Zimbabwe Population-based HIV Impact Assessment 2020
(ZIMPHIA 2020)

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GLOSSARY OF TERMS

90-90-90/95-95-95: Treatment targets proposed by the Joint United Nations Programme on HIV and AIDS (UNAIDS) to help end the AIDS epidemic. The targets for 2020 were that 90% of all people living with HIV would know their HIV status; 90% of all people with diagnosed HIV would receive sustained antiretroviral therapy (ART); and 90% of all people receiving ART would achieve viral load (VL) suppression (VLS). UNAIDS now calls for countries to reach the next set of targets, 95-95-95, by 2025.

Acquired Immunodeficiency Syndrome (AIDS): AIDS is a disease that can develop after HIV causes severe damage to the immune system, leaving the body vulnerable to life-threatening conditions, such as infections and cancers.

Adults: Unless otherwise noted, adults are defined as the survey population aged 15 years and older.

Antiretroviral (ARV): A type of medication that inhibits the ability of HIV to multiply in the body.

Antiretroviral Therapy (ART): Treatment with a combination of ARV medications that reduces the amount of HIV in the body (viral load), leading to improved health and survival in a person living with HIV.

CD4+ T Cells: CD4+ T cells (CD4) are white blood cells that are an essential part of the human immune system. These cells are often referred to as T-helper cells. HIV attacks and kills CD4 cells, leaving the body vulnerable to a wide range of infections. The CD4 count is used to determine the degree of weakness of the immune system from HIV infection.

De Facto Household Resident: A person who slept in the household the night before the survey.

Enumeration Area (EA): A limited geographic area defined by the national statistical authority and the primary sampling unit for the Population-based HIV Impact Assessment (PHIA) surveys.

Head of Household: The person who is recognized within the household as being the head and is aged 18 years or older or is considered an emancipated minor (an individual aged 15-17 years who is married or is free from any legally competent representative) as defined by law in Zimbabwe.

Human Immunodeficiency Virus (HIV): HIV is the virus that causes AIDS. The virus is passed from person to person through blood, semen, vaginal fluids, and breast milk. HIV attacks CD4 cells in the body, leaving a person living with HIV vulnerable to illnesses that a healthy immune system would eliminate.

HIV Incidence: A measure of the frequency with which new cases of HIV occur in a population over a period of time. The denominator is the population at risk; the numerator is the number of new cases that occur during a given time period.

HIV Prevalence: The proportion of persons in a population who are living with HIV at a specific point in time.

HIV Viral Load (VL): The concentration of HIV RNA in the blood, usually expressed as copies per milliliter (mL).

HIV Viral Load Suppression (VLS): An HIV VL of less than 1,000 copies per mL.

Household: A person or group of persons related or unrelated to each other who live in the same compound (fenced or unfenced), share the same cooking arrangements, and have one person whom they identify as head of that household.

Informed Consent: Informed consent is a legal condition whereby a person can give consent based upon a clear understanding of the facts, implications, and future consequences of an action. To give informed consent, the individual concerned must have adequate reasoning faculties and be in possession of all relevant facts at the time he or she gives consent.

Male Circumcision: Male circumcision is the removal of some or the entire foreskin (prepuce) from the penis. Medically supervised adult male circumcision is a scientifically proven method for reducing a man's risk of acquiring HIV through heterosexual intercourse. Voluntary medical male circumcision is an important part of national HIV prevention programs in most HIV high burden countries.

Older Adolescents: Unless otherwise noted, individuals aged 15-19 years are referred to as older adolescents (older adolescent girls and older adolescent boys). Note that while older adolescents are included as part of the aggregated adult population for reporting purposes, they are distinct from young adults as a population of concern for HIV programs.

Population Viremia: Population viremia is the proportion of the population with unsuppressed viral load, measured without regard to HIV status. The numerator is the number of people with HIV viremia, and the denominator is the entire population tested.

Pre-exposure Prophylaxis (PrEP): PrEP is the use of ARVs by people at risk for HIV to prevent HIV acquisition.

Prevention of Mother-to-Child Transmission (PMTCT): In order to prevent HIV-positive women from passing HIV to their babies during pregnancy, labor and delivery, or breastfeeding, the World Health Organization (WHO) recommends a four-pronged approach: (1) primary prevention of HIV infection among women of childbearing age; (2) preventing unintended pregnancies among women living with HIV; (3) preventing HIV transmission from women living with HIV to their infants; and (4) providing appropriate treatment, care, and support to mothers living with HIV and their children and families.

Tuberculosis: Tuberculosis (TB) is a bacterial disease that most often affects the lungs but can also affect other parts of the body. When a person with active TB coughs, sneezes, sings, or talks, TB bacilli can spread through the air and may remain airborne in an enclosed area for hours. TB is the leading cause of death among people living with HIV in Africa.

Young Adults: Unless otherwise noted, individuals aged 20-24 years are defined as young adults, including young women and young men.

Young People: In this report, individuals aged 15-24 years are defined as young people. By sex, this includes older adolescent girls and young women (OAGYW) and older adolescent boys and young men (OABYM).

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome		**PCR**	Polymerase Chain Reaction
ANC	Antenatal Care		**PEPFAR**	US President's Emergency Plan for AIDS Relief
ART	Antiretroviral Therapy		**PFR**	Proportion False Recent
ARV	Antiretroviral		**PHIA**	Population-based HIV Impact Assessment
CDC	US Centers for Disease Control and Prevention		**PMTCT**	Prevention of Mother-to-Child Transmission
CD4	CD4+ T Cell		**PI**	Protease inhibitor
CI	Confidence Interval		**PrEP**	Pre-Exposure Prophylaxis
DBS	Dried Blood Spot		**POC**	Point of Care
DTS	Dried Tube Specimens		**QA**	Quality Assurance
EA	Enumeration Area		**QC**	Quality Control
HBTC	Home-based Testing and Counseling		**RR**	Response Rate
HIV	Human Immunodeficiency Virus		**SMS**	Short Message Service
ID	Identification Number		**STI**	Sexually Transmitted Infection
INI	Integrase Inhibitor		**T**	Time cutoff
LAg	Limiting Antigen		**TB**	Tuberculosis
mL	Milliliter		**TNA**	Total Nucleic Acid
μL	Microliter		**TWG**	Technical Working Group
MDRI	Mean Duration of Recent Infection		**UNAIDS**	Joint United Nations Programme on HIV and AIDS
MOHCC	Ministry of Health and Child Care			
MTCT	Mother-to-Child Transmission		**VL**	Viral Load
NNRTIS	Non-Nucleoside Reverse Transcriptase Inhibitors		**VLS**	Viral Load Suppression
NRTI	Nucleoside Reverse Transcriptase Inhibitors		**VMMC**	Voluntary Medical Male Circumcision
OABYM	Older Adolescent Boys and Young Men		**WHO**	World Health Organization
OAGYW	Older Adolescent Girls and Young Women		**ZIMPHIA**	Zimbabwe Population-based HIV Impact Assessment 2020
ODn	(normalized) Optical Density			

FOREWORD

It is with great pleasure that we present the results from the Zimbabwe Population-based HIV Impact Assessment 2020 (ZIMPHIA 2020), the second PHIA, following ZIMPHIA 2015-2016, to measure the impact of the HIV program scale-up in response to the HIV epidemic in our country. These surveys provide critical information for policy direction and strategic planning for the HIV response in Zimbabwe in order to achieve the country's goal of zero new HIV infections, zero HIV-related deaths, and zero HIV-related stigma and—so that the end of AIDS by 2030 can become a reality.

Since it was first reported in our country in the mid-1980s, HIV/AIDS has posed a significant threat to the health, and the economic and social wellbeing of our citizens. By the mid-1990s, Zimbabwe had become known as one of the countries most affected by the virus. Since that time, with the support of our technical and financial partners, the government has marshalled a coordinated multidisciplinary and multisectoral approach to respond to problems associated with HIV. As a result, Zimbabwe was one of the first countries to experience a sharp decline of new infections and HIV-related deaths and an improved quality of life for people living with HIV.

ZIMPHIA 2015-2016 helped us build upon those successes. Conducted to monitor key indicators (such as national HIV incidence, and national and provincial viral load suppression [VLS] as well as progress toward achievement of the Joint United Nations Programme on HIV and AIDS [UNAIDS] 90-90-90 targets), the survey identified strengths and weaknesses in the country's HIV response strategies. Its findings helped to inform the development of the *Extended Zimbabwe National HIV and AIDS Strategic Plan (ZNASP) 2015-2020.*

ZIMPHIA 2020 documents the fruition of some of these efforts, including the expansion of HIV testing, treatment, and VLS coverage. Most notably, although just shy of the UNAIDS HIV testing target, with 86.8% of all adults (ages 15 years and older) living with HIV aware of their HIV status, the country has surpassed the second and third 90-90-90 targets with 97.0% of those aware of their status on antiretroviral treatment (ART), and 90.3% of those on ART achieving VLS.

ZIMPHIA 2020 findings also point out some of the key areas where our efforts should be enhanced. For instance, despite the expansion of testing and treatment services, the annual HIV incidence remains at the same level among adults aged 15-49 years as in ZIMPHIA 2015-2016.[*] This finding lends support to one of the key conclusions of our national strategic plan: That we need to maximize the effect of our combination prevention strategy, by tailoring interventions to the needs of women and men of different ages, in areas most affected (as well as serodiscordant couples and key populations), and by integrating complementary services wherever these groups interact with health services. Of note, the survey also found that uptake of medical male circumcision still remains below the national targets. On a positive note, the survey indicated that there is an interest among HIV-negative individuals in taking pre-exposure prophylaxis (PrEP) among those who had heard of it. In addition, there is a gap in the uptake of HIV testing among young people, men, and those with less education. The variation in prevalence of VLS across regions, age, and sex, and other demographic groups suggests that we need to expand differentiated client-centered approaches to support adherence. Finally, we need to bolster our interventions to improve the health and well-being of people living with HIV—including fostering an environment where they feel it is safe to disclose their HIV-positive status.

If we continue to do these things, Zimbabwe is well positioned to achieve elimination of the AIDS epidemic by 2030. We therefore commit ourselves to using the findings of this report to make informed policy decisions, improve service delivery models, and undertake evidence-based actions to improve the health and well-being of all the people of Zimbabwe.

Air Commodore Dr. Jasper Chimedza
Permanent Secretary in the Ministry of Health and Child Care

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[*] Ministry of Health and Child Care (MOHCC), Zimbabwe. Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA) 2015-2016: Final Report. Harare: MOHCC; August 2019.

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PREFACE

ZIMPHIA 2020 was a household-based national survey among adults (defined as individuals aged 15 years and older) conducted between November 2019 and March 2020 to measure the impact of the national HIV response. The survey offered HIV counseling and testing with return of results to participants and collected information about uptake of HIV care and treatment services.

ZIMPHIA 2020 was led by the Government of Zimbabwe through the Ministry of Health and Child Care (MoHCC). The survey was conducted with funding from the PEPFAR and through technical assistance and partnership with the CDC. ZIMPHIA 2020 was implemented by ICAP at Columbia University in collaboration with Government of Zimbabwe institutions, including the National Microbiology Reference Laboratory, the National Statistical Agency (ZIMSTAT), and the National AIDS Council, as well as district, provincial, and referral hospitals, and local government authorities.

This was the second survey in Zimbabwe to estimate national HIV incidence, the prevalence of national and subnational VLS, defined as HIV RNA <1,000 copies per milliliter (mL), and progress toward the achievement of the UNAIDS 90-90-90 targets by 2020. The first ZIMPHIA was conducted between October 2015 and August 2016. The results of these two surveys have provided information on national and provincial progress toward HIV epidemic control.

ZIMPHIA 2020 used a two-stage, stratified cluster sample design, in which census enumeration areas (EAs) were selected in the first stage, and households were selected in the second stage. The first stage selected 356 EAs with an average of 35 households per EA. The sample size was calculated to provide a representative national estimate of HIV incidence among adults aged 15-49 years with a relative standard error less than or equal to 0.3, and representative provincial estimates of VLS prevalence among HIV-positive adults aged 15-49 years with 95% CIs ±8%. The target sample size was 18,079 eligible adults aged 15-49 years and 4,807 eligible adults aged 50 years and older.

Of 11,707 eligible households, 89.1% completed a household interview. Among 22,751 eligible adults (13,290 eligible women and 9,461 eligible men), 19,535 (11,871 women and 7,664 men) were interviewed and tested for HIV. The overall response rate for adults was 76.5%: 79.6% for women, 72.2% for men.

HIV testing was conducted in each household using a serological rapid diagnostic testing algorithm based on national guidelines, with laboratory confirmation of seropositive samples using a supplemental assay. For confirmed HIV-positive samples, laboratory-based testing was conducted for quantitative evaluation of viral load and qualitative detection of ARVs (efavirenz, nevirapine, atazanavir, and dolutegravir). A laboratory-based incidence testing algorithm (HIV-1 limiting antigen-avidity assay with correction for viral load and detectable ARVs) was used to distinguish recent from long-term infection. Incidence estimates were obtained using the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays. Survey weights were utilized for all estimates.

EXECUTIVE SUMMARY

TOPLINE FINDINGS

- The annual incidence of HIV among adults (defined as those aged 15 years and older) in Zimbabwe was 0.38%, which corresponds to approximately 31,000 new cases of HIV per year among adults.

- Prevalence of HIV among adults in Zimbabwe was 12.9%, which corresponds to approximately 1,225,000 adults living with HIV.

- Prevalence of VLS among all adults living with HIV in Zimbabwe was 77.3%.

- ZIMPHIA 2020 estimated progress toward achievement of the UNAIDS 90-90-90 targets at 86.8%, 97.0%, and 90.3% among adults living with HIV.

TOPLINE FINDINGS IN FOCUS

- The annual incidence of HIV among adults (defined as those aged 15 years and older) in Zimbabwe was 0.38%, which corresponds to approximately 31,000 new cases of HIV per year among adults. HIV incidence was 0.54% among women and 0.20% among men (Tables 5.1 and 5.2).
- Prevalence of HIV among adults in Zimbabwe was 12.9%, which corresponds to approximately 1,225,000 adults living with HIV. HIV prevalence was higher among women: 15.3% (95% CI: 14.4%-16.1%)* than among men: 10.2% (95% CI: 9.5%-11.0%) (Tables 6.2 and 5.2).
- Prevalence of VLS among all adults living with HIV in Zimbabwe was 77.3%, and it was higher among women at 79.8% (95% CI: 77.7%-81.9%) than among men at 73.0% (95% CI: 69.5%-76.4%). These estimates of VLS are among all adults living with HIV regardless of their knowledge of HIV status or use of antiretroviral therapy (ART) (Table 8.1).
- At the provincial level, prevalence of VLS among all adults living with HIV ranged from 70.1% to 82.2%. Prevalence of VLS suppression was markedly lower in Mashonaland Central at 70.1% (95% CI: 64.8%-75.4%) than in Manicaland at 80.9% (95% CI: 75.6%-86.2%), Matabeleland North at 81.5% (95% CI: 75.9%-87.0%), and Matabeleland South at 82.2% (95% CI: 77.7%-86.6%) (Table 8.1 and Figures 8.1.1 and 8.1.2).

UNAIDS 90-90-90 TARGETS

UNAIDS set the 90-90-90 targets with the aim that by 2020, 90% of all people living with HIV would know their status, 90% of those who were diagnosed would be on ART, and 90% of those who were on ART would have VLS. Zimbabwe's progress towards achieving these targets is presented in two ways: the conditional 90-90-90s and the overall 90-90-90s.

