2,290	2,179	2,033

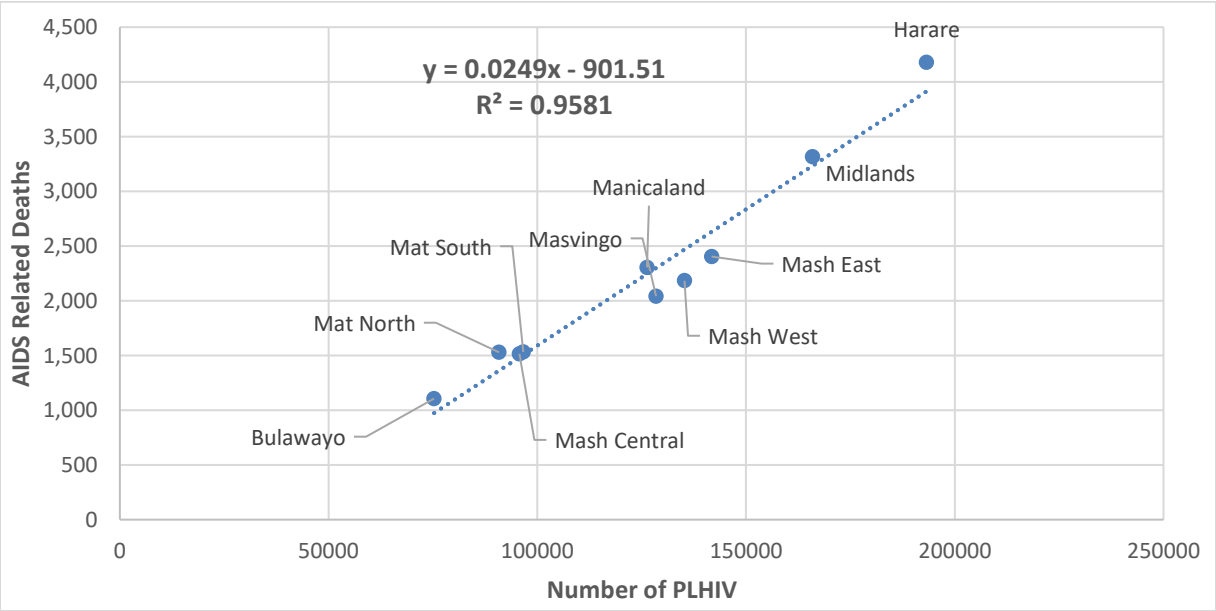
All age groups are recording a decreasing trend in AIDS related deaths over time.

Figure 18: Estimated AIDS Related Deaths by Province



Harare recorded the highest number of AIDS related deaths because of the high number of people living with HIV as shown by the figure below. There is high positive correlation (R^2 = 0.96) between number of PLHIV and AIDS related deaths.

Figure 19: Corelation between number of PLHIV and AIDS related deaths



3.6 Programme Coverage

The program coverages were calculated using program data (number of people currently on ART) as the numerator and the estimated number of people living with HIV as the denominator.

Table 6: National programme coverage

Year	People receiving ART as a percentage of total HIV population (%)		ART Coverage – National HIV Eligibility Criteria (%)		Mothers receiving PMTCT (% Coverage)
	Adults	Children	Adults	Children	
2014	61.34	62.6	72.6	77.6	95.6
2015	67.19	73.4	77.9	88.2	91.3
2016	73.02	83.9	83.8	90.4	94.1
2017	84.2	90.9	84.2	89.5	95.5

Based on the total population living with HIV, both adults and children ART coverage have increased steadily from 2014to 2017. Flactuation in PMTCT coverage was as a result of changes in treatment guidelines.

Table 7: Programme ART coverage[2] by province

Province	Adults ART Coverage(%)	Children ART coverage(%)	PMTCT coverage (%)
Bulawayo	90.85	100*	96.69
Harare	76.48	100*	107.52*
Manicaland	88.71	81.55	102.1*
Mashonaland Central	83.26	100*	106.46*
Mashonaland East	84.15	89.36	102.87*
Mashonaland West	98.91	79.13	100.37*
Masvingo	84.89	80.57	89.49
Matabeleland North	79.22	79.58	83.83

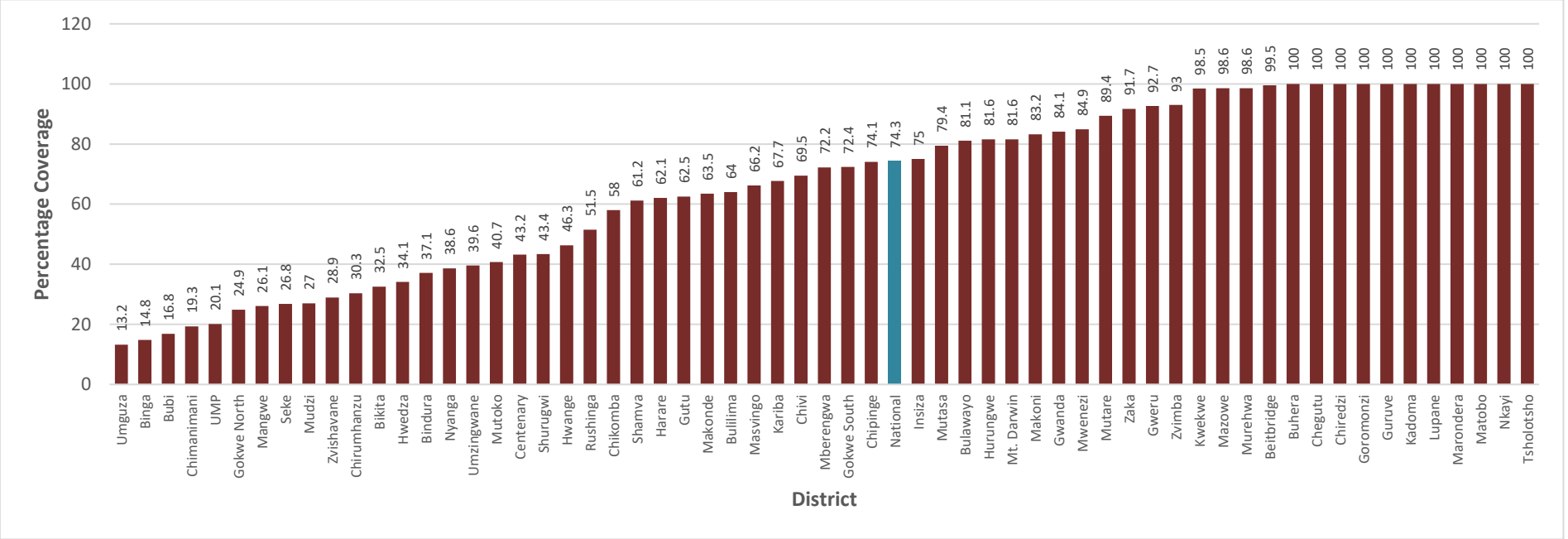
[2] The denominator used to calculate ART coverage is '*Number of people living with HIV*' based on the 2017 HIV/AIDS Estimates from the Spectrum model outputs.

Matabeleland South	87.21	84.63	100.81*
Midlands	75.72	74.22	77.55

** Either under estimated denominator or numerator overstated by migration*

Mashonaland West province has the highest coverage of adult ART of 99% and Midlands province has the least with 76%. Harare, Mashonaland Central and Bulawayo province has the highest children ART coverages and surpassing their targets while Midlands province has the least. In PMTCT coverage, five provinces surpassed targets while Midlands had the least coverage at 76%. High coverages might be as a result of under estimate of denominator or over estimate of numerator by migration.

Figure 20: Adult ART Coverage by district



** Numerator from DHIS 2 December data and denominator from HIVE PLHIV Estimates*

Efforts are in place to conduct Census of ART clients in order to improde data quality.

4 Programme needs

Table 8: Estimated number of people in need of ART and PMTCT

Year	HIV Need for ART-Adult (Dec 31) (15+)	Need for ART-Children (Dec 31)	Adolescents in need of ART (10-19 years)	Mothers needing PMTCT
2014	1,194,824	90,387	85,076	62,499
2015	1,216,680	85,430	81,530	62,898
2016	1,235,046	80,843	77,920	63,147
2017	1,249,237	76,592	74,437	63,376

There was an increase in the number adults in need of ART from 2014 to 2017. A decline was observed in number of children in need of ART and this may be as a result of the effect of PMTCT program. There was also gradual increase on estimated number of pregnant women needing PMTCT.

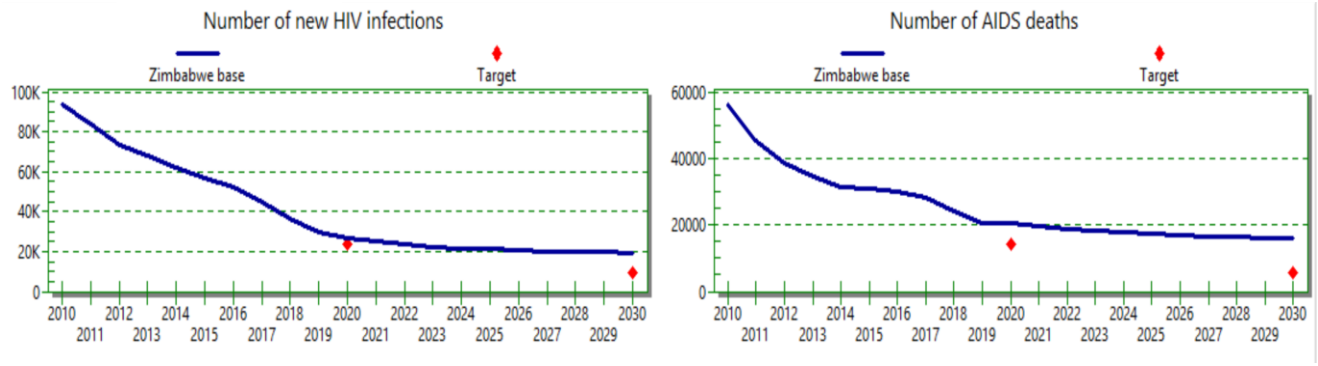
5 Impact of the National AIDS Response

The impact of program is estimated using the counterfactual scenarios; what would happen if the programs had not scaled-up.

5.1 Projections towards the achievent of fast track targets.

Its appears that we are on track in achiving the fast track targets of reducing new infections by 2020 but we may miss 2030 target if we continue to do business as usual. At the current rate we may miss the fast track target of reducing AIDS related deaths for 2020 and 2030.