Adult 90-90-90, based on self-report and antiretroviral (ARV) detection in blood:

For the conditional 90-90-90, the denominator for the second and third 90 is the value of the preceding 90 (Figure 1, Table 9.1.B and Figure 9.1):

- **Diagnosed:** 86.8% of adults living with HIV were aware of their HIV status: 88.3% of women and 84.3% of men.
- **On treatment:** Among those who were aware of their HIV-positive status, 97.0% were on ART: 97.6% of women and 95.9% of men.
- **With viral load suppression:** Among those aware of their status and on treatment, 90.3% had suppressed viral loads: 91.0% of women and 89.0% of men.

ZIMPHIA 2020 estimated progress toward achievement of the UNAIDS 90-90-90 targets at 87%, 97%, and 90% among all adults living with HIV

Figure 1:
Conditional 90-90-90 Achievements

86.8% of adults living with HIV knew their HIV status

97.0% of those who were aware of their HIV status were on ART

90.3% of those who were on ART had viral load suppression

* In this report, 95% CIs are presented whenever a comparison is made between two estimates.

There were 1,225,000 adults living with HIV in 2020

For the overall 90-90-90, the percentage diagnosed is the same as in the conditional analysis, but the estimates for those on treatment, and those on treatment with VLS, are among the overall population of adults living with HIV in Zimbabwe, regardless of an individual's awareness of HIV-positive status (Table 9.1.A, Figure 9.1). Note that these estimates are based upon the survey population for whom data on treatment status and viral load are available:

- **Diagnosed:** 86.8% of adults living with HIV were aware of their HIV status: 88.3% of women and 84.3% of men.
- **On treatment:** Among all adults living with HIV in Zimbabwe, 84.2% were on ART: 86.2% among women and 80.9% among men.
- **On treatment with viral load suppression:** Among all adults living with HIV in Zimbabwe, 76.0% were on treatment and had achieved VLS: 78.5% among women and 72.0% among men. *(Please see chapter 9 for a full explanation of the differences between estimates of VLS among people living with HIV, and in the two 90-90-90 cascades).*

Young people (ages 15-24 years) 90-90-90, based on self-report and antiretroviral (ARV) detection in blood:

For the conditional 90-90-90 (Table 9.1.B):
- **Diagnosed:** 75.4% of young people living with HIV were aware of their HIV status: 77.2% among older adolescent girls and young women (OAGYW) and 71.9% among older adolescent boys and young men (OABYM).
- **On treatment:** Among all the young people living with HIV who were aware of their status, 95.3% were on ART: 95.1% among OAGYW and 95.7% among OABYM, although the estimate among OABYM is based on a denominator between 25-49 and should be interpreted with caution.
- **With viral load suppression:** Among all the young people living with HIV who were on ART, 81.0% had achieved VLS: 85.3% among OAGYW and 71.5% among OABYM, although, again, the estimate among OABYM is based on a small denominator.

For the overall 90-90-90 (Table 9.1.A):
- **Diagnosed:** 75.4% of young people living with HIV were aware of their HIV status: 77.2% among OAGYW and 71.9% among OABYM.
- **On treatment:** 71.9% of all the young people living with HIV were on ART: 73.4% among OAGYW and 68.8% among OABYM.
- **On treatment with viral load suppression:** 58.2% of all the young people living with HIV were on treatment with VLS: 62.6% among OAGYW and 49.2% among OABYM.

90-90-90 analyses among other subgroups
- Achievement of the overall 90-90-90 targets peaked among older age groups. For instance, among all those living with HIV aged 50 years and older, 93.1% were diagnosed, 91.4% were on treatment, and 87.3% were on treatment with VLS (Table 9.1.A).
- At the provincial level, there were some notable differences in achievement of the 90-90-90 targets. For instance, achievement of the conditional 90-90-90 was 82.6%-97.6%-86.1% in Mashonaland Central, while Matabeleland North and Matabeleland South both came very close to achievement of all three targets, at 91.3%-99.2%-89.9% and 89.2%-98.7%-93.0% respectively. For the overall 90-90-90, every province reached the overall target of 73% (90x90x90) of all adults living with HIV on treatment with VLS, with the exception of Bulawayo, Mashonaland Central, and Harare (Tables 9.3.A and 9.3.B).

OTHER KEY FINDINGS

Household characteristics

- In Zimbabwe, 23.1% of households had at least one HIV-positive member (23.4% in rural, 22.4% in urban households) (Table 3.4, Figure 3.4).
- The proportion of households headed by a person living with HIV was higher among female-headed households (20.7% [95% CI: 19.3%-22.2%]) than among male-headed households (15.4% [95% CI: 14.0%-16.7%]) (Table 3.5, Figure 3.5).

Survey respondent characteristics

- Among the survey participants, 31.3% resided in urban areas and 68.7% in rural areas (Table 4.1).
- Slightly over one-third of participants (34.1%) were young people (defined as individuals aged 15-24 years) and 17.5% were aged 50 years and older (Table 4.1).

HIV incidence

- Annual incidence of HIV among adults aged 15-49 years was 0.45% (95% CI: 0.24%-0.65%): 0.67% among women (95% CI: 0.34%-0.99%) and 0.23% (95% CI: 0.01%-0.44%) among men (Table 5.1).
- Annual incidence of HIV among young people was 0.42% (95% CI: 0.14%-0.70%): 0.76% (95% CI: 0.25%-1.26%) among OAGYW and 0.08% (95% CI: 0.00%-0.27%) among OABYM (Table 5.1).

HIV prevalence

- HIV prevalence among adults aged 15-49 years in Zimbabwe was 11.8% (95% CI: 11.1%-12.5%): 14.8% (95% CI: 13.9%-15.7%) among women and 8.6% (95% CI: 7.8%-9.3%) among men.
- HIV prevalence ranged from 10.2% in Manicaland to 17.6% in Matabeleland South (Table 6.2 and Figures 6.2.1 and 6.2.2).
- HIV prevalence peaked among adults aged 50-54 years at 30.5%. (Table 6.3, Figure 6.3).

HIV testing, diagnosis and treatment status

- Among adults aged 15 years and older, 80.9% reported that they had ever received an HIV test, with a higher percentage among women (84.9% [95% CI: 84.0%-85.7%]), than among men (76.3% [95% CI: 75.2%-77.4%]); 41.9% of adults reported that they had received an HIV test in the 12 months before the survey (Tables 7.1.A-C).
- Among young people aged 15-24 years, the percentage reporting that they had ever received an HIV test was particularly low, at 67.7%: 72.4% among OAGYW and 63.0% among OABYM. The percentage of young people who reported that they had received an HIV test in the 12 months before the survey was 36.8%: 46.9% among OAGYW and 26.6% among OABYM (Tables 7.1.A-C). Notably, a substantial percentage (24.6%) of young people who tested positive in ZIMPHIA 2020 were unaware of their HIV status (based on self-report and ARV-detection data): 22.8% among OAGYW and 28.1% among OABYM (Tables 7.2.A-C).
- A higher level of ever receiving an HIV test was reported by those with higher levels of education: 69.8% (95% CI: 65.9%-73.6%) among those with no formal education, 77.8% (95% CI: 76.4%-79.2%) among those who only attended primary school, 82.4% (95% CI: 81.5%-83.2%) among those who only attended secondary school, and 86.7% (95% CI: 84.3%-89.1%) among those who had more than a secondary school education (Table 7.1.C).
- Among adults who tested HIV positive in the survey, ARVs were detectable in the blood of 23.8% of those who reported that they had not been previously diagnosed, and 18.4% who said that they had been previously diagnosed but were not yet taking ART (Table 7.3.C).

Approximately 31,000 new cases of HIV occurred in 2020 among adults

Viral load suppression

- Among adults living with HIV, VLS varied by age, ranging from 66.2% among OAGYW aged 15-24 years to 90.3% among women aged 45-54 years, and from 49.2% among OABYM aged 15-24 years to 91.7% among men aged 65 years and older (Table 8.2).
- Among all adults in Zimbabwe, the percentage of population viremia (the proportion of the population with unsuppressed viral load—see chapter 8) was 2.9%. At the provincial level, the percentage of adults with population viremia ranged from 1.9% in Manicaland to 3.9% in Mashonaland Central (Table 8.3 and Figure 8.3).
- Among all adults living with HIV, 75.1% had viral loads <200 HIV RNA copies/mL: 77.6% among women and 70.8% among men. Among adults living with HIV who were aware of their HIV status and on ART, based on self-report and ARV detection in blood, 88.4% had viral loads <200 copies/mL: 89.5% among women, and 86.6% among men (Table 8.4).
- ZIMPHIA 2020 assessed access to viral load testing and results and found that 76.2% of adults living with HIV reported ever having a viral load test, and 53.2% of those who had had a viral load test reported that they had received their viral load test results back. Viral load testing varied geographically. At the provincial level, self-reported viral load testing ranged from 59.1% in Mashonaland Central to 89.2% in Harare. Among adults who reported ever having a VL test, the percentage who received results from their last test ranged from 39.0% in Midlands to 67.6% in Bulawayo (Table 8.5).

Clinical perspectives on people living with HIV

- Among adults living with HIV, CD4 count varied depending on awareness of HIV status and treatment status, based on self-report and ARV detection. The median CD4 count was 327 cells per microliter (µL) among those who were unaware of their status, 320 cells/µL among those who were aware of their status but not yet on ART, and 528 cells/µL among those who were taking ART. (Table 10.1 and Figure 10.1).
- Although uptake of testing is approaching targets, diagnosis came late among some of the adults who were unaware of their HIV status when they tested HIV positive in the survey: 36.1% were immune suppressed (CD4 counts between 200-349 cells/µL) and 18.9% had severe immunosuppression (less than 200 CD4 cells/µL) (Table 10.2).
- Based upon self-report, 98.2% of all adults living with HIV who initiated ART were still taking it: 98.7% among women and 97.3% among men. After the first year, retention on ART remained as high, if not higher, over time (Table 10.3).

Prevention of mother-to-child transmission of HIV (PMTCT)

- Among women of childbearing age (aged 15-49 years, referred to as women in this subsection) who delivered a child in the 3 years before the survey, 95.9% reported attending at least one antenatal care (ANC) visit for her most recent birth (Table 11.1).
- Among women who delivered in the 12 months before the survey, 93.5% reported that they knew their HIV status: 6.9% already knew they were HIV positive, 84.4% tested HIV negative, and 2.2% tested positive during ANC testing (Table 11.2 and Figure 11.3).
- Among women living with HIV who delivered in the 12 months before the survey, 98.7% reported that they took ART to reduce mother-to-child transmission: 70.7% reported that they were already on ART before becoming pregnant, and 28.0% reported that they started ART during pregnancy or labor or delivery (Table 11.3).
- Among women who delivered in the 3 years before the survey, 55.6% reported that they were still breastfeeding at the time of the survey, 43.2% reported that they had breastfed but were no longer doing so, while 1.2% reported that they had never breastfed. Percentages did not vary markedly by self-reported HIV status (Table 11.4).

- Among women living with HIV who delivered within the 3 years before the survey, 64.3% reported that their infant had an HIV test before they were two months of age, while 18.5% reported that their infant had an HIV test when they were between 3 months and 11 months of age (Table 11.5).

HIV risk factors

- Among those who reported more than one lifetime sexual partner, HIV prevalence was 19.5% (95% CI: 18.5%-20.5%): 29.5% (95% CI: 27.8%-31.2%) among women and 13.5% (95% CI: 12.5%-14.5%) among men. This was more than double the prevalence among those who reported only one lifetime partner, at 7.8% (95% CI: 7.1%-8.6%): 8.7% (95% CI: 7.9%-9.5%) among women and 4.4% (95% CI: 3.0%-5.9%) among men (Table 12.2).
- Among young people aged 15-24 years, 6.6% reported sex before the age of 15 years: 4.1% among OAGYW and 9.4% among OABYM. Among just the older adolescents aged 15-19 years, 10.8% reported sex before the age of 15 years: 7.1% among older adolescent girls and 15.2% among older adolescent boys (Table 12.3).
- A higher percentage of young people residing in rural households reported sex before the age of 15 years, 8.3% (95% CI: 7.0%-9.6%), compared to those living in urban households, 3.3% (95% CI: 1.7%-4.6%). The percentage of young people who reported sex before the age of 15 years also varied by province, from 2.7% in Harare to 11.8% in Mashonaland Central (Table 12.3).
- Among young people who reported sex in the 12 months before the survey, 54.2% reported sex with a nonmarital, noncohabitating partner, while the proportion who reported condom use the last time they had sex with such a partner was 62.7% (Table 12.4.C).
- Among men aged 15 years and older, 19.2% (95% CI: 18.1%-20.4) reported that they had been medically circumcised, and 3.9% reported that they had a nonmedical circumcision, while 76.9% reported that they were uncircumcised. The percentage of OABYM aged 15-24 years who reported having a medical circumcision was 34.4% (Table 12.5).
- The prevalence of self-reported medical circumcision varied by province, ranging from 11.7% in Mashonaland Central to 36.9% in Bulawayo. The percentage of self-reported medical circumcision was higher among adult men who tested HIV negative than those who tested HIV positive during the survey: 20.8% (95% CI: 19.4%-22.1%) versus 6.2% (95% CI: 4.4%-7.9%) (Table 12.5).
- Among all adults, 9.1% had heard of pre-exposure prophylaxis (PrEP): 9.5% among women, 8.7% among men. Among the percentage of HIV-negative adults who had heard of PrEP, 70.6% said that they would be willing to take it: 69.0% among women and 72.2% among men. Among HIV-negative adults who had been offered PrEP, 10.4% reported that they had taken it: 9.8% among women and 11.1% among men (Tables 12.6, 12.7, and 12.8).

Tuberculosis, cervical cancer screening, and other chronic conditions

- Current WHO recommendations are that programs monitor the prevalence of cervical cancer screening among women 30-49 years of age.[*] Among women living with HIV aged 30-49 years in Zimbabwe, 37.3% reported that they were screened for cervical cancer. Among women of that age who reported they were screened, 5.8% reported that they had an abnormal result. Uptake of reported screening among women aged 15 years and older varied by education level, ranging from 19.1% among those with no formal education to 57.6% among those with more than a secondary education (Table 13.1 and Figure 13.1).

99% of women living with HIV who delivered in the 12 months before the survey reported they were taking ART

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[*] WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention, second edition. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.

- According to adults who reported that they attended a TB clinic in the 12 months before the survey, 53.2% reported that they had been tested for HIV, 17.2% reported that they already knew that they were HIV positive, while 29.6% were not aware of their status (Table 13.3 and Figure 13.3).
- TB symptom screening among adults living with HIV, which WHO recommends should occur systematically at every clinic visit, was only reported by 42.9%: 41.8% among women and 45.0% among men (Table 13.5 and Figure 13.5).[*]

GAPS AND UNMET NEEDS

- Annual HIV incidence remains at the same level among adults in Zimbabwe as in ZIMPHIA 2015-2016—despite the increase in uptake of testing and treatment services.
- By age and sex, among adults, HIV incidence peaked among OAGYW, which shows a continued unmet need for HIV prevention options that work for them and are available wherever they access services. It also demonstrates a need for more effective combination prevention services for their male partners to reduce the risk of onward transmission.
- There are a number of gaps in reported uptake of HIV testing services. There is a gap in HIV testing among men, with almost one out of four reporting that they had never been tested. Uptake of testing is also inadequate among those less educated. Finally, a small proportion of young people reported HIV testing, which is particularly worrisome among OAGYW given their HIV incidence.
- Almost a quarter of young people living with HIV were unaware of their HIV status. Given that young people also reported that they were more likely to have multiple sexual partners, this presents a major challenge to the effectiveness of the treatment as prevention strategy in Zimbabwe.
- Almost one quarter of adults aged 15 years and older who reported no previous diagnosis were already on ART. The discordance between self-reported versus ARV-adjusted HIV awareness indicates that many Zimbabweans living with HIV were uncomfortable disclosing their HIV-positive status in a household survey setting.
- The considerable variation in prevalence of VLS across regions, age and sex, and other demographic groups highlights the need to focus interventions, and to rigorously evaluate and map their availability, accessibility, quality, and effectiveness in specific geographical areas and demographic groups.
- While three-fourths of adults living with HIV reported that they had had a viral load test, only about half of these had ever received the results—and even fewer in some provinces, denying them of the benefits of knowing their viral loads.
- According to mothers' reports, prevalence of early infant diagnosis testing within the first two months of life is below the national target of 65%, indicating that some infants with HIV may be at risk of falling through the cracks at the end of the PMTCT cascade and not receiving life-saving ART.
- According to self-report, uptake of medical male circumcision was below Zimbabwe's programmatic data (43% in 2019 among the priority population of adolescents and men aged 10-29 years), well below the 80% target for that group. It was even lower among men aged 25 years and older and in some provinces, indicating an ongoing risk of HIV acquisition among men.
- The lower proportion of cervical cancer screening among less educated women indicate disparities in access to this life-saving service.

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[*] WHO consolidated guidelines on tuberculosis. Module 2: screening – systematic screening for tuberculosis disease. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.

- Zimbabwe is falling short in the universal implementation of HIV testing in TB clinics among those who do not know their status. In contrast to the country's programmatic data, TB symptom screening in HIV clinics, as reported by people living with HIV, is below the national target of 100% screened during their last clinic visit, suggesting that these services should also be enhanced.

PROGRAMMATIC RESPONSES OR RECOMMENDATIONS

- Strengthening of HIV surveillance activities may help the program better understand HIV transmission dynamics at provincial level and identify subgroups in need of intensive interventions and access of combination prevention tools, including PrEP when appropriate, to reduce ongoing HIV transmission.
- HIV testing strategies must be strengthened to particularly improve the coverage of testing in the community, especially workplaces and where men gather, to reach adults who do not frequent health care facilities.
- Though testing rates are approaching the first 90 target in Zimbabwe, the target is now 95%. There should also be a concerted effort to identify those being missed with HIV in advanced stages of disease.
- Client-centered interventions are needed to improve the reach of HIV programs and support members of different communities and subgroups to achieve and maintain VLS.
- Special attention should be given to expanding effective programs and interventions to reduce HIV stigma and discrimination that are commonly associated with a reluctance to disclose HIV and treatment status.
- Strategies to increase uptake of medical circumcision services should be implemented, particularly among men 25 years of age or older.
- Zimbabwe should continue to expand access to viral load testing and make the results available to people living with HIV in a timely manner.
- Finally, the mechanisms of collaboration between HIV programs and TB programs should be strengthened in their joint struggle against HIV and TB.

CONCLUSION

ZIMPHIA 2020 provided critical data on the primary outcomes of HIV incidence and HIV prevalence among adults at national and province levels. MoHCC encourages public health staff, programmers, epidemiologists, and policy makers to examine the ZIMPHIA 2020 data for their respective program areas, and utilize the data to inform program planning.

HIV surveillance activities should be strengthened to better understand HIV transmission dynamics at provincial level and within subgroups

1. INTRODUCTION

1.1 BACKGROUND

The Population-based HIV Impact Assessment is a multicountry project funded by the United States (US) President's Emergency Plan for AIDS Relief (PEPFAR) to conduct national HIV-focused surveys that describe the status of the HIV epidemic. The surveys measure important national and subnational HIV-related parameters, including progress toward the achievement of the Joint United Nations Programme on HIV and AIDS (UNAIDS) 90-90-90 targets by 2020, and the 95-95-95 targets by 2025 (UNAIDS, 2014, UNAIDS 2020). The findings guide policy and funding priorities.

The Zimbabwe-based HIV Impact Assessment (ZIMPHIA 2020) was led by the Government of Zimbabwe through the Ministry of Health and Child Care (MoHCC). The survey was conducted with funding from PEPFAR and through technical assistance and partnership with the US Centers for Disease Control and Prevention (CDC). ICAP at Columbia University implemented ZIMPHIA 2020 in collaboration with Government of Zimbabwe entities, including the National Microbiology Reference Laboratory, the National Statistical Agency (ZIMSTAT), and the National AIDS Council, as well as district, provincial, and referral hospitals, and local government authorities.

1.2 OVERVIEW OF ZIMPHIA 2020

ZIMPHIA 2020 was a household-based national survey conducted among adults (defined as individuals aged 15 years and older) between November 2019 and March 2020 to measure the impact of Zimbabwe's national HIV response. ZIMPHIA 2020 offered home-based testing and counseling (HBTC) with return of results, and collected information about households and individuals' background, as well as the uptake of HIV care and treatment services. This was the second survey in Zimbabwe to estimate national HIV incidence, and national and provincial HIV prevalence, as well as the national and provincial prevalence of viral load suppression (VLS), defined as HIV RNA <1,000 copies per milliliter (mL) among all adults living with HIV.

Thus, ZIMPHIA 2020 will permit Zimbabwe to assess progress toward the achievement of the UNAIDS 90-90-90 targets on a national level. With its focus on measuring key biological endpoints in a nationally representative sample of the population, ZIMPHIA 2020 provides direct estimates of HIV-infection risk and burden, the effectiveness and population-level impact of HIV-related prevention, care, and treatment interventions implemented in the country, and Zimbabwe's progress toward the achievement of the UNAIDS 90-90-90 targets.

1.3 SPECIFIC OBJECTIVES

The goal of the survey was to estimate incidence and prevalence of HIV among adults in Zimbabwe, to assess the coverage and impact of HIV services at the population level, and to characterize HIV-related risk behaviors using a nationally representative sample of adults.

Primary Objectives
- To estimate the provincial prevalence of VLS among all HIV-positive adults.

Secondary Objectives
To estimate the following among adults:
- National HIV incidence;
- National and provincial HIV prevalence;
- Prevalence of HIV-related risk behaviors;
- Behavioral and demographic determinants of HIV incidence and prevalence;
- Exposure to, uptake of and barriers to access HIV-related services;
- Prevalence of primary and secondary antiretroviral (ARV) drug-resistance (DR) among all people living with HIV; and
- Progress towards achievement of the Joint United Nations Programme on HIV and AIDS (UNAIDS) 90-90-90 targets.

2. SURVEY DESIGN, METHODS, AND RESPONSE RATES

ZIMPHIA 2020 was a nationally representative, cross-sectional, two-stage, population-based survey of households across Zimbabwe. Its target population corresponded to adults (defined as individuals aged 15 years and older). The survey population excluded institutionalized adults.

2.1 SAMPLE FRAME AND DESIGN

ZIMPHIA 2020 used a two-stage, stratified cluster sample design. The sampling frame was comprised of all households in the country, based upon the Zimbabwe Population Census 2012 sampling frame which included 30,736 enumeration areas (EAs) created for the census, with an average number of 130 households and 512 persons per EA at the time of the census.[1] The first stage selected 356 EAs systematically with probability proportional to size, where the size of an EA is defined by the number of households in that EA based on population projections for 2020 derived from the 2012 census. The EAs were stratified by urban-rural status and then geographically within urban-rural status prior to sample selection. During the second stage, a sample of households was randomly selected within each EA, or cluster, using an equal probability method, where the average number of households selected per cluster would be 35. The actual number of households selected per cluster ranged from 32 to 40 in most EAs with the exception of one rural EA in Harare which had 59 households (Table 2.1).

The required number of households in each stratum accounted for adjustments for household vacancy and nonresponse, number of individuals per household, individual nonresponse, refusal of blood testing or specimen loss and expected HIV prevalence in each stratum. The required number of EAs was obtained by dividing the number of households by the target number of occupied households sampled in each cluster.

The sample size was calculated to provide a representative national estimate of HIV incidence among adults aged 15-49 years with a relative standard error less than or equal to 0.3, as well as representative provincial estimates of VLS prevalence among HIV-positive adults aged 15-49 years with 95% CIs ±8%. The target sample size was 18,079 eligible adults aged 15-49 years and 4,807 eligible adults aged 50 years and older.

Table 2.1: Distribution of sampled enumeration areas and households by province

Distribution of sampled enumeration areas and households by province, ZIMPHIA 2020						
	Enumeration Areas			Households		
Province	Urban	Rural	Total	Urban	Rural	Total
Bulawayo	31	0	31	1,085	0	1,085
Manicaland	7	37	44	232	1,308	1,540
Mashonaland Central	2	35	37	65	1,230	1,295
Mashonaland East	4	33	37	153	1,142	1,295
Mashonaland West	10	30	40	373	1,027	1,400
Matabeleland North	4	25	29	160	855	1,015
Matabeleland South	4	23	27	129	816	945
Midlands	10	28	38	362	968	1,330
Masvingo	3	33	36	110	1,150	1,260
Harare	36	1	37	1,236	59	1,295
Total	111	245	356	3,905	8,555	12,460

Appendix A: Sample Design and Weighting provides a more detailed explanation of the sampling and weighting processes.

2.2 ELIGIBILITY CRITERIA, RECRUITMENT, AND CONSENT PROCEDURES

In ZIMPHIA 2020, the eligible survey population included individuals aged 15 years and older, defined as adults for sampling and reporting purposes in this report. Consent criteria are determined in each country, and it should be noted the definition of an adult for the purposes of consent varies by country. In ZIMPHIA 2020, the consent criteria included:

- Adults aged 18 years and older or emancipated minors aged 15-17 years who slept in the household the night before the survey, whether they were usual residents in the selected household or overnight visitors, who were willing and able to provide written consent.
- Minors aged 15-17 years who slept in the household the night before the survey, whether they were usual residents in the selected household or overnight visitors, who were willing and able to provide written assent, and whose parents or guardians were willing and able to provide written permission for their participation.

An electronic informed consent form was administered using a tablet (Appendix G). At each stage of the consent process, consent was indicated by signing or making a mark on the consent form on the tablet and on a printed copy, which was retained by the participant. A designated head of household provided written consent for household members to participate in the survey, after which individual members were rostered during a household interview. Adults and emancipated minors (ages 15-17 years) then provided written consent on the tablet for an interview and for participation in the biomarker component of the survey, including HBTC, with return of HIV-testing results during the household visit. Receipt of test results was a requirement for participation in the biomarker component. If an individual did not want to receive his or her HIV test result, this was considered a refusal and the survey was concluded. Adults were also asked for written consent to store their blood samples in a repository to perform additional tests in the future.

Minors aged 15-17 years were asked for assent to the interview and biomarker components after permission was granted by their parents or guardians. Since the age of consent for HBTC and receipt of HIV test results in Zimbabwe is 16 years of age, HIV test results were returned directly to minors aged 16-17 years without their parent/guardian present unless requested by the minor. Inclusion of a parent/guardian in the post-counselling session was based on the choice of the minor participant. Minors 15 years of age who took part in the survey and HIV testing received results with their parent/guardian present. If a parent or guardian did not want to receive the HIV test result of their 15-year-old minor, this was considered a refusal and the survey was concluded.

Procedures with illiterate participants or participants with a sight disability involved the use of an impartial witness, chosen by the potential participant, who also signed or made a mark on the consent form on the tablet and the printed copy. If no witness could be identified, the potential participant or household (if the head of household was sight disabled or illiterate) was deemed ineligible.

Participants who tested positive were asked to provide consent for their information to be shared with an MoHCC or community health worker/liaison worker to facilitate active linkage to care at a facility of their choice (see Appendix G). All organizations participating in linkage to care were trained in confidentiality procedures and detailed procedures on active linkage to care, including eligibility for linkage to care, how contact information should be shared with the facility, community-based organization or a local linkage counselor, mechanisms of facilitated linkage, and documentation of linkage to care.

All PHIA survey protocols, consent forms, screening forms, refusal forms, referral forms, recruitment materials, and questionnaires were reviewed and approved by in-country ethics and regulatory bodies and the institutional review boards of Columbia University Medical Center, Westat, and the CDC.

2.3 SURVEY IMPLEMENTATION

Training of Field and Laboratory Staff

Survey staff received training on both the contents of the data collection instruments and tablet use. The training curriculum included:

- Rationale, purposes, and scientific objectives of the survey
- Survey design and methods
- Completion of survey forms
- Data collection
- Staff responsibilities, tablet, and data security procedures
- Recruitment of participants
- Informed consent procedures, including human participants' protection, privacy, and confidentiality
- Blood collection including venipuncture and finger stick
- Interviewing procedures
- Home-based HIV testing and counseling
- Referral of participants to health and social services, including procedures for linking actively to treatment
- Management and transportation of blood specimens
- Biosafety
- Communication skills
- Protocol deviations, adverse events, and reporting of events

Laboratory staff were trained in specimen management, including sample processing, labeling, and quality assurance (QA). Central laboratory staff were trained in VL measurement, HIV confirmatory testing, and HIV recency testing using the limiting antigen (LAg) avidity enzyme immunoassay.

Survey Staff

Fieldwork started in November 2019 and was completed in March 2020. Fieldwork was conducted by 36 locally-hired field teams with six members each, composed of a team leader, and other staff who performed interviews, phlebotomy, testing and counseling and one or two drivers. Field teams included both male and female staff, and members spoke the languages used in the areas to which they were deployed. A total of 287 field staff comprising of 6 field coordinators, 216 nurses and interviewers (inclusive of 36 team leaders) and 65 drivers participated in data collection. The field teams were supervised by 36 team leaders, six field coordinators, 2 regional coordinators and managed by central staff who guided and oversaw data collection activities, performed quality checks, and provided technical support (Appendix D).

In addition, the laboratory staff was organized at different levels (central laboratory staff, regional field supervisors, onsite laboratory supervisors, satellite lab technicians, and satellite lab logisticians). Overall, 24 satellite laboratory technicians and 3 central lab technicians processed samples and performed additional procedures for HIV-1 VL, CD4 cell count, quality control (QC), and QA. National and international monitors periodically conducted direct observation of data collection activities in the field and in the laboratories to provide technical support and ensure quality.

Community Sensitization and Mobilization

Community mobilization was conducted prior to data collection to maximize community support and participation in the survey. ZIMPHIA engaged a specialist for community mobilization, six community-mobilization coordinators, and 728 community mobilizers. The mobilization began before fieldwork commenced with a high-level national launch meeting that included key national and regional leaders, mass media, and other stakeholders. Community mobilization teams visited each EA prior to initiation of data collection and partnered with community mobilizers to meet key gatekeepers in the communities (chiefs, local government officials, and religious and community leaders). The mobilization teams held discussions with households, disseminated written informational materials such as brochures and posters, and held discussions with selected households and other community residents.

Supervision

Data-collection teams were continuously overseen by field-based supervisors as well as periodically monitored by national and international teams with representation from collaborating institutions. Monitoring teams visited field and laboratory sites at least monthly, and provided direct supervision as well as verification of results by household revisits. Daily monitoring forms for household and individual outcome tracking were also reviewed by monitors for completeness. Field-based supervisors also supported teams by organizing supplies and transport of blood samples, coordinating community-mobilization efforts, providing technical troubleshooting, and checking the quality of household procedures and data collected.

The national and international monitoring teams observed and assessed the quality of survey procedures, including adherence to protocol and standard operating procedures, and identified and responded to challenges with data collection. Regular debriefing sessions were held between field-based supervisors and monitoring teams. Monitoring reports were circulated to collaborating institutions and the ZIMPHIA 2020 Technical Working Group to respond to any issues.