Figure 21: Projections against target

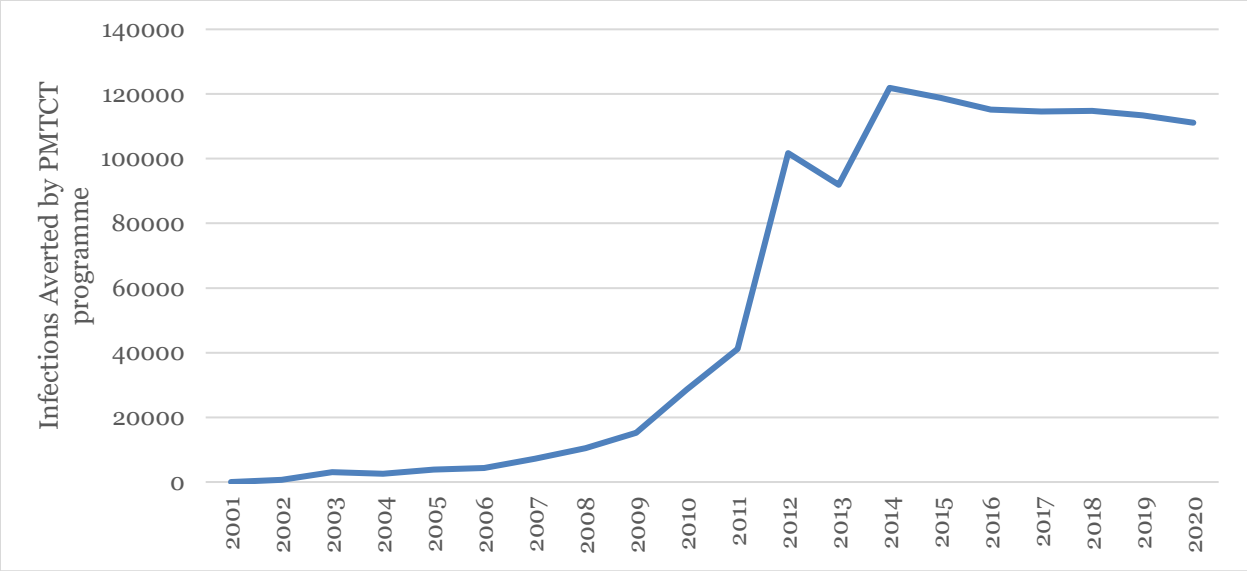


There is need to improve quality of care and intensify quality monitoring.

5.2 Infections Averted

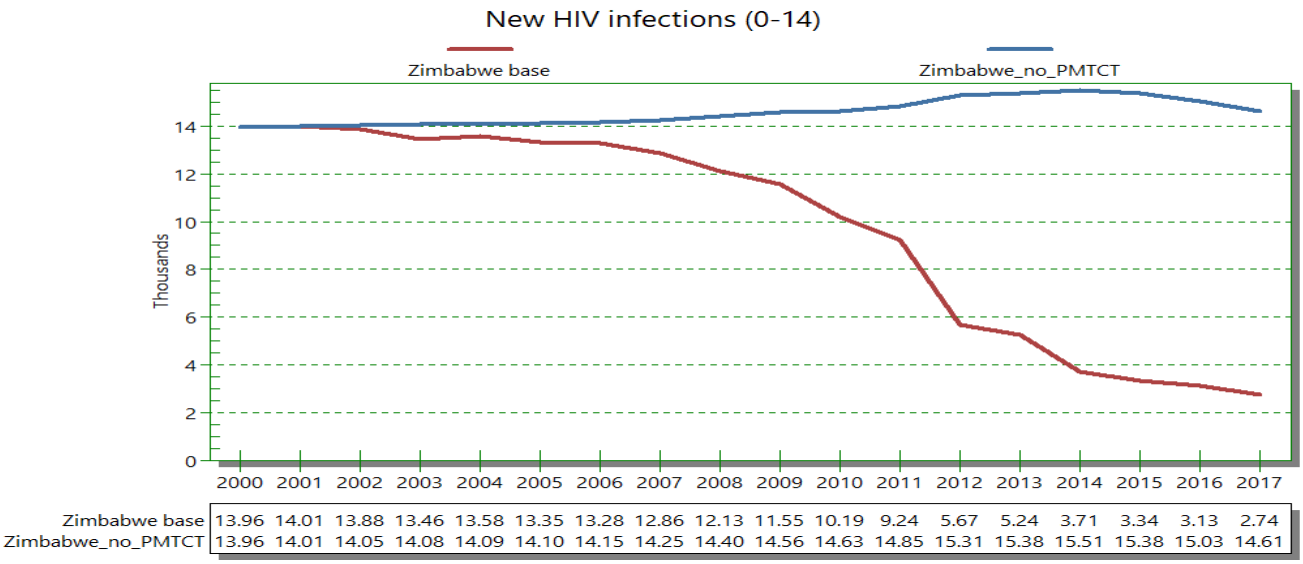
The past and future impact of the program was estimated by running impacts estimates from the model.

Figure 22: HIV infections averted by PMTCT programme



The PMTCT programme have averted 114600 new infections in 2017 and projecting into future, the number of new infections averted by the programme continue to decline. This might be explained by the decline in the susceptible cases.

Figure 23: Number of Child Infections Averted by PMTCT

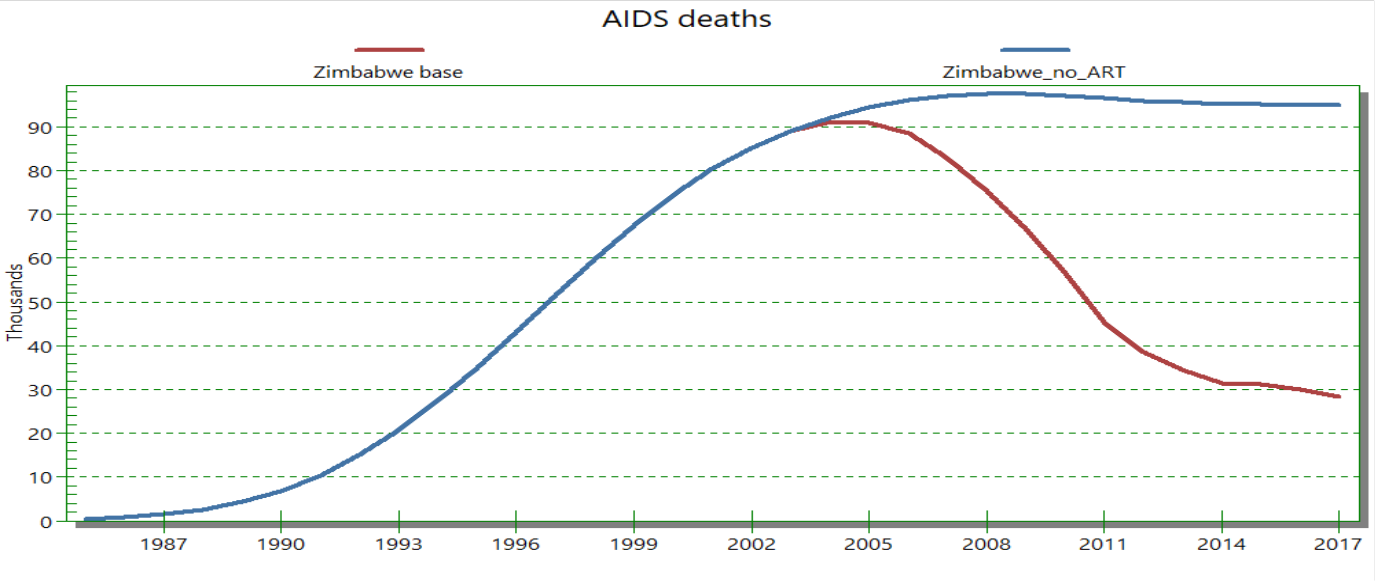


PMTCT program continues to register significant impact and in 2017, 11,860 new child infections were averted by the programme.