Electronic Monitoring System

An electronic dashboard system was established to monitor the progression of the survey. The dashboard summarized data uploaded to the PHIA server daily. The dashboard tracked coverage and completion of EAs, sampled households, household response, eligible household members providing consent to the interview, and biomarker components of the survey, blood draws, response rates (RRs), and overall progress towards the achievement of the target sample.

Questionnaire Data Collection

Questionnaire and field laboratory data were collected on mobile tablet devices using an application programmed in Census and Survey Processing System (CSPro) software, an open-source mobile data collection application. The household interview collected information on household residents, assets, economic support, recent deaths, and orphans and vulnerable children (see Appendix E). The individual interview was administered to all participants and included modules on demographic characteristics, sexual and reproductive health, marriage, male circumcision, sexual activity, HIV testing and treatment history, TB and other diseases and alcohol use (see Appendix F). Participants who reported knowing their HIV-positive status were asked questions about their HIV care experience. Women were interviewed by female staff, and men by male staff, whenever possible. The questionnaire was administered in English, Shona, and Ndebele. Versions of the questionnaires in the local languages were reviewed and tested thoroughly for acceptability, feasibility, and flow of questions.

2.4 FIELD-BASED BIOMARKER TESTING

Blood Collection

Qualified survey staff collected blood from consenting participants: either 14 mL of venous blood or 1 mL of capillary blood using finger-stick from individuals who either refused to give venous blood or where venous blood draw failed.

Blood samples were labeled with a unique barcoded participant identification number and stored in temperature-controlled cooler boxes. At the end of each day, samples were transported to a satellite laboratory for processing into plasma aliquots and dried blood spots (DBS), and were frozen within 24 hours of blood collection at -20° Celsius. Plasma and DBS samples were transferred on a biweekly basis to the central laboratory for repository storage at -80° Celsius.

HIV Home-Based Testing and Counseling

HIV HBTC was conducted in each household in accordance with national guidelines (Figure 2.1). As per these guidelines, the survey used a sequential rapid-testing algorithm in the field.
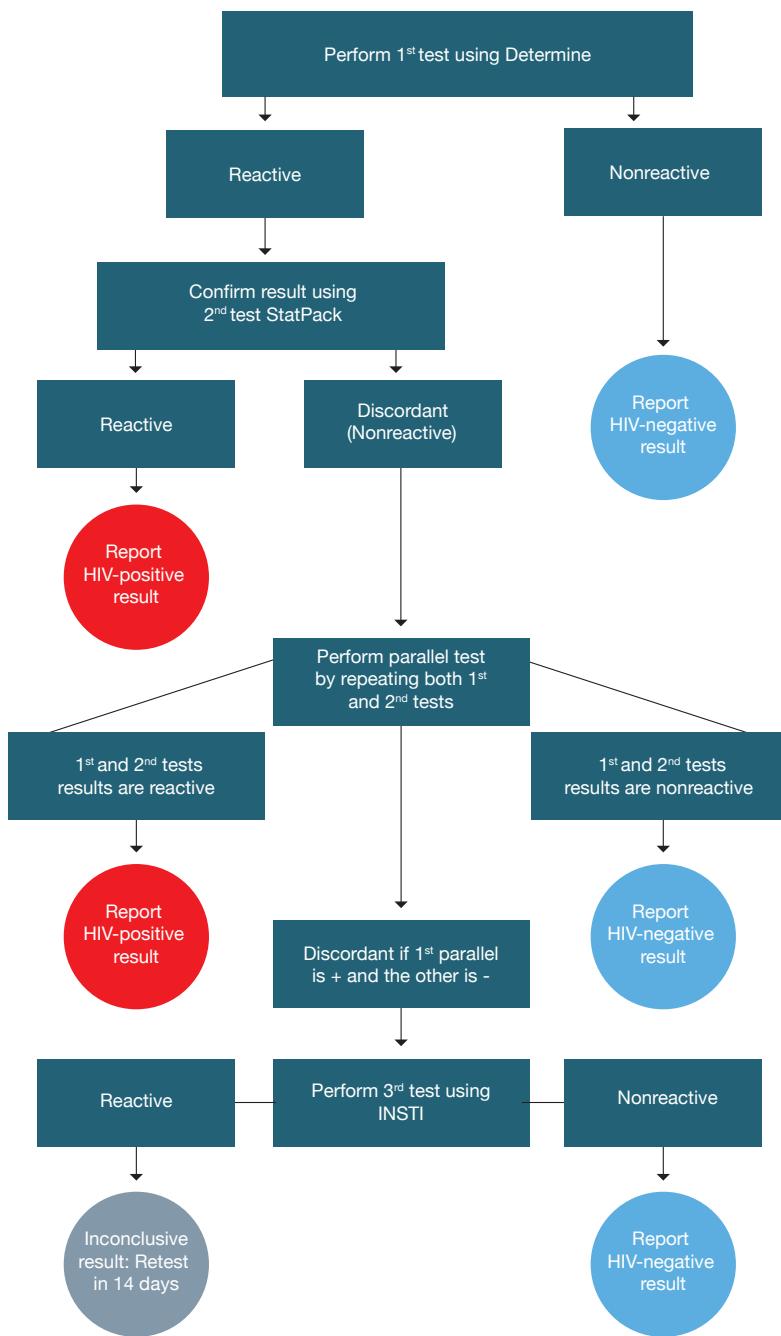
Determine™ HIV-1/2 (Abbott Molecular Inc., Des Plaines, Illinois, United States) was used as a screening test, and, if reactive, HIV 1/2 Stat-Pak (Chembio Diagnostic Systems Inc. Medford, New York, United States) was used as a confirmatory test. Individuals with a nonreactive result on the screening test were reported as HIV negative. Those with reactive results on both the screening and confirmatory tests were classified as HIV positive.

If the result on the Stat-Pak was nonreactive (discordant), a parallel test was performed by repeating the first two tests. Those with a positive result on both tests were classified as HIV positive. If the result was still discordant, the INSTI HIV-1/HIV-2 Antibody Test (BioLytical Laboratories, Richmond, British Columbia, Canada) was used as a tie-breaker test. If the third test (INSTI) was nonreactive, results were reported as HIV negative. If reactive with INSTI, results were classified as inconclusive, and the individual was referred to a health facility for retesting in 14 days as per the national guidelines.

For the purposes of the survey, samples with inconclusive results from the national algorithm received further testing and evaluation to allow for final classification of HIV status using the Geenius™ HIV 1/2 Supplemental Assay (Bio-Rad, Hercules, California, United States) confirmatory test.

Figure 2.1:
Household-based
HIV testing algorithm,
ZIMPHIA 2020

HIV-positive participants were actively linked to HIV care and treatment services at a health facility of their choice. HIV-infected participants were asked to provide consent for their information to be shared with a MoHCC or community health worker/liaison worker to facilitate linkage to care. If a participant provided consent to linkage to care contact, the field staff completed the Active Linkage to Care Form. All organizations participating in linkage to care were trained in confidentiality procedures.

For participants who reported knowing their HIV-positive status, but tested HIV negative at the time of the survey, additional laboratory-based testing was conducted using HIV total nucleic acid (TNA) polymerase chain reaction (PCR) for confirmation of the status. In conjunction with MoHCC, these participants were revisited by qualified healthcare personnel to provide counseling and guidance on next steps to confirm these results, particularly for those on ART.

QC using a panel of positive and negative dried tube specimens (DTS) was performed on a weekly basis by field staff performing HIV testing. In addition, QA proficiency testing was conducted twice in the course of the survey, using a panel of masked HIV-positive and negative DTS. Proficiency in the correct performance and interpretation of the HIV testing algorithm was assessed for each tester.

2.5 LABORATORY-BASED BIOMARKER TESTING

Satellite and Central Laboratories
Satellite laboratories for the survey were established in nine existing health facility laboratories and eleven mobile laboratories. One central reference laboratory was chosen for more specialized tests. At each satellite laboratory, trained technicians performed HIV confirmatory testing, QA testing, and processing of whole blood specimens into plasma aliquots and DBS cards for temporary storage at -20°C.

HIV QA and confirmatory testing: For QA of the HIV rapid testing conducted in the field, the first 25 samples tested by each field tester during HBTC were retested in the laboratory using the national HIV rapid-testing algorithm. All specimens that tested HIV positive during HBTC, and those that had confirmed positive rapid test results during QA, underwent confirmatory testing using the Geenius HIV 1/2 Supplemental Assay (Bio-Rad, Hercules, California, United States). A positive Geenius result defined HIV-positive status for the survey. Central laboratory procedures included HIV VL testing, HIV TNA PCR for confirmation of status of those who reported that they had an HIV-positive status but tested negative in HBTC, HIV recency testing, and long-term storage of samples at -80°C.

The survey conducted household revisits for investigation of discrepancies between the results of testing in the field and in the laboratory. The specimens collected during the revisit underwent comprehensive retesting in the laboratory. For each case, an analysis of the nature of the discrepancy, and potential sources of error, was performed to define the definitive HIV status for analytical purposes.

CD4 Count Measurement
Blood samples from the participants who tested HIV-positive underwent CD4 count measurement at the satellite laboratory. The measurement was performed using the Pima™ CD4 Analyzer (Abbott Molecular Inc., Chicago, Illinois, United States, formerly Alere).

Viral Load (VL) Testing
Determination of HIV-1 VL (HIV RNA copies per mL) of HIV-positive participants with plasma samples was measured using the COBAS AmpliPrep/Taqman 96 assay on the COBAS AmpliPrep/COBAS TaqMan (CAP/CTM) HIV-1, v2.0 Test (Roche Molecular Diagnostics, Branchburg, New Jersey, United States). In cases where plasma samples were not available, HIV-1 VL was performed on dried blood spot (DBS) samples using the COBAS AmpliPrep/COBAS TaqMan (CAP/CTM) Free Virus Elution (FVE) Protocol (Roche Molecular Diagnostics, Branchburg, New Jersey, United States). The COBAS AmpliPrep/TaqMan HIV-1 is a nucleic acid amplification test for the quantification of HIV Type 1 (HIV-1) RNA in human plasma or dried blood spots. Specimen preparation was automated using COBAS AmpliPrep with amplification and detection using TaqMan.

Return of CD4 and Viral Load Results
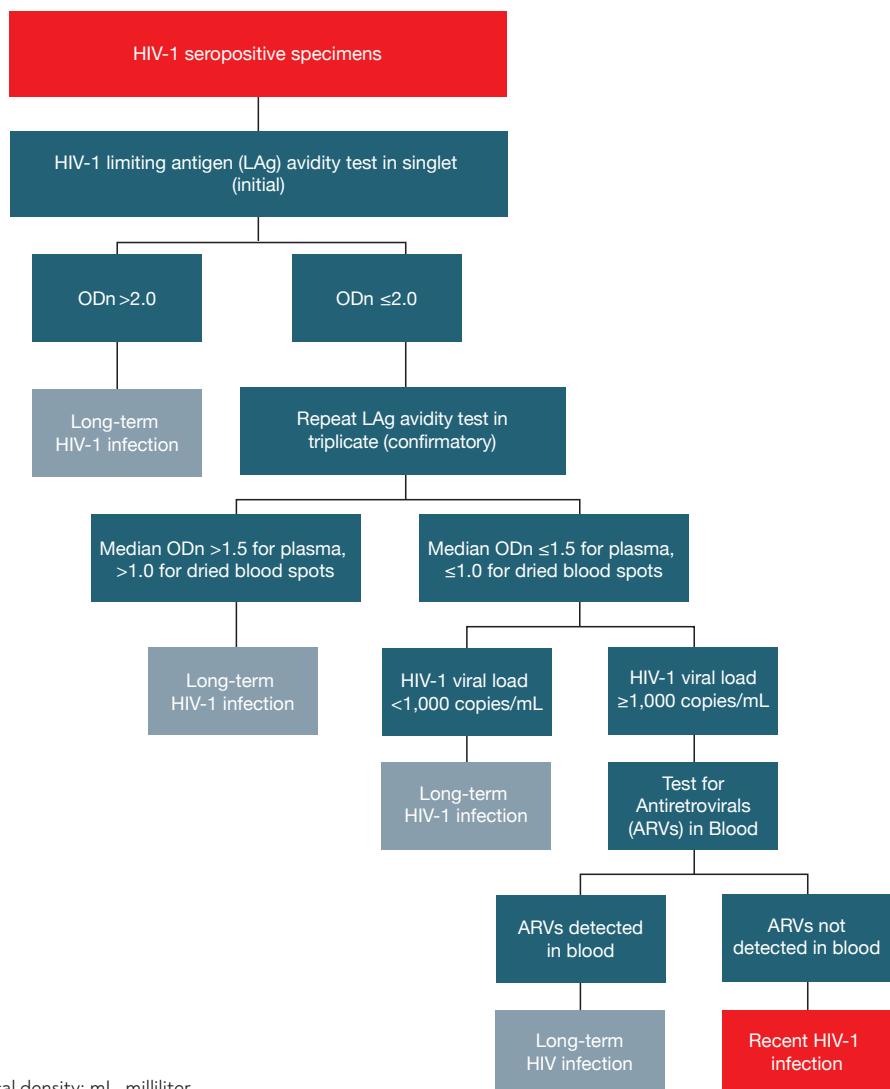
Both CD4 counts and viral load results were returned by the return-of-results coordinator within 12 weeks to the health facility chosen by each HIV-positive participant. HIV-positive participants were provided with a referral form during HBTC for subsequent retrieval of their results. Survey staff also contacted each participant via mobile phones, informing them that their VL results were available at the chosen facility and further advising them to seek care and treatment.

HIV Recent Infection Testing Algorithm

To distinguish recent from long-term HIV infections, in order to estimate incidence, the survey used a laboratory-based testing algorithm that employed a combination of assays: an HIV-1 LAg avidity assay, VL, and ARV detection (Figure 2.2), as described in Appendix B.

The Sedia HIV-1 LAg-Avidity EIA (Sedia Biosciences Corporation, Portland, Oregon, United States) was used on plasma specimens, while the Maxim HIV-1 Limiting Antigen-Avidity Dried Blood Spot (DBS) EIA (Maxim Biomedical, Bethesda, Maryland, United States) was used on DBS specimens. Using LAg avidity testing, plasma specimens with median normalized optical density (ODn) ≤ 1.5 and DBS specimens with median ODn ≤ 1.0 were classified as potential recent infections and their VL results were assessed. Specimens with VL < 1,000 copies/mL were classified as long-term infections, while ARV detection data were assessed for those with VL ≥ 1,000 copies/mL. Those with a detectable ARV were classified as long-term infections and those without were classified as recent infections (Figure 2.2).

Figure 2.2:
HIV-1 recent infection testing algorithm, ZIMPHIA 2020

Abbreviations: ODn, normalized optical density; mL, milliliter.

Detection of Antiretroviral Drug Resistance

HIV resistance to ARVs was assessed for HIV-positive participants including recent cases, those without VLS (≥1,000 copies/mL; both on treatment and not on treatment), and those with VL of 200-999 copies/mL. Drug mutations in the HIV pol gene encoding protease, reverse transcriptase, and integrase that confer resistance (according to the Stanford University HIV Drug Resistance Database) were detected simultaneously by use of the CDC in-house multiplex allele-specific drug resistance assay.

Specimens were tested for drug resistance at the National Institute for Communicable Diseases (NICD) in South Africa, with support provided by CDC Atlanta's International Laboratory Branch, a World Health Organization (WHO)-accredited laboratory for HIV drug resistance testing. The findings on drug resistance will be presented in a separate addendum to this report.

Detection of Antiretrovirals

Qualitative screening for detectable concentrations of ARVs was conducted on DBS specimens from all HIV-positive participants by means of high-resolution liquid chromatography coupled with tandem mass spectrometry. The method used for ARV detection was a modified version of the methodology described by Koal et al.[2] This qualitative assay was highly specific, as it separates the parent compound from the fragments, and highly sensitive, with a limit of detection of 0.02 μg/mL for each drug, and a signal-to-noise ratio of at least 5:1 for all drugs. As detection of all ARVs in use at the time of the survey was cost-prohibitive, four ARVs (efavirenz, nevirapine, atazanavir and dolutegravir) were selected as markers for the most commonly prescribed first- and second-line regimens. These ARVs were also selected based on their relatively long half-lives, allowing for a longer period of detection following intake.

Detection of ARVs indicates participant use of a given drug at the time of blood collection. Results below the limit of detection among individuals who reported taking ART indicate that there was no recent exposure to the regimen and that adherence to a prescribed regimen is suboptimal, but cannot be interpreted as "not on ART." In addition, given the limited number of ARVs selected for detection, their absence could not rule out the use of other ART regimens that do not include them.

ARV detection was performed by the Division of Clinical Pharmacology of the Department of Medicine at the University of Cape Town, South Africa.

2.6 DATA PROCESSING AND ANALYSIS

All field data were collected on tablets, transmitted to a central server using a secure virtual private network, and stored in a secure PostgreSQL database. Data cleaning was conducted using SAS 9.4 (SAS Institute Inc. Cary, North Carolina, United States). Laboratory data were cleaned and merged with the final questionnaire database using unique specimen barcodes and study identification numbers.

All results presented in the report are based on weighted estimates unless otherwise noted. Analysis weights account for sample selection probabilities and were adjusted for nonresponse and noncoverage. Nonresponse adjusted weights were calculated for households, individual interviews, and individual blood draws in a hierarchical form. Weighting adjustment cells, defined by a combination of variables that are potential predictors of response and HIV status, were developed in order to adjust initial individual and blood-level weights for nonresponse. The nonresponse adjustment cells were constructed using chi-square automatic interaction detection, or the Chi-square Automatic Interaction Detector (CHAID) algorithm. The cells were defined based on data from the household interview for the adjustment of individual-level weights, and from both the household and individual interviews for the adjustment of blood sample-level weights. Post-stratification adjustments were implemented to compensate for noncoverage in the sampling process. This final adjustment calibrated the nonresponse-adjusted individual and blood weights to make the sum of each set of weights conform to national population totals by sex and 5-year age groups.

Descriptive analyses of RRs, characteristics of respondents, HIV prevalence, CD4 count distribution, HIV testing, self-reported HIV status, self-reported ART, VLS, prevention of mother-to-child transmission (PMTCT) indicators, and sexual behavior were conducted using SAS 9.4.

Incidence estimates were based on the number of HIV infections identified as recent with the HIV-1 LAg Avidity plus VL and ARV detection algorithm, and obtained using the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays, and with assay performance characteristics of a mean duration of recent infection (MDRI) = 130 days (95% CI: 118, 142), a time cutoff (T) = 1.0 year and percentage false recent (PFR) = 0.00.

Unless otherwise noted in the report, comparisons between estimates were based upon nonoverlapping 95% CIs; (the CIs shown in the narrative can be calculated from public use data, once released on the PHIA website).

Where applicable, the UNAIDS and PEPFAR indicators corresponding to a given table are specified at the end of the table. The UNAIDS Global Monitoring indicators refer to the 2020 release of the indicators, available at: https://www.unaids.org/sites/default/files/media_asset/global-aids-monitoring_en.pdf. PEPFAR indicators are available at: https://www.state.gov/wp-content/uploads/2019/10/PEPFAR-MER-Indicator-Reference-Guide-Version-2.4-FY20.pdf.

2.7 RESPONSE RATES

Household response rates were calculated using the American Association for Public Opinion Research Response Rate 4 method (AAPOR, 2016) as the number of complete and incomplete household interviews among all eligible households and those estimated to be eligible among those with unknown eligibility (households not located, not attempted, or unreachable).[3] Vacant and destroyed households, nonresidential units, and household units with no eligible respondents were considered not eligible and excluded from the calculation.

Individual interview RRs were calculated as the number of individuals who were interviewed divided by the number of individuals eligible to participate in the survey. Blood draw RRs were calculated as the number of individuals who provided blood divided by the number of individuals who were interviewed. All RRs presented below are weighted unless otherwise specified. All RRs presented below are weighted unless otherwise specified.

Of the 12,460 selected households, 11,707 and 10,499 were occupied and interviewed, respectively. The overall household RR (unweighted) was 89.1%. After adjusting for differential sampling probabilities and nonresponse, the overall household RR was 88.6% (Table 2.2).

A total of 22,751 individuals (9,461 men and 13,290 women) were eligible to participate in the survey. A total of 20,793 adults participated in the individual interview: interview RRs were 86.5% for men and 94.5% for women. Among those interviewed, 92.8% of men and 94.2% of women also had their blood drawn (Table 2.3).

Table 2.2 Household response rates

Number of households selected, occupied, and interviewed and household response rates (unweighted and weighted) by residence, ZIMPHIA 2020

Result	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	3,905	8,555	12,460
Households occupied	3,638	8,069	11,707
Households interviewed	3,129	7,370	10,499
Household response rate[1] (unweighted)	84.9	91.0	89.1
Household response rate[1] (weighted)	84.1	90.7	88.6

[1] Household response rate was calculated using the American Association for Public Opinion Research (AAPOR) Response Rate 4 (RR4) method: https://bit.ly/3cg21nk.

Table 2.3: Individual interview and blood draw response rates

Number of eligible individuals and response rates for individual interviews[1] and blood draws[2] (unweighted and weighted) by residence and sex, ZIMPHIA 2020

Result	Residence				Total by sex		Total
	Urban		Rural				
	Men	Women	Men	Women	Men	Women	
Eligible individuals, ages 15-24 years							
Number of eligible individuals	754	1,215	2,381	2,460	3,135	3,675	6,810
Interview response rate (unweighted)	87.5	94.6	84.5	93.6	85.3	93.9	89.9
Interview response rate (weighted)	87.5	94.3	84.8	93.8	85.5	94.0	90.1
Blood draw response rate (unweighted)	92.1	95.5	94.5	95.0	93.9	95.1	94.6
Blood draw response rate (weighted)	90.9	95.0	94.3	94.9	93.4	94.9	94.2
Eligible individuals, ages 15-49 years							
Number of eligible individuals	2,066	3,276	5,394	6,834	7,460	10,110	17,570
Interview response rate (unweighted)	83.1	94.4	86.9	95.6	85.8	95.2	91.2
Interview response rate (weighted)	82.8	94.1	86.7	95.5	85.5	95.0	91.1
Blood draw response rate (unweighted)	92.4	94.0	93.0	94.7	92.8	94.4	93.8
Blood draw response rate (weighted)	91.5	93.4	92.9	94.6	92.5	94.2	93.4
Eligible individuals, ages 15+ years							
Number of eligible individuals	2,454	3,919	7,007	9,371	9,461	13,290	22,751
Number of interviewed individuals	2,048	3,691	6,172	8,882	8,220	12,573	20,793
Number of individuals with blood draw	1,885	3,448	5,779	8,423	7,664	11,871	19,535
Interview response rate (unweighted)	83.5	94.2	88.1	94.8	86.9	94.6	91.4
Interview response rate (weighted)	83.1	94.0	87.9	94.8	86.5	94.5	91.2
Blood draw response rate (unweighted)	92.0	93.4	93.6	94.8	93.2	94.4	93.9
Blood draw response rate (weighted)	91.3	93.1	93.4	94.7	92.8	94.2	93.6
Overall response rate (unweighted)[3]	65.2	74.7	75.1	81.8	72.2	79.6	76.5

[1] Interview response rate = number of individuals interviewed/number of eligible individuals.
[2] Blood draw response rate = number of individuals who provided blood/number of individuals interviewed.
[3] Overall response rate = household response rate * interview response rate * blood draw response rate.

2.8 REFERENCES

1. Zimbabwe National Statistics Agency (ZIMSTAT). Zimbabwe Population Census 2012. Harare: ZIMSTAT; 2012. http://www.zimstat.co.zw/wp-content/uploads/publications/Population/population/census-2012-national-report.pdf. Accessed February 1, 2021.

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3. American Association for Public Opinion Research (AAPOR). Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition. AAPOR; 2016. https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf. Accessed February 1, 2021.

3. SURVEY HOUSEHOLD CHARACTERISTICS

3.1 BACKGROUND

This chapter presents characteristics of households surveyed in ZIMPHIA 2020. Household composition is described in terms of sex of the head of household, as well as the size of the household. The age structure of the de facto household population (ie, persons who slept in the household the night before) is described by sex as well as urban/rural residence. This chapter also describes the prevalence and composition of households impacted by HIV, which are households with one or more HIV-positive members.

3.2 RESULTS

The following tables and figures describe household characteristics.

Table 3.1: Household composition

Percent distribution of households by sex of head of household; median (quartile 1, quartile 3 [Q1, Q3]) size of household and median (Q1, Q3) number of children under 18 years of age, by residence, ZIMPHIA 2020

Characteristic	Residence				Total	
	Urban		Rural			
	Percent	Number	Percent	Number	Percent	Number
Head of household						
Male	39.6	1,239	47.0	3,518	44.5	4,757
Female	60.4	1,890	53.0	3,852	55.5	5,742
Total	100.0	3,129	100.0	7,370	100.0	10,499

Characteristic	Residence				Total	
	Urban		Rural			
	Median	Q1, Q3	Median	Q1, Q3	Median	Q1, Q3
Size of households	3	2, 4	4	2, 5	3	2, 5
Number of children under 18 years of age	0	0, 2	1	0, 3	1	0, 2

Table 3.2: Distribution of the de facto household population (population pyramid)

Percent distribution of the de facto household population by 5-year age groups and sex, ZIMPHIA 2020

Age	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
0-4	6.5	2,444	6.4	2,444	12.9	4,888
5-9	7.4	2,854	7.4	2,843	14.8	5,697
10-14	6.5	2,550	6.4	2,479	12.8	5,029
15-19	4.6	1,816	4.9	1,912	9.5	3,728
20-24	3.4	1,327	4.8	1,766	8.2	3,093
25-29	2.7	1,007	4.4	1,623	7.1	2,630
30-34	2.5	946	4.0	1,447	6.4	2,393
35-39	2.5	953	3.7	1,411	6.3	2,364
40-44	1.9	723	2.8	1,025	4.7	1,748
45-49	1.9	696	2.4	929	4.3	1,625
50-54	1.1	431	1.6	639	2.7	1,070
55-59	0.8	337	1.6	662	2.5	999
60-64	0.9	366	1.4	581	2.4	947
65-69	0.8	308	1.1	452	1.9	760
70-74	0.5	212	0.8	336	1.4	548
75-79	0.3	138	0.5	212	0.8	350
80+	0.5	209	0.7	298	1.2	507
Total	44.9	17,317	55.1	21,059	100.0	38,376

Figure 3.2:
Distribution of the de facto population by sex and age, ZIMPHIA 2020
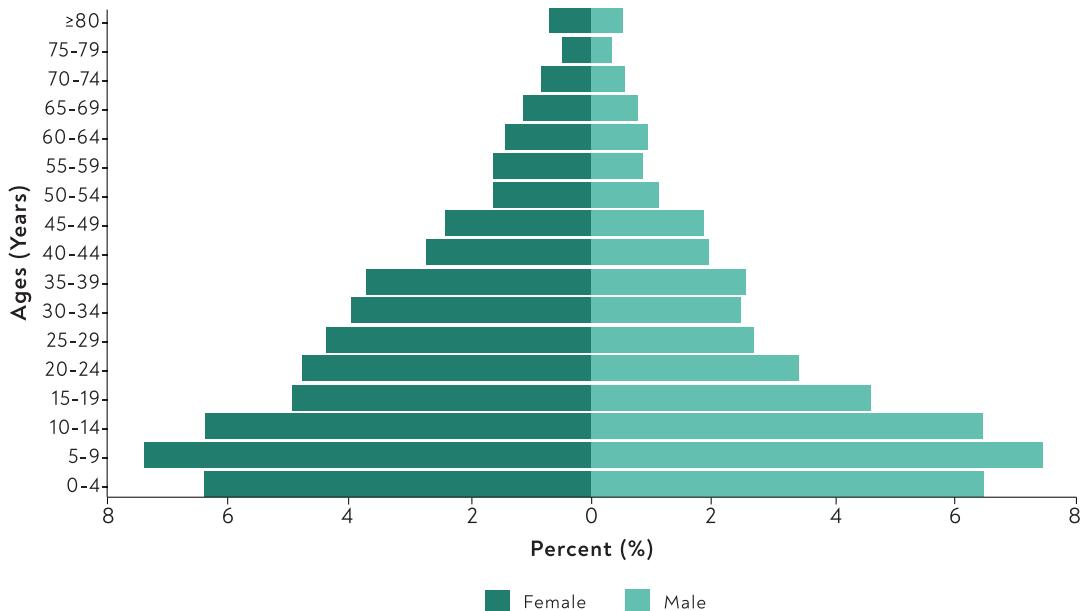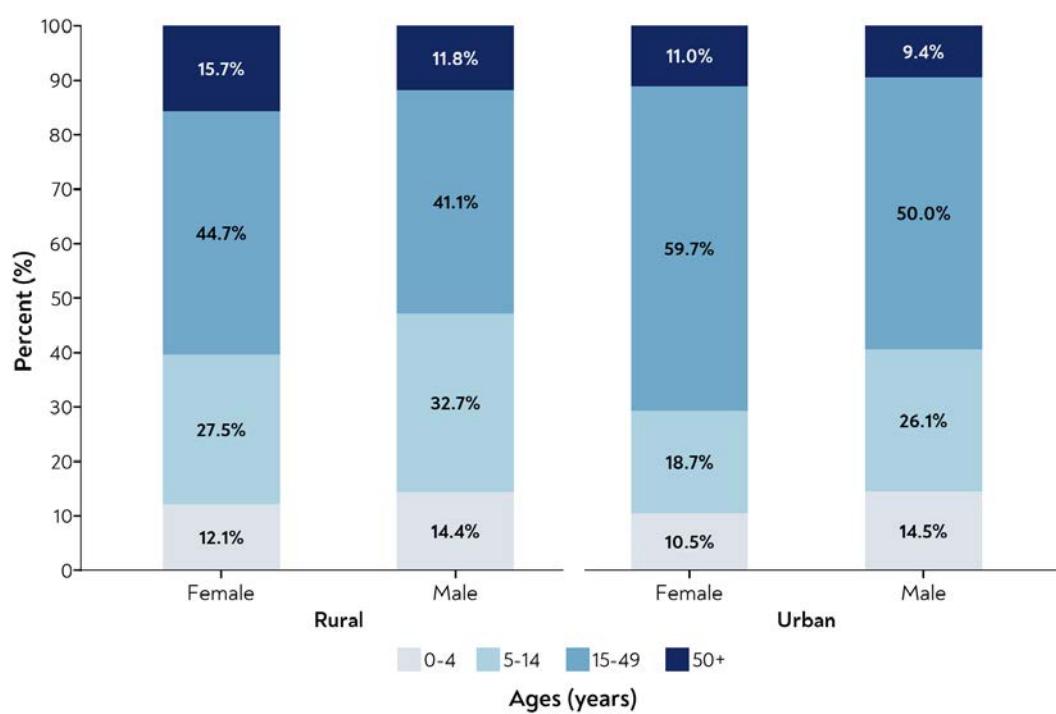
Table 3.3: Household population by age, sex, and residence

Percent distribution of the household population by age, sex, and residence, ZIMPHIA 2020