5.3 Deaths Averted

Deaths averted were calculated by comparing with programme counterfactual scenario.

Figure 24: HIV-related deaths averted by ART



Since the inception of ART in Zimbabwe in 2004 significant numbers of deaths have been averted. In 2017, an estimated 66,600 deaths were averted by ART in both adults and children.

6 Discussion

The modelled prevalence epidemic curve is showing a declining trend in HIV prevalence in matching the trend observed in 2005, 2010 and 2015 population based survey ZDHS and 2016 ZIMPHIA prevalence. The gradual decline is due to the reduction in AIDS related mortality as part of the benefits of the ART programme and the decrease in new infections especially among children (AIDS free generation) who age into the sexualy active age group.

The HIV incidence rate has declined by 52.4% over the last 10 years. The observed decline in HIV incidence was due to the impact of HIV prevention programs, high ART coverage and viral load supression amongst the HIV population. The incidence is matching what was observed in the ZIMPHIA. The country is on track to achieve 2020 fast track target although thee is need to do business unusual to achieve 2030 targets. The national strategic plan need to be informed by new evidence in order to focus and prioritise high impact interventions.

The country is likey to miss the 2020 and 2030 fast track targets, despite the modelled reduction in AIDS related mortality shown in 2017 estimates. There is need to strengthen quality improvement and monitoring. The reduction in AIDS related deaths and number of AIDS orphans shows the positive impact of treatment. This impact is further demonstrated by the huge number of deaths averted by ART.

Zimbabwe adopted the test and treat guidelines and is rolled out thoughout the country. The ART coverage is relatively high due to the roll out test and treat. The PMTCT coverage was high as a result of the roll out of the new treatment guidelines. Despite all the efforts to be validated for PMTCT, the transimision rate is stil above 5%.

Annexes

Annex 1: HIV Estimates Summary Table

	2011	2012	2013	2014	2015	2016	2017
HIV population							
Total	1,226,059	1,243,454	1,264,349	1,285,205	1,302,105	1,315,883	1,325,823
Male	519,707	523,489	529,248	536,807	542,472	546,783	549,367
Female	706,352	719,965	735,101	748,398	759,633	769,100	776,456
Prevalence (15-49)	14.81	14.62	14.44	14.25	14	13.68	13.33
New HIV infections							
Total	68,410	62,424	60,448	56,044	51,096	46,493	40,974
Male	31,227	28,403	27,522	25,492	23,277	21,193	18,691
Female	37,183	34,021	32,926	30,552	27,818	25,299	22,283
Incidence per 1000							
Total	5.91	5.25	4.94	4.45	3.95	3.49	2.99
Male	5.44	4.81	4.53	4.08	3.62	3.2	2.74
Female	6.38	5.68	5.35	4.83	4.27	3.78	3.24
Annual AIDS deaths							
Total	44,140	36,012	30,799	26,577	25,235	23,788	22,111
Male	22,475	19,880	17,170	13,419	12,960	12,246	11,471
Female	21,665	16,132	13,629	13,158	12,275	11,543	10,640
Cumulative AIDS deaths							
Total	1,962,977	1,998,988	2,029,787	2,056,364	2,081,599	2,105,388	2,127,498
Male	957,542	977,422	994,592	1,008,011	1,020,971	1,033,217	1,044,688
Female	1,005,434	1,021,566	1,035,195	1,048,353	1,060,628	1,072,171	1,082,810
AIDS mortality per 100 thousand							
Total	345.04	274.06	228.13	191.59	177.13	162.63	147.22
Male	359.27	309.28	259.89	197.56	185.68	170.78	155.73
Female	331.43	240.33	197.7	185.86	168.91	154.79	139.03
Total deaths to HIV Population							
Total	49,923	41,904	36,834	32,776	31,610	30,354	28,880

Male	25,744	23,184	20,522	16,844	16,461	15,829	15,145
Female	24,179	18,720	16,312	15,932	15,149	14,525	13,735
Total non-AIDS deaths to HIV population							
Total	5,783	5,893	6,035	6,200	6,375	6,565	6,769
Male	3,269	3,305	3,352	3,425	3,500	3,583	3,674
Female	2,514	2,588	2,683	2,774	2,875	2,982	3,095
Total non-AIDS deaths to HIV population on ART							
Total	2,408	2,946	3,498	4,033	4,535	5,026	5,641
Male	1,218	1,470	1,834	2,119	2,330	2,574	2,885
Female	1,190	1,475	1,664	1,914	2,204	2,453	2,756
Total non-AIDS deaths to HIV population not on ART							
Total	3,375	2,947	2,537	2,167	1,840	1,539	1,128
Male	2,051	1,834	1,518	1,307	1,170	1,010	789
Female	1,323	1,113	1,019	860	670	529	339
Disability Adjusted Life Years (DALYs)	0	0	0	0	8,108,201	7,859,229	7,619,821
Quality Adjusted Life Years (QALYs)	12,045,122	12,459,086	12,875,084	13,315,299	13,761,966	14,208,754	14,694,235

Annex 2: Indicators for Adults (15+ years)