Age	Urban						Rural					
	Men		Women		Total		Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number
0-4	14.5	573	10.5	565	12.2	1,138	14.4	1,871	12.1	1,879	13.1	3,750
5-14	26.1	1,070	18.7	1,061	21.9	2,131	32.7	4,334	27.5	4,261	29.9	8,595
15-49	50.0	2,067	59.7	3,277	55.6	5,344	41.1	5,401	44.7	6,836	43.0	12,237
50+	9.4	388	11.0	643	10.3	1,031	11.8	1,613	15.7	2,537	13.9	4,150
Total	100.0	4,098	100.0	5,546	100.0	9,644	100.0	13,219	100.0	15,513	100.0	28,732

Figure 3.3: Household population by age, sex, and residence, ZIMPHIA 2020

Table 3.4: Prevalence of HIV-affected households

Percentage of households with at least one HIV-positive household member by residence, ZIMPHIA 2020

Residence	Percent	Number
Urban	22.4	2,911
Rural	23.4	6,969
Total	23.1	9,880

Figure 3.4:
Prevalence of HIV-
affected households
by residence, ZIMPHIA
2020
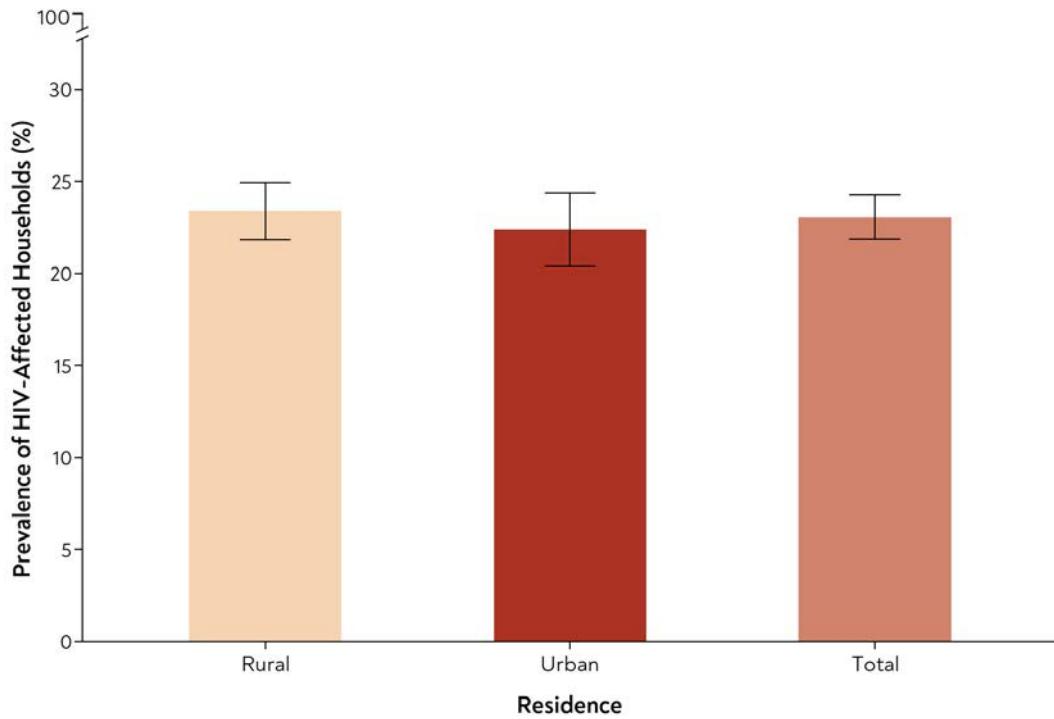
Table 3.5: Prevalence of households with an HIV-positive head of household

Percentage of households with an HIV-positive head of household, by sex of head of household, ZIMPHIA 2020

Sex of head of household	Percent	Number
Male	15.4	3,980
Female	20.7	5,209
Total	18.5	9,189
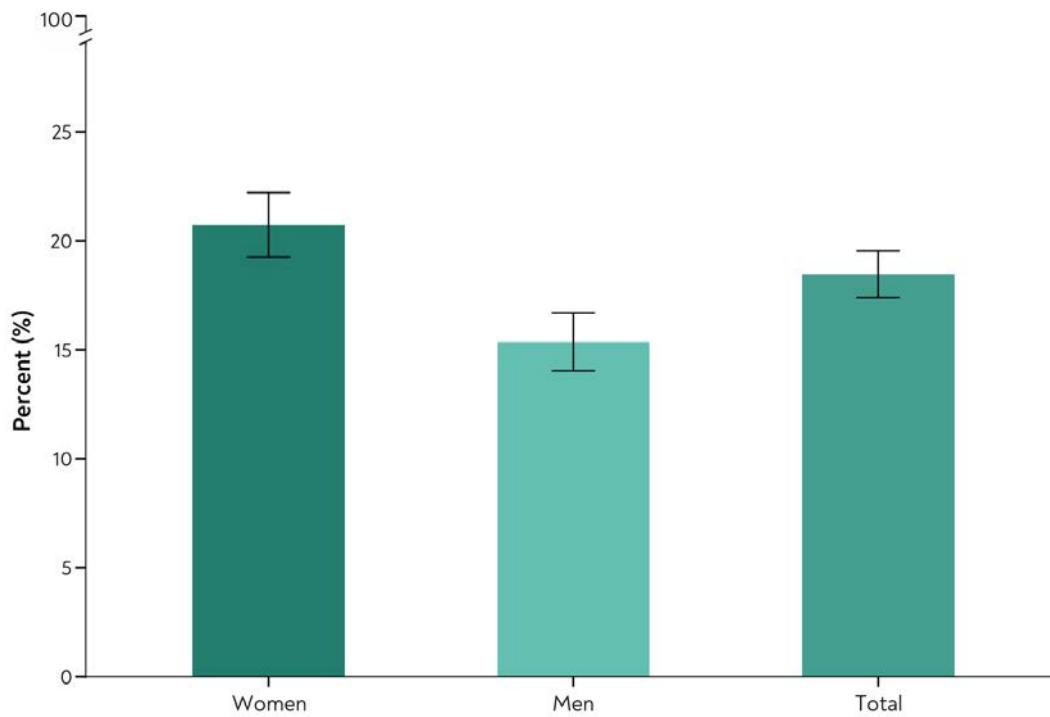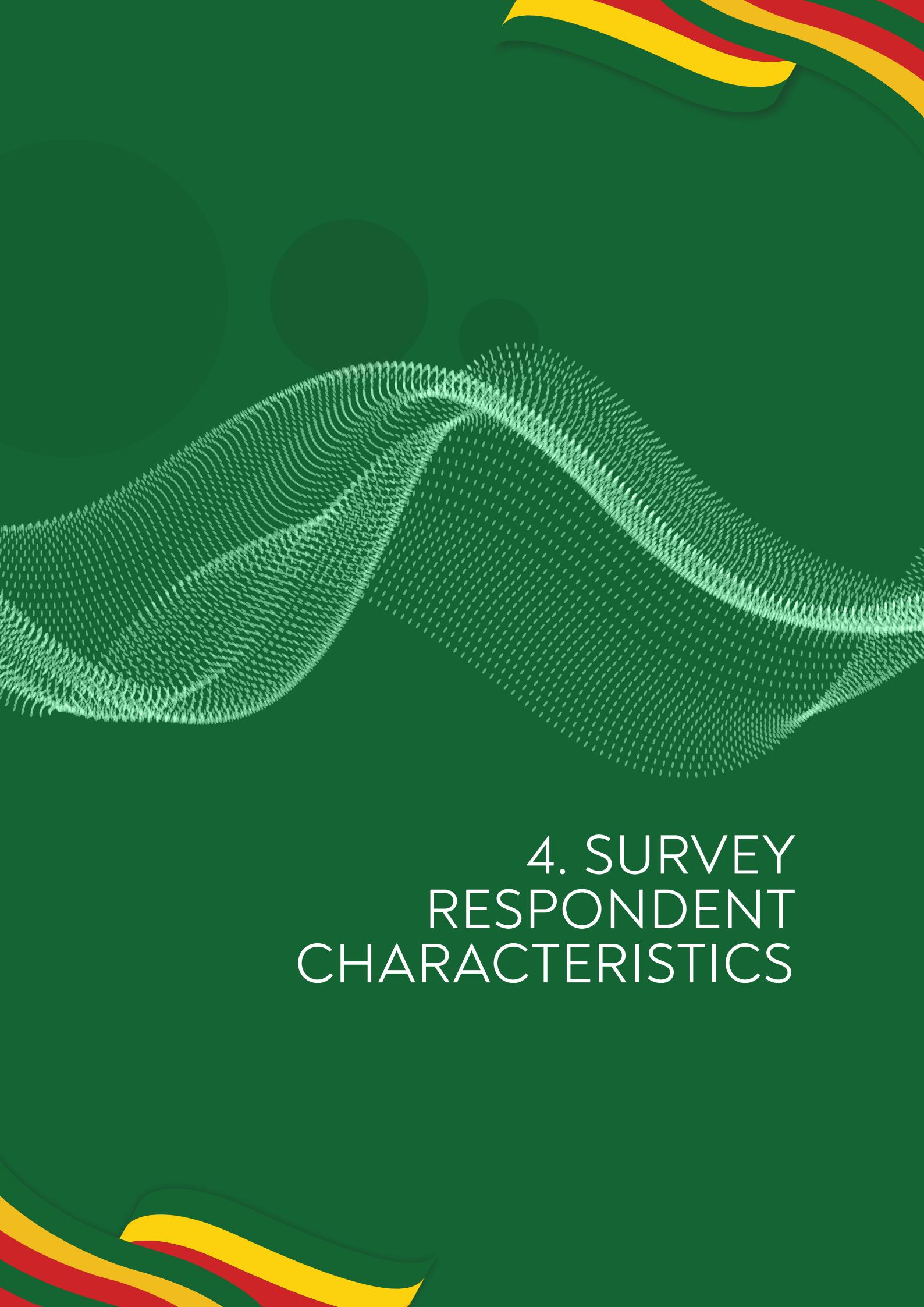
Figure 3.5:
Prevalence of households with an HIV-positive head of household by sex, ZIMPHIA 2020

4. SURVEY RESPONDENT CHARACTERISTICS

4.1 BACKGROUND

ZIMPHIA 2020 assessed key indicators and outcomes for adults (defined as those aged 15 years and older). To provide context for these outcomes, this chapter summarizes the basic demographic and socioeconomic characteristics of survey respondents. Most key indicators in this report are stratified according to these characteristics.

4.2 RESULTS

Table 4.1 presents the demographic characteristics of ZIMPHIA 2020's respondents.

Table 4.1: Demographic characteristics of the adult population

Percent distribution of the population aged 15 years and older, by sex and selected demographic characteristics, ZIMPHIA 2020						
Characteristic	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
Residence						
Urban	29.1	2,048	33.2	3,691	31.3	5,739
Rural	70.9	6,172	66.8	8,882	68.7	15,054
Province						
Bulawayo	5.2	652	5.5	1,119	5.4	1,771
Manicaland	13.8	972	14.1	1,581	14.0	2,553
Mashonaland Central	10.0	997	8.3	1,277	9.1	2,274
Mashonaland East	14.1	807	13.1	1,172	13.6	1,979
Mashonaland West	13.1	1,052	12.0	1,429	12.5	2,481
Matabeleland North	5.6	718	5.5	1,128	5.5	1,846
Matabeleland South	5.5	709	5.1	1,016	5.3	1,725
Midlands	11.0	890	11.9	1,458	11.5	2,348
Masvingo	10.1	867	10.1	1,311	10.1	2,178
Harare	11.7	556	14.3	1,082	13.1	1,638
Marital status						
Never married	38.5	2,849	20.9	2,292	29.2	5,141
Married or living together	54.5	4,711	57.0	7,262	55.8	11,973
Divorced or separated	5.7	483	9.9	1,230	7.9	1,713
Widowed	1.4	168	12.1	1,778	7.1	1,946
Education						
No education	2.0	235	4.7	696	3.5	931
Primary	28.5	2,672	32.3	4,539	30.6	7,211
Secondary	61.2	4,701	56.6	6,573	58.8	11,274
More than secondary	8.3	601	6.3	744	7.2	1,345
Wealth quintile						
Lowest	21.9	2,107	21.1	3,101	21.5	5,208
Second	21.5	1,887	20.1	2,698	20.8	4,585
Middle	20.6	1,647	18.9	2,304	19.7	3,951
Fourth	18.1	1,214	18.8	2,010	18.5	3,224
Highest	18.0	1,365	21.1	2,460	19.6	3,825

Table 4.1: Demographic characteristics of the adult population (continued)

Characteristic	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
Age						
15-19	19.6	1,538	17.3	1,762	18.4	3,300
20-24	16.7	1,135	14.9	1,689	15.7	2,824
25-29	13.3	853	13.2	1,542	13.3	2,395
30-34	10.6	823	11.8	1,386	11.2	2,209
35-39	9.5	822	10.0	1,365	9.7	2,187
40-44	8.4	623	8.0	987	8.2	1,610
45-49	6.2	610	5.8	892	6.0	1,502
50-54	4.2	395	3.9	604	4.0	999
55-59	3.2	312	3.6	636	3.4	948
60-64	2.5	328	3.5	554	3.0	882
65+	5.9	781	8.0	1,156	7.0	1,937
Total 15-24	36.4	2,673	32.2	3,451	34.1	6,124
Total 15-49	84.3	6,404	81.0	9,623	82.5	16,027
Total 50+	15.7	1,816	19.0	2,950	17.5	4,766
Total 15+	100.0	8,220	100.0	12,573	100.0	20,793

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

5. HIV INCIDENCE

5.1 BACKGROUND

HIV incidence, the measure of new HIV infections in a population over time, provides important information on the status of the HIV epidemic. It can be used for effective targeted HIV prevention planning in groups that are most vulnerable to recent infection and to measure the impact of HIV prevention programs. This chapter presents annual estimates of HIV incidence among adults (ages 15 years and older) at the national level. For the purposes of this analysis, HIV incidence is expressed as the cumulative incidence or risk of new infections in a 12-month period, which is a close approximation to the instantaneous incidence rate. It is important to note that ZIMPHIA 2020 was not powered to estimate incidence at the district level or across different sub-groups.

A laboratory-based incidence testing algorithm (HIV-1 LAg avidity plus viral load and ARV detection) was used to distinguish recent from long-term infection, and incidence estimates were obtained by the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays, and with assay performance characteristics of an MDRI = 130 days (95% CI: 118, 142), with T = 1.0 year and residual PFR = 0.00. Survey weights are utilized for all estimates. All HIV-positive participants were tested for recent infection using HIV-1 LAg avidity assay.

Incidence estimation is based on recent/long-term classification by the recent infection algorithm using limiting antigen (LAg) avidity to identify potential recent infections.[1,2,3] The algorithm uses VL testing to exclude specimens with low VL and limit misclassification of persons as recent infections who are elite controllers* or on effective ART. The algorithm uses ARV detection to exclude specimens with high VL and limit misclassification as recent infections of persons who are on ART, but have drug resistance or poor treatment adherence.

5.2 RESULTS

Table 5.1 reports estimated HIV incidence. Table 5.2 presents estimates for the total number of new infections among adults using the recent infection algorithm, as well as the total number of adults living with HIV using prevalence estimates in Chapter 6.