	2011	2012	2013	2014	2015	2016	2017
HIV population							
Total	1,118,773	1,142,411	1,168,457	1,194,760	1,216,615	1,234,982	1,249,172
Male	465,763	472,665	481,003	491,294	499,444	506,054	510,773
Female	653,010	669,745	687,455	703,467	717,172	728,927	738,399
Prevalence	14.71	14.63	14.57	14.51	14.39	14.24	14.04
New HIV infections							
Total	58,863	55,845	54,131	50,961	46,042	41,893	36,703
Male	26,410	25,084	24,335	22,928	20,728	18,873	16,536
Female	32,453	30,761	29,796	28,033	25,314	23,020	20,166
Incidence	0.93	0.86	0.81	0.74	0.65	0.58	0.49
Annual AIDS deaths							
Total	37,665	30,955	26,886	23,285	22,098	21,072	19,687
Male	19,220	17,337	15,195	11,750	11,367	10,863	10,231
Female	18,446	13,619	11,691	11,535	10,731	10,209	9,456
AIDS 45q15	0.21971	0.17619	0.14724	0.12191	0.11014	0.09991	0.08849
Annual AIDS deaths among those on ART							
Total	10,212	10,216	10,342	10,785	11,061	11,794	12,387
Male	4,471	4,504	5,146	5,729	5,100	5,624	5,833
Female	5,741	5,712	5,195	5,057	5,962	6,170	6,554
Annual AIDS deaths among those not on ART							
Total	27,454	20,740	16,544	12,500	11,036	9,278	7,300
Male	14,749	12,833	10,049	6,021	6,267	5,239	4,398
Female	12,705	7,907	6,495	6,479	4,769	4,039	2,902
Population							
Total	7,607,986	7,808,802	8,018,991	8,235,757	8,453,147	8,672,322	8,894,409
Male	3,656,867	3,755,031	3,858,288	3,966,548	4,075,093	4,184,534	4,295,421
Female	3,951,118	4,053,771	4,160,703	4,269,209	4,378,054	4,487,788	4,598,989

Annex 3: Indicators for children (0-14 years)

	2011	2012	2013	2014	2015	2016	2017
HIV population							
Total	107,286	101,043	95,892	90,445	85,489	80,902	76,650
Male	53,944	50,824	48,246	45,514	43,028	40,729	38,594
Female	53,342	50,220	47,646	44,931	42,461	40,173	38,057
New HIV infections							
Total	9,547	6,580	6,317	5,083	5,053	4,600	4,271
Male	4,817	3,319	3,186	2,564	2,549	2,321	2,155
Female	4,730	3,260	3,130	2,519	2,504	2,279	2,117
Annual AIDS deaths							
Total	6,474	5,056	3,913	3,292	3,137	2,716	2,424
Male	3,255	2,543	1,975	1,669	1,594	1,383	1,240
Female	3,219	2,513	1,939	1,623	1,544	1,334	1,183
Children aging out at age 15							
Total	453	442	428	391	354	319	285
Male	204	201	195	179	164	149	133
Female	249	242	233	211	190	170	152
Population							
Total	5,184,478	5,331,118	5,481,502	5,636,161	5,793,715	5,955,126	6,124,498
Male	2,598,841	2,672,680	2,748,170	2,825,826	2,904,894	2,985,919	3,070,883
Female	2,585,637	2,658,438	2,733,333	2,810,335	2,888,821	2,969,207	3,053,614
HIV-exposed but uninfected children							
Total	30,884	30,319	29,874	29,688	29,681	29,948	30,422
Male	15,495	15,212	14,990	14,897	14,895	15,029	15,267
Female	15,389	15,106	14,884	14,790	14,786	14,919	15,155
ART-exposed but uninfected children							
Total	12,677	15,072	17,677	20,342	22,720	25,198	27,461
Male	6,366	7,568	8,875	10,212	11,404	12,647	13,781

Female	6,311	7,504	8,802	10,130	11,316	12,551	13,680
HIV population 15-17							
Total	27,626	28,096	27,948	27,240	25,997	24,473	22,814
Male	11,005	11,332	11,371	11,195	10,790	10,241	9,645
Female	16,621	16,764	16,577	16,045	15,208	14,231	13,169

Annex 4: Indicators for 10-19 years

	2011	2012	2013	2014	2015	2016	2017
HIV population							
Total	90,524	89,506	87,632	85,099	81,552	77,943	74,460
Male	37,538	37,337	36,708	35,803	34,505	33,239	32,108
Female	52,986	52,169	50,923	49,296	47,047	44,703	42,352
New HIV infections							
Total	9,215	8,475	8,025	7,444	6,631	5,931	5,093
Male	2,022	1,842	1,724	1,584	1,398	1,240	1,059
Female	7,193	6,634	6,300	5,859	5,233	4,691	4,033
Annual AIDS deaths							
Total	2,692	2,446	2,190	1,995	1,851	1,673	1,522
Male	1,397	1,299	1,161	1,025	961	871	796
Female	1,295	1,147	1,029	970	890	802	726

Annex 5: Indicators for 15-24 years

	2011	2012	2013	2014	2015	2016	2017
HIV population							
Total	157,230	157,532	157,057	154,901	150,543	144,732	137,496
Male	50,299	51,233	51,827	51,833	51,022	49,636	47,723
Female	106,931	106,299	105,230	103,067	99,521	95,096	89,774
Prevalence	5.51	5.51	5.47	5.37	5.2	4.97	4.69
New HIV infections							
Total	23,873	22,018	20,773	19,039	16,769	14,891	12,786
Male	7,439	6,826	6,398	5,816	5,075	4,467	3,813
Female	16,434	15,192	14,375	13,223	11,694	10,423	8,973
Incidence	0.89	0.82	0.77	0.7	0.61	0.54	0.46
HIV+ pregnant women	16,429	16,517	16,437	16,160	15,800	15,320	14,816
Annual AIDS deaths							
Total	2,775	2,596	2,475	2,357	2,290	2,179	2,033
Male	1,198	1,190	1,153	1,048	1,035	998	942
Female	1,577	1,406	1,322	1,309	1,254	1,182	1,092
Annual AIDS deaths among those on ART							
Total	832	989	1,086	1,196	1,302	1,371	1,408
Male	367	423	505	602	590	630	638
Female	466	566	581	594	712	741	770
Annual AIDS deaths among those not on ART							
Total	1,943	1,607	1,389	1,160	988	809	625
Male	831	767	647	446	445	367	304
Female	1,112	840	741	714	543	441	321
Perinatally infected (15-19)							
Total	0	0	0	0	0	0	0
Male	0	0	0	0	0	0	0
Female	0	0	0	0	0	0	0
Perinatally infected (20-24)							
Total	0	0	0	0	0	0	0

Male	0	0	0	0	0	0	0
Female	0	0	0	0	0	0	0
Population							
Total	1,415,202	1,417,799	1,415,567	1,406,944	1,401,550	1,402,070	1,409,614
Male	694,888	697,607	698,003	694,996	693,642	695,051	699,908
Female	720,315	720,192	717,564	711,948	707,909	707,020	709,706

Annex 6: ART summary

	2011	2012	2013	2014	2015	2016	2017
Total need for ART (15+)							
Total	600,122	645,980	693,900	1,009,607	1,049,065	1,084,881	1,249,172
Male	246,339	259,986	276,499	404,166	417,311	429,678	510,773
Female	353,783	385,994	417,401	605,442	631,753	655,203	738,399
Total receiving ART (15+)							
Male							
Number	148,551	178,017	245,690	264,614	300,840	329,629	388,658
Percent	60.3	68.5	88.9	65.5	72.1	76.7	76.1
Female							
Number	296,112	340,774	373,190	468,305	516,557	579,518	663,132
Percent	83.7	88.3	89.4	77.3	81.8	88.4	89.8
ART coverage of eligible population (15+)							
Total	74.1	80.31	89.19	72.59	77.92	83.8	84.2
Male	60.3	68.47	88.86	65.47	72.09	76.72	76.09
Female	83.7	88.28	89.41	77.35	81.77	88.45	89.81
ART coverage of all HIV+ adults (15+)							
Total	39.75	45.41	52.97	61.34	67.19	73.62	84.2

Male	31.89	37.66	51.08	53.86	60.24	65.14	76.09
Female	45.35	50.88	54.29	66.57	72.03	79.5	89.81
HIV+ adults (15+)							
Total	1,130,591.76	1,155,433.91	1,181,608.81	1,205,687.89	1,225,798.49	1,242,076.93	1,252,742.34
Male	469,214.04	476,833.86	486,148.17	495,368.72	502,749.04	508,413.64	511,773.81
Female	661,377.73	678,600.05	695,460.64	710,319.17	723,049.44	733,663.28	740,968.53
Median CD4 count at ART initiation (15+) - (mid-year)	250.25	278.32	284.58	382	400.7	398.5	414.44
Children needing cotrimoxazole (0-14)							
Children receiving cotrimoxazole (0-14)							
Number	79,701	100,260	92,555	89,925	89,925	32,934	32,934
Percent	100	100	100	100	100	100	94.7
Total coverage for cotrimoxazole (0-14)	3.11	4.44	8.02	5.09	6.28	6.4	6.47
Children needing ART (0-14)	60,120	59,380	65,622	70,961	69,215	73,192	76,110
Children receiving ART (0-14)							
Number	39,993	46,874	46,319	55,061	61,064	66,152	68,119
Percent	65.8	78.8	78.1	76.5	87.3	96.6	87.4
ART coverage of eligible population (0-14)	66.52	78.94	70.58	77.59	88.22	90.38	89.5
ART coverage of all HIV+ children (0-14)	38.39	47.6	49.72	62.59	73.4	83.97	90.96
HIV+ children (0-14)							
Total	104,164.6	98,467.75	93,168.42	87,966.97	83,195.41	78,776.04	74,884.87
Male	52,383.83	49,534.68	46,879.64	44,270.85	41,878.33	39,661.16	37,707.58
Female	51,780.85	48,933.06	46,288.77	43,696.12	41,317.08	39,114.88	37,177.29
Children on ART under 1							
Total	205	173	154	120	153	135	109
Male	104	88	78	61	78	69	56
Female	101	85	76	59	75	67	54
Children on ART aged 1-4							
Total	800	906	915	838	731	683	645
Male	407	461	465	426	371	347	328
Female	393	445	450	412	359	336	317
Total need for ART (all ages)	660,241	705,360	759,522	1,080,568	1,118,280	1,158,073	1,325,282
Total receiving ART (all ages)	484,656	565,665	665,199	787,980	878,461	975,299	1,119,909

Annex 7: PMTCT Summary

	2011	2012	2013	2014	2015	2016	2017
Aggregate							
Mothers needing PMTCT	58,435	60,933	62,293	62,531	62,930	63,178	63,408
Mothers receiving PMTCT	41,152	60,810	61,073	59,751	57,460	59,473	60,570
Single dose nevirapine	3,143	4,106	2,820	523	0	0	0
Dual ARV	2,227	2,784	3,341	0	0	0	0
Option A - maternal	25,638	36,175	27,883	3,193	0	0	0
Option B - triple prophylaxis from 14 weeks	0	0	0	0	0	0	0
Option B+: ART started before current pregnancy	3,932	12,369	17,220	21,761	26,207	30,549	35,224
Option B+: ART started during current pregnancy > 4 weeks before delivery	6,378	7,305	9,739	31,567	28,925	23,816	20,439
Option B+: ART started during current pregnancy < 4 weeks before delivery	0	0	0	2,146	2,246	5,234	4,907
PMTCT coverage	70.42	99.8	98.04	95.55	91.31	94.14	95.52
PMTCT coverage of more efficacious regimens	65.06	93.3	93.43	94.75	91.31	94.14	95.52
MTCT rate at 6 weeks	7.92	3.86	3.3	2.48	2.8	2.5	2.39
Final transmission rate including breastfeeding period	16.34	10.8	10.14	8.13	8.03	7.28	6.74
Number of HIV+ breastfeeding women at 3 months	57,968	60,446	61,794	62,031	62,426	62,672	62,901
Number of HIV+ breastfeeding women at 12 months	55,981	58,374	59,676	59,905	60,287	60,524	60,745
Number of new child infections due to mother-to-child transmission							
Total	9,547	6,580	6,317	5,083	5,053	4,600	4,271
Male	4,817	3,319	3,186	2,564	2,549	2,321	2,155
Female	4,730	3,260	3,130	2,519	2,504	2,279	2,117
Treatment coverage for HIV+ pregnant women	17.64	32.29	43.28	88.71	91.18	94.34	95.52
Number of infants diagnosed with HIV	0	2,625	3,083	2,152	2,394	2,727	2,647