Table 5.1: Annual HIV incidence using the recent infection testing algorithm

Annual incidence of HIV among adults aged 15-49 and 15 years and older, by sex and age, using the recent infection testing algorithm (limiting antigen plus viral load plus antiretroviral biomarker testing), ZIMPHIA 2020

Age	Men		Women		Total	
	Percentage annual incidence[1]	95% CI	Percentage annual incidence[1]	95% CI	Percentage annual incidence[1]	95% CI
15-24	0.08	(0.00-0.27)	0.76	(0.25-1.26)	0.42	(0.14-0.70)
25-34	0.30	(0.00-0.77)	0.65	(0.06-1.24)	0.48	(0.11-0.85)
35-49	0.41	(0.00-1.00)	0.53	(0.00-1.06)	0.47	(0.07-0.87)
50+	0.00	(0.00-0.74)	0.00	(0.00-0.45)	0.00	(0.00-0.28)
15-49	0.23	(0.01-0.44)	0.67	(0.34-0.99)	0.45	(0.24-0.65)
15+	0.20	(0.02-0.37)	0.54	(0.28-0.81)	0.38	(0.20-0.55)

[1] Relates to Global AIDS Monitoring 2020 indicator 3.1: HIV incidence.

* Elite controllers are a small subset of people living with HIV whose immune systems are able to maintain viral load suppression for years without treatment.

Table 5.2: Adults living with HIV and number of new HIV infections per year using the recent infection testing algorithm

People living with HIV and number of new HIV infections per year among adults aged 15-49 years and 15 years and older, by age, using the recent infection testing algorithm (limiting antigen plus viral load plus antiretroviral biomarker testing), ZIMPHIA 2020

Age	People living with HIV[1]	95% CI	Number of new HIV infections per year	95% CI
15-24	120,000	(104,000-136,000)	13,000	(4,000-22,000)
25-34	247,000	(222,000-272,000)	10,000	(2,000-18,000)
35-49	558,000	(518,000-598,000)	8,000	(1,000-15,000)
50+	300,000	(277,000-324,000)	0	(0-4,000)
15-49	925,000	(869,000-980,000)	31,000	(17,000-45,000)
15+	1,225,000	(1,165,000-1,286,000)	31,000	(17,000-45,000)

[1] People living with HIV is calculated as the weighted total number of HIV-positive people, equivalent to multiplying the HIV prevalence by the population count.

5.3 REFERENCES

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6. HIV PREVALENCE

6.1 BACKGROUND

This chapter presents representative estimates of HIV prevalence among adults aged 15 years and older at the national and zonal level by selected demographic and behavioral characteristics. It also presents estimates of the number of people living with HIV in Zimbabwe. HIV prevalence testing was conducted in each household using a serological rapid diagnostic testing algorithm based on Zimbabwe's national guidelines, with laboratory confirmation of seropositive samples using a supplemental assay. Appendix B describes the PHIA HIV testing methodology.

6.2 RESULTS

The following tables and figures report estimated HIV prevalence data by demographic characteristics.

Table 6.1: HIV prevalence by demographic characteristics: Adults aged 15-49 years

Prevalence of HIV among adults aged 15-49 years, by sex and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Residence						
Urban	8.4	1,586	13.8	2,905	11.4	4,491
Rural	8.6	4,360	15.3	6,183	12.0	10,543
Province						
Bulawayo	8.0	509	15.8	855	12.1	1,364
Manicaland	6.4	694	12.6	1,117	9.6	1,811
Mashonaland Central	9.7	737	15.6	948	12.5	1,685
Mashonaland East	7.8	565	14.3	811	11.1	1,376
Mashonaland West	8.5	780	15.7	1,053	12.1	1,833
Matabeleland North	10.7	502	16.2	779	13.5	1,281
Matabeleland South	8.9	470	22.2	646	15.4	1,116
Midlands	9.9	659	15.2	1,088	12.7	1,747
Masvingo	8.3	604	13.9	932	11.3	1,536
Harare	9.1	426	13.2	859	11.5	1,285
Marital status						
Never married	3.0	2,618	6.1	2,109	4.2	4,727
Married or living together	12.2	2,924	13.5	5,650	12.9	8,574
Divorced or separated	17.6	365	29.6	942	25.5	1,307
Widowed	(63.4)	31	53.9	380	54.8	411
Education						
No education	11.8	51	21.8	131	18.4	182
Primary	11.4	1,681	20.3	2,730	16.2	4,411
Secondary	7.7	3,809	13.1	5,661	10.5	9,470
More than secondary	6.1	400	7.2	559	6.6	959

Table 6.1: HIV prevalence by demographic characteristics: Adults aged 15-49 years (continued)

Prevalence of HIV among adults aged 15-49 years, by sex and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Wealth quintile						
Lowest	9.9	1,485	15.0	2,169	12.5	3,654
Second	8.7	1,302	17.1	1,783	12.8	3,085
Middle	8.7	1,191	16.1	1,609	12.3	2,800
Fourth	9.0	934	13.9	1,620	11.6	2,554
Highest	6.4	1,034	12.4	1,907	9.8	2,941
Pregnancy status						
Currently pregnant	0.0	NA	11.9	573	0.0	NA
Not currently pregnant	0.0	NA	15.1	8,373	0.0	NA
Total 15-49	8.6	5,946	14.8	9,088	11.8	15,034

( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 6.2: HIV prevalence by demographic characteristics: Adults aged 15 years and older

Prevalence of HIV among adults aged 15 years and older, by sex and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Residence						
Urban	10.1	1,885	14.7	3,448	12.7	5,333
Rural	10.3	5,779	15.6	8,423	13.0	14,202
Province						
Bulawayo	10.8	610	16.8	1,050	14.0	1,660
Manicaland	7.7	891	12.4	1,469	10.2	2,360
Mashonaland Central	10.5	929	15.7	1,198	13.0	2,127
Mashonaland East	10.2	729	14.5	1,078	12.4	1,807
Mashonaland West	9.5	997	16.0	1,367	12.8	2,364
Matabeleland North	12.5	678	17.1	1,075	14.9	1,753
Matabeleland South	12.5	645	22.3	954	17.6	1,599
Midlands	11.1	856	15.3	1,412	13.4	2,268
Masvingo	10.5	821	15.1	1,265	13.0	2,086
Harare	10.5	508	14.2	1,003	12.6	1,511

Table 6.2: HIV prevalence by demographic characteristics: Adults aged 15 years and older (continued)

Prevalence of HIV among adults aged 15 years and older, by sex and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Marital status						
Never married	3.2	2,655	6.7	2,183	4.5	4,838
Married or living together	13.7	4,391	13.0	6,846	13.3	11,237
Divorced or separated	18.1	452	29.4	1,181	25.6	1,633
Widowed	37.7	157	29.1	1,650	29.9	1,807
Education						
No education	10.5	223	16.5	663	14.9	886
Primary	12.6	2,519	19.2	4,307	16.3	6,826
Secondary	9.5	4,404	13.7	6,216	11.6	10,620
More than secondary	7.1	507	8.3	666	7.6	1,173
Wealth quintile						
Lowest	11.1	1,976	15.5	2,968	13.4	4,944
Second	10.3	1,790	16.7	2,564	13.6	4,354
Middle	10.9	1,538	16.1	2,168	13.5	3,706
Fourth	10.3	1,112	15.0	1,863	12.8	2,975
Highest	8.3	1,248	13.1	2,308	11.1	3,556
Pregnancy status						
Currently pregnant	0.0	NA	11.8	577	0.0	NA
Not currently pregnant	0.0	NA	15.5	11,151	0.0	NA
Total 15+	10.2	7,664	15.3	11,871	12.9	19,535

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Figure 6.2.1:
HIV prevalence among adults by province, ZIMPHIA 2020
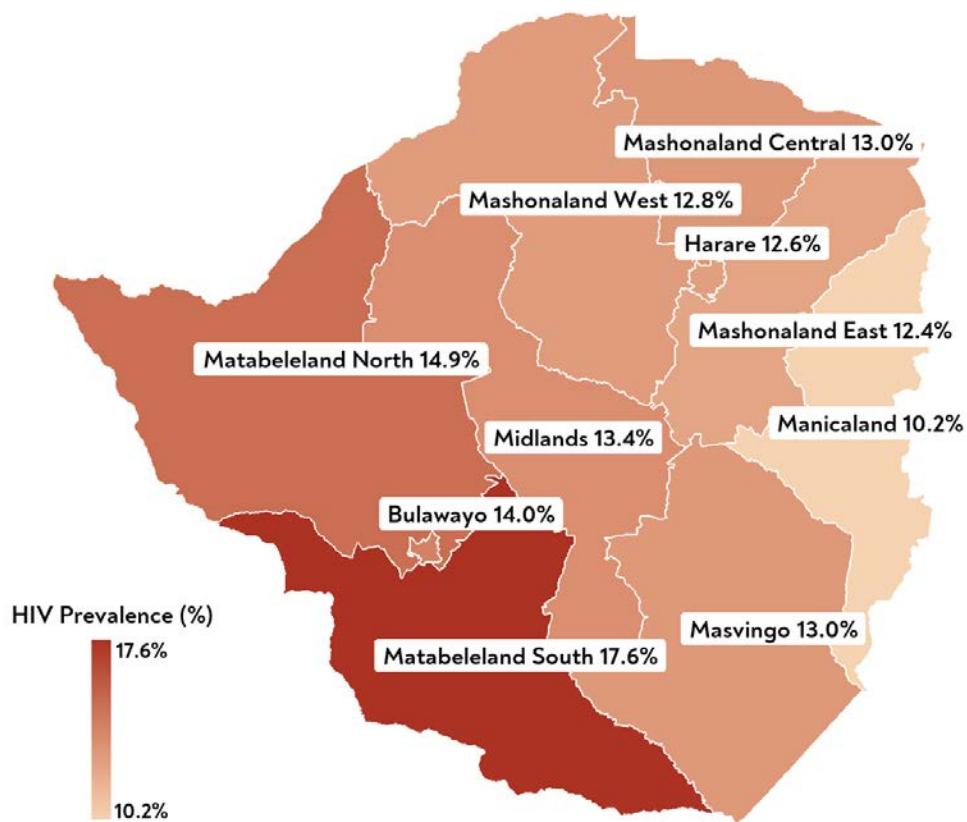
Figure 6.2.2:
HIV prevalence among adults by province, ZIMPHIA 2020
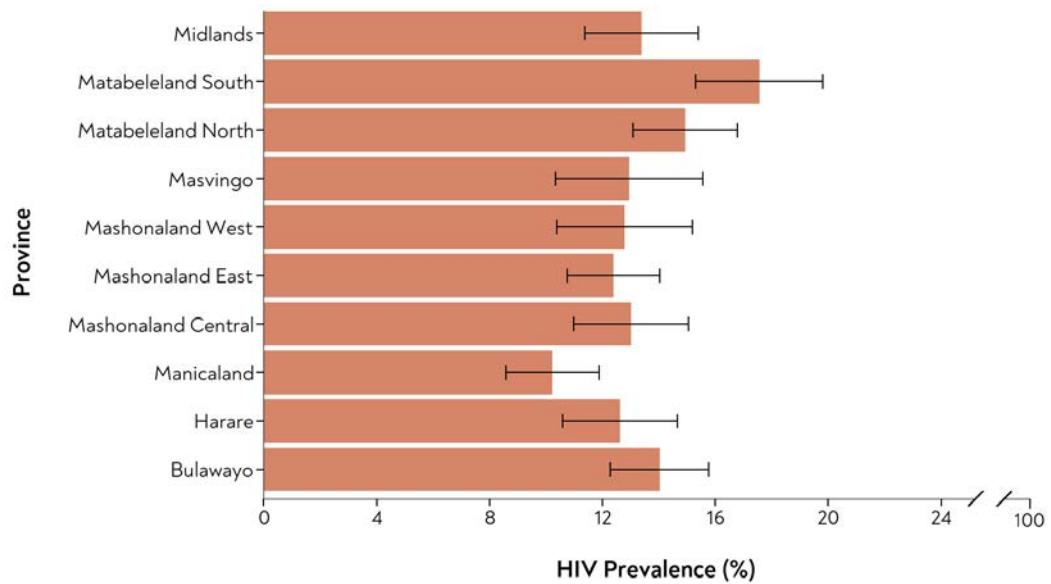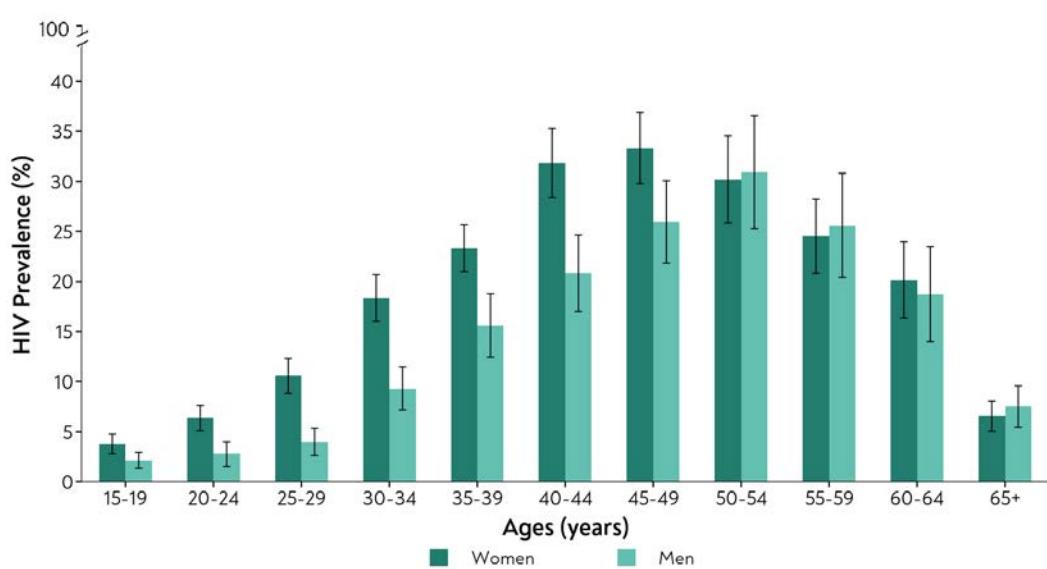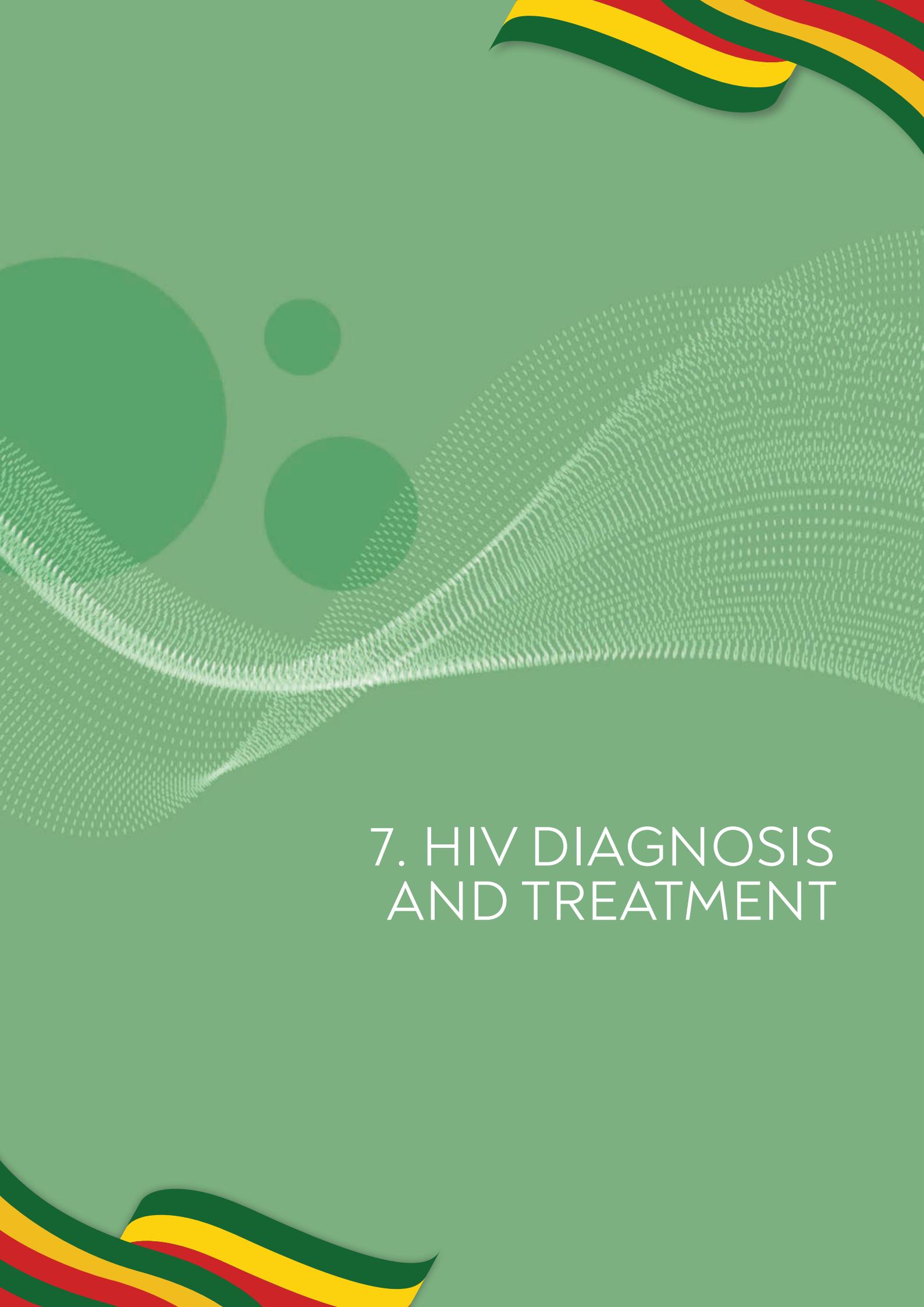
Table 6.3: HIV prevalence by age and sex