Annex 8: Districts Estimates

Name	Population	Mean PLHIV	Mean prevalence	Mean Prevalence Ranking	Mean ART Coverage	Mean Incidence
Beitbridge	86000	18000	21	7	99.5	410
		(16000 - 20000)	(19 - 22.8)	(12 - 6)	(95.4 - 100)	(370 - 460)
Bikita	100000	12000	11.7	51	32.5	750
		(11000 - 13000)	(10.6 - 12.5)	(58 - 50)	(30.4 - 35.8)	(690 - 800)
Bindura	120000	18000	14.7	34	37.1	1200
		(17000 - 19000)	(13.9 - 15.4)	(39 - 32)	(35.3 - 39)	(1100 - 1200)
Binga	95000	11000	11.9	49	14.8	860
		(9500 - 13000)	(10.1 - 13.5)	(59 - 47)	(13 - 17.5)	(740 - 960)
Bubi	43000	10000	23.1	3	16.8	750
		(9400 - 11000)	(21.6 - 25.1)	(6 - 3)	(15.4 - 17.9)	(700 - 830)
Buhera	150000	18000	11.9	51	100	150
		(17000 - 20000)	(11 - 12.9)	(56 - 49)	(100 - 100)	(140 - 160)
Bulawayo	480000	80000	16.9	18	81.1	2900
		(80000 - 80000)	(16.9 - 16.9)	(21 - 17)	(81.1 - 81.1)	(2900 - 2900)
Bulilima	59000	15000	25.1	1	64	710
		(14000 - 16000)	(23.1 - 27.6)	(3 - 1)	(57.8 - 69.2)	(660 - 780)
Centenary	83000	11000	12.9	44	43.2	650
		(9900 - 11000)	(12 - 13.7)	(51 - 42)	(40.8 - 46.7)	(600 - 690)
Chegutu	190000	28000	15.1	29	100	580
		(27000 - 30000)	(14.4 - 15.9)	(37 - 27)	(100 - 100)	(550 - 620)
Chikomba	88000	15000	17.2	16	58	730
		(14000 - 16000)	(16 - 18.5)	(22 - 15)	(53.8 - 62.3)	(680 - 790)
Chimanimani	90000	9900	11	56	19.3	510
		(9200 - 11000)	(10.2 - 12.1)	(59 - 55)	(17.7 - 20.8)	(470 - 550)
Chipinge	200000	23000	11.2	55	74.1	600
		(21000 - 25000)	(10.1 - 12.3)	(59 - 53)	(67.1 - 81.8)	(540 - 650)
Chiredzi	190000	23000	11.7	52	100	230

		(20000 - 25000)		(10.4 - 12.6)	(58 - 50)		(100 - 100)	(200 - 250)	
Chirumhanzu	62000		10000	16.2		23	30.3		690
		(9200 - 11000)		(14.8 - 17.7)	(33 - 21)		(27.7 - 33)	(630 - 760)	
Chivi	110000		16000	15.5		26	69.5		630
		(15000 - 17000)		(14.3 - 16.5)	(36 - 25)		(65.3 - 75.4)	(570 - 660)	
Gokwe North	170000		17000	9.9		60	24.9		1200
		(15000 - 18000)		(8.9 - 11)	(60 - 59)		(22.5 - 27.8)	(1100 - 1300)	
Gokwe South	230000		26000	11.3		54	72.4		1100
		(24000 - 28000)		(10.5 - 12)	(58 - 53)		(67.8 - 76.9)	(980 - 1100)	
Goromonzi	170000		27000	16.3		22	100		550
		(26000 - 28000)		(15.6 - 16.9)	(27 - 21)		(100 - 100)	(520 - 580)	
Guruve	88000		11000	12.4		47	100		190
		(9900 - 12000)		(11.3 - 13.3)	(53 - 46)		(100 - 100)	(170 - 200)	
Gutu	130000		19000	14.5		36	62.5		830
		(18000 - 22000)		(13.5 - 16.5)	(42 - 33)		(55 - 66.9)	(780 - 920)	
Gwanda	94000		21000	21.9		5	84.1		700
		(19000 - 22000)		(20.7 - 23)	(8 - 5)		(80.1 - 89.3)	(650 - 740)	
Gweru	210000		32000	15.2		28	92.7		880
		(30000 - 34000)		(14.2 - 16.1)	(38 - 27)		(87.6 - 98.6)	(820 - 940)	
Harare	1500000		220000	14.7		33	62.1		10000
		(220000 - 220000)		(14.7 - 14.7)	(37 - 32)		(62.1 - 62.1)	(10000 - 10000)	
Hurungwe	280000		34000	12.1		49	81.6		1300
		(31000 - 37000)		(11.1 - 13.1)	(54 - 48)		(76.2 - 88.9)	(1200 - 1400)	
Hwange	80000		15000	19.1		13	46.3		840
		(14000 - 16000)		(17.1 - 20.6)	(18 - 11)		(42.8 - 51.6)	(760 - 900)	
Hwedza	51000		8300	16.2		23	34.1		530
		(7800 - 8900)		(15.2 - 17.4)	(30 - 21)		(31.7 - 36.3)	(500 - 570)	
Insiza	67000		13000	19.8		10	75		530
		(12000 - 14000)		(18.5 - 21.1)	(13 - 9)		(70.3 - 80.2)	(500 - 570)	
Kadoma	90000		13000	14.3		37	100		220
		(12000 - 14000)		(13.3 - 15.3)	(43 - 35)		(100 - 100)	(200 - 240)	
Kariba	62000		7900	12.8		44	67.7		380

		(6900 - 9000)		(11.2 - 14.5)	(53 - 42)		(59.7 - 77.5)	(330 - 420)	
Kwekwe	210000		32000	15.2		29	98.5		780
		(31000 - 35000)		(14.5 - 16.2)	(37 - 27)		(93 - 100)	(740 - 850)	
Lupane	64000		14000	21.2		6	100		180
		(13000 - 15000)		(20.2 - 22.8)	(10 - 6)		(100 - 100)	(170 - 190)	
Makonde	130000		18000	13.7		40	63.5		910
		(17000 - 19000)		(12.9 - 14.6)	(44 - 39)		(59.3 - 67.3)	(860 - 970)	
Makoni	180000		23000	12.6		46	83.2		510
		(22000 - 25000)		(11.9 - 13.5)	(51 - 44)		(77.4 - 87.8)	(480 - 550)	
Mangwe	52000		12000	23		4	26.1		880
		(11000 - 13000)		(21.2 - 24.6)	(7 - 3)		(24.4 - 28.2)	(830 - 940)	
Marondera	140000		23000	16.5		21	100		380
		(22000 - 24000)		(15.9 - 17.2)	(26 - 20)		(100 - 100)	(360 - 400)	
Masvingo	200000		30000	14.9		31	66.2		1200
		(29000 - 32000)		(14.1 - 15.8)	(38 - 30)		(62.2 - 69.9)	(1200 - 1300)	
Matobo	63000		12000	19.5		11	100		200
		(11000 - 13000)		(18.1 - 20.4)	(14 - 10)		(100 - 100)	(180 - 210)	
Mazowe	170000		25000	14.9		31	98.6		560
		(24000 - 26000)		(14.2 - 15.5)	(37 - 29)		(95.5 - 100)	(540 - 590)	
Mberengwa	130000		23000	17.6		15	72.2		920
		(22000 - 25000)		(16.5 - 18.9)	(23 - 14)		(67.1 - 76.9)	(860 - 990)	
Mt. Darwin	150000		20000	13.3		42	81.6		640
		(18000 - 21000)		(12.5 - 14)	(47 - 41)		(77.4 - 86.6)	(600 - 670)	
Mudzi	91000		13000	14		39	27		870
		(11000 - 14000)		(12.5 - 15.6)	(47 - 35)		(24.1 - 30.2)	(780 - 960)	
Murehwa	140000		24000	16.8		18	98.6		570
		(23000 - 25000)		(16 - 17.6)	(25 - 17)		(95 - 100)	(540 - 610)	
Mutare	310000		33000	10.6		58	89.4		630
		(31000 - 35000)		(9.9 - 11.1)	(60 - 57)		(85.8 - 95.8)	(590 - 660)	
Mutasa	120000		13000	10.9		56	79.4		300
		(12000 - 13000)		(10.1 - 11.5)	(59 - 55)		(74.7 - 85.3)	(280 - 320)	
Mutoko	100000		16000	15.8		25	40.7		960

		(15000 - 17000)		(14.6 - 16.8)	(35 - 23)		(38.2 - 44)	(900 - 1000)
Mwenezi	97000		14000	14.6		34	84.9	410
		(13000 - 15000)		(13.5 - 15.7)	(41 - 30)		(78.8 - 92)	(370 - 440)
Nkayi	70000		12000	17.9		14	100	190
		(12000 - 14000)		(16.8 - 19.7)	(18 - 14)		(100 - 100)	(180 - 220)
Nyanga	86000		9200	10.7		58	38.6	390
		(8300 - 10000)		(9.7 - 11.9)	(60 - 56)		(35.2 - 42.5)	(360 - 440)
Rushinga	50000		6000	11.9		50	51.5	330
		(5300 - 6700)		(10.6 - 13.4)	(57 - 48)		(45.9 - 57.9)	(290 - 370)
Seke	75000		12000	16.5		21	26.8	850
		(12000 - 13000)		(15.3 - 17.4)	(28 - 19)		(25.3 - 28.8)	(790 - 910)
Shamva	87000		12000	13.7		40	61.2	570
		(11000 - 13000)		(13 - 14.5)	(44 - 39)		(58 - 64.4)	(540 - 600)
Shurugwi	79000		13000	16.9		19	43.4	800
		(12000 - 14000)		(15.8 - 18.2)	(25 - 17)		(40.3 - 46.4)	(740 - 860)
Tsholotsho	76000		18000	24.1		2	100	230
		(17000 - 20000)		(22.5 - 25.8)	(4 - 2)		(100 - 100)	(220 - 260)
Umguza	71000		13000	19		12	13.2	1000
		(12000 - 14000)		(17.5 - 20.2)	(15 - 12)		(12.5 - 14.4)	(960 - 1100)
UMP	76000		11000	14.8		31	20.1	820
		(11000 - 12000)		(13.9 - 15.8)	(38 - 28)		(18.8 - 21.4)	(770 - 870)
Umzingwane	45000		9000	20.1		9	39.6	580
		(8200 - 9700)		(18.2 - 21.7)	(13 - 8)		(36.7 - 43.7)	(530 - 630)
Zaka	110000		14000	12.7		45	91.7	350
		(13000 - 15000)		(11.8 - 13.5)	(50 - 45)		(85.8 - 98.9)	(320 - 370)
Zvimba	240000		35000	14.4		36	93	990
		(33000 - 36000)		(13.8 - 14.9)	(40 - 35)		(89.8 - 97.1)	(950 - 1000)
Zvishavane	93000		19000	20.9		8	28.9	1400
		(18000 - 21000)		(19.8 - 22.9)	(10 - 7)		(26.4 - 30.5)	(1300 - 1500)
National Results	8910000		1320000	14.8			74.3	