Prevalence of HIV among adults aged 15 years and older, by sex and age, ZIMPHIA 2020						
	Men		Women		Total	
Age	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
15-19	2.1	1,455	3.8	1,676	2.9	3,131
20-24	2.8	1,055	6.4	1,607	4.6	2,662
25-29	4.0	778	10.6	1,441	7.5	2,219
30-34	9.3	758	18.4	1,299	14.4	2,057
35-39	15.6	757	23.3	1,290	19.8	2,047
40-44	20.8	576	31.8	922	26.5	1,498
45-49	26.0	567	33.3	853	29.8	1,420
50-54	30.9	374	30.2	588	30.5	962
55-59	25.6	293	24.5	609	25.0	902
60-64	18.7	311	20.2	519	19.6	830
65+	7.5	740	6.6	1,067	6.9	1,807
Total 15-24	2.4	2,510	5.0	3,283	3.7	5,793
Total 15-49	8.6	5,946	14.8	9,088	11.8	15,034
Total 50+	19.2	1,718	17.3	2,783	18.1	4,501
Total 15+	10.2	7,664	15.3	11,871	12.9	19,535

Figure 6.3:
HIV prevalence by age and sex, ZIMPHIA 2020

7. HIV DIAGNOSIS AND TREATMENT

7.1 BACKGROUND

HIV testing is necessary for awareness of HIV status and is an essential component of HIV epidemic control targets. Awareness of HIV-positive status is the first step to engagement with HIV care and treatment services, accessing ART, prevention counseling for HIV-positive and HIV-negative individuals to reduce risk of HIV transmission or acquisition, and access to screening services for other comorbidities. While many countries have expanded uptake of HIV testing services, making certain that everyone knows their current HIV status remains a challenge. ZIMPHIA 2020 gathered data on HIV testing and awareness to help identify gaps in testing uptake, and whether there are subpopulations in need of enhanced or differentiated HIV testing services such as self-testing and index case testing.

Once someone has been diagnosed, current guidelines recommend that they immediately be linked to HIV treatment services in order to start ART as soon as possible.[1,2] Treating people living with HIV while their CD4 counts are still high improves immune recovery, decreases the incidence of non-AIDS events, comorbidities and mortality, and reduces sexual and vertical transmission. In 2016, after extensive review of evidence of both the clinical and population-level benefits of expanding ART, WHO changed its ART policy recommendations to "Treat All" regardless of CD4 count. By November 2017, all countries in sub-Saharan Africa had adopted this policy, despite the challenges in ensuring uptake and implementation.[2] The "Treat All" policy was adopted in Zimbabwe in 2016.[3]

7.2 RESULTS

Tables 7.1.A-C report on self-reported uptake of testing and receipt of results (ever or within the 12 months before the survey) among men, women, and adults aged 15 years and older by survey HIV test result and other selected characteristics. Figure 7.1 illustrates self-reported testing in the 12 months before the survey in order to understand frequent or recent testing, by age and sex.

Tables 7.2.A-C and Figure 7.2 present the proportion of participants who tested positive in ZIMPHIA 2020 who were unaware of their status, or were aware of their HIV-positive status and were on or not on ART. Note that since participants are sometimes reluctant to reveal their HIV and treatment status in a household survey, ZIMPHIA 2020 determined whether they were aware of their status and taking ART, as determined by the presence of selected ARVs (efavirenz, nevirapine, atazanavir and dolutegravir) in blood as markers of first- and second-line regimens prescribed in the country at the time of the survey.

Finally, since many tables in this report describe estimates among self-reported people living with HIV without adjustment for ARV detection, Tables 7.3.A-C reports the concordance of self-reported and actual ART use based upon ARV biomarker data.

Table 7.1.A: Self-reported HIV testing: Men

Percentage of men aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all men			Among men who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Result of ZIMPHIA HIV test						
HIV positive	93.0	31.9	885	66.7	27.0	166
HIV negative	74.5	35.4	6,531	74.5	35.4	6,525
Not tested	74.5	47.0	542	74.0	47.3	528

Table 7.1.A: Self-reported HIV testing: Men (continued)

Percentage of men aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all men			Among men who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Residence						
Urban	80.8	39.0	1,990	79.2	39.8	1,812
Rural	74.5	34.6	5,968	72.2	34.6	5,407
Province						
Bulawayo	84.1	38.3	633	82.7	39.2	571
Manicaland	71.9	31.4	938	70.0	30.8	872
Mashonaland Central	74.1	34.7	971	72.2	34.9	896
Mashonaland East	75.6	38.0	775	73.3	37.8	705
Mashonaland West	80.9	40.4	1,023	79.4	41.4	941
Matabeleland North	77.1	30.5	700	74.6	30.6	612
Matabeleland South	79.2	35.2	691	76.8	36.7	610
Midlands	70.7	32.5	857	67.7	32.3	768
Masvingo	75.9	36.3	837	73.9	36.8	762
Harare	79.9	39.3	533	78.0	39.8	482
Marital status						
Never married	63.2	27.5	2,776	62.4	27.2	2,713
Married or living together	84.7	41.4	4,555	82.8	42.4	3,999
Divorced or separated	85.7	42.8	461	83.4	44.5	389
Widowed	78.9	27.8	157	68.2	31.4	109
Education						
No education	69.5	37.7	224	66.5	37.7	201
Primary	71.0	31.6	2,561	67.7	31.3	2,273
Secondary	78.1	36.4	4,573	76.4	36.8	4,180
More than secondary	83.0	46.0	589	82.2	47.0	555
Wealth quintile						
Lowest	72.9	32.5	2,045	70.3	32.2	1,825
Second	71.8	32.5	1,814	69.3	32.8	1,646
Middle	77.3	36.8	1,589	75.2	37.0	1,447
Fourth	81.9	39.6	1,177	80.3	40.0	1,057
Highest	79.2	39.2	1,333	77.9	40.0	1,244

Table 7.1.A: Self-reported HIV testing: Men (continued)

Percentage of men aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all men			Among men who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Age						
15-19	51.1	16.9	1,492	50.3	16.6	1,467
20-24	77.0	38.1	1,107	76.7	37.9	1,094
25-29	85.8	49.6	838	85.5	49.9	823
30-34	87.2	46.1	807	86.5	46.7	753
35-39	87.0	44.5	799	85.2	46.1	706
40-44	86.3	39.0	606	83.5	39.3	499
45-49	86.2	36.7	586	82.2	37.5	446
50-54	83.1	35.1	390	77.2	37.9	287
55-59	77.9	29.5	297	71.0	32.3	226
60-64	81.0	30.8	307	77.3	30.9	251
65+	67.8	29.6	729	65.0	29.0	667
Total 15-24	63.0	26.6	2,599	62.5	26.4	2,561
Total 15-49	76.4	36.7	6,235	74.8	36.8	5,788
Total 50+	76.1	31.3	1,723	71.0	32.1	1,431
Total 15+	76.3	35.9	7,958	74.3	36.1	7,219

[1] Relates to PEPFAR indicator HTS_TST: Number of individuals who received HIV testing services and received their test results.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 7.1.B: Self-reported HIV testing: Women

Percentage of women aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all women			Among women who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Result of ZIMPHIA HIV test						
HIV positive	97.6	33.4	1,992	84.9	42.2	263
HIV negative	83.2	49.5	9,437	83.2	49.5	9,427
Not tested	75.9	52.0	687	74.5	52.2	645
Residence						
Urban	85.8	47.9	3,582	84.0	49.9	3,090
Rural	84.4	47.0	8,534	82.0	49.3	7,245

Table 7.1.B: Self-reported HIV testing: Women (continued)

Percentage of women aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all women			Among women who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Province						
Bulawayo	85.6	46.2	1,092	83.2	49.2	922
Manicaland	81.4	42.5	1,514	79.1	44.0	1,335
Mashonaland Central	87.9	49.4	1,237	86.1	50.8	1,068
Mashonaland East	83.8	44.7	1,131	81.6	46.6	981
Mashonaland West	86.5	54.5	1,386	84.3	57.8	1,167
Matabeleland North	86.0	44.5	1,087	83.5	47.9	900
Matabeleland South	84.1	44.1	985	80.5	48.5	785
Midlands	82.7	45.3	1,402	80.0	48.2	1,201
Masvingo	83.7	49.2	1,240	81.2	50.4	1,059
Harare	88.3	50.0	1,042	87.0	51.6	917
Marital status						
Never married	58.6	32.1	2,237	56.6	31.7	2,096
Married or living together	95.0	55.8	7,012	94.3	58.8	6,150
Divorced or separated	94.6	52.3	1,186	93.0	59.7	860
Widowed	75.2	29.0	1,671	66.4	27.8	1,221
Education						
No education	69.9	32.0	637	64.9	31.9	542
Primary	83.1	42.7	4,339	79.7	45.1	3,530
Secondary	86.4	50.9	6,396	84.7	53.0	5,580
More than secondary	91.0	49.5	724	90.3	51.2	665
Wealth quintile						
Lowest	83.2	46.3	2,976	80.6	48.7	2,520
Second	84.8	46.4	2,576	82.3	48.7	2,169
Middle	84.5	46.9	2,218	82.0	49.3	1,879
Fourth	87.3	50.5	1,959	85.7	53.1	1,668
Highest	84.6	46.5	2,387	82.8	48.0	2,099

Table 7.1.B: Self-reported HIV testing: Women (continued)

Percentage of women aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all women			Among women who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Age						
15-19	55.9	34.4	1,716	55.0	34.2	1,672
20-24	91.5	61.4	1,650	91.0	62.1	1,564
25-29	97.9	63.7	1,516	97.7	65.8	1,385
30-34	98.3	59.8	1,353	98.0	63.4	1,136
35-39	97.3	53.9	1,323	96.5	58.5	1,037
40-44	95.6	44.4	960	93.9	51.4	691
45-49	96.0	39.7	855	94.1	45.4	586
50-54	89.1	34.8	575	84.5	38.2	410
55-59	85.5	34.1	601	81.3	35.8	457
60-64	76.8	27.6	520	71.7	27.5	412
65+	59.0	21.3	1,047	56.6	20.9	985
Total 15-24	72.4	46.9	3,366	71.5	47.0	3,236
Total 15-49	87.4	51.7	9,373	85.6	54.1	8,071
Total 50+	73.8	27.8	2,743	68.7	27.8	2,264
Total 15+	84.9	47.3	12,116	82.6	49.5	10,335

[1]Relates to PEPFAR indicator HTS_TST: Number of individuals who received HIV testing services and received their test results.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 7.1.C: Self-reported HIV testing: Total

Percentage of adults aged 15 years and older who reported that they had ever received an HIV test, and percentage who reported they received an HIV test in the 12 months before the survey, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all adults			Among adults who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Result of ZIMPHIA HIV test						
HIV positive	95.8	32.9	2,877	76.7	35.3	429
HIV negative	79.0	42.7	15,968	79.0	42.7	15,952
Not tested	75.2	49.4	1,229	74.2	49.6	1,173
Residence						
Urban	83.6	44.0	5,572	81.8	45.4	4,902
Rural	79.6	41.0	14,502	77.1	41.9	12,652

Table 7.1.C: Self-reported HIV testing: Total (continued)

Percentage of adults aged 15 years and older who reported that they had ever received an HIV test, and percentage who reported they received an HIV test in the 12 months before the survey, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all adults			Among adults who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Province						
Bulawayo	84.9	42.6	1,725	82.9	44.5	1,493
Manicaland	77.0	37.3	2,452	74.8	37.7	2,207
Mashonaland Central	80.8	41.8	2,208	78.7	42.3	1,964
Mashonaland East	79.8	41.4	1,906	77.5	42.3	1,686
Mashonaland West	83.7	47.5	2,409	81.8	49.3	2,108
Matabeleland North	81.8	37.9	1,787	79.1	39.4	1,512
Matabeleland South	81.7	39.8	1,676	78.6	42.4	1,395
Midlands	77.3	39.5	2,259	74.3	40.8	1,969
Masvingo	80.0	43.1	2,077	77.6	43.7	1,821
Harare	84.8	45.5	1,575	83.2	46.6	1,399
Marital status						
Never married	61.4	29.3	5,013	60.2	28.9	4,809
Married or living together	90.2	49.2	11,567	89.0	51.3	10,149
Divorced or separated	91.6	49.1	1,647	89.5	54.1	1,249
Widowed	75.5	28.9	1,828	66.6	28.1	1,330
Education						
No education	69.8	33.6	861	65.4	33.6	743
Primary	77.8	37.8	6,900	74.2	38.7	5,803
Secondary	82.4	43.9	10,969	80.6	44.9	9,760
More than secondary	86.7	47.6	1,313	85.9	49.0	1,220
Wealth quintile						
Lowest	78.3	39.7	5,021	75.5	40.5	4,345
Second	78.5	39.7	4,390	75.7	40.7	3,815
Middle	81.0	42.0	3,807	78.5	43.1	3,326
Fourth	84.9	45.5	3,136	83.2	47.0	2,725
Highest	82.3	43.3	3,720	80.6	44.4	3,343

Table 7.1.C: Self-reported HIV testing: Total (continued)

Percentage of adults aged 15 years and older who reported that they had ever received an HIV test, and percentage who reported they received an HIV test in the 12 months before the survey, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all adults			Among adults who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Age						
15-19	53.5	25.7	3,208	52.6	25.4	3,139
20-24	84.3	49.8	2,757	83.8	49.9	2,658
25-29	92.1	57.1	2,354	91.7	58.1	2,208
30-34	93.4	53.8	2,160	92.6	55.6	1,889
35-39	92.5	49.6	2,122	91.0	52.5	1,743
40-44	91.1	41.8	1,566	88.6	45.2	1,190
45-49	91.2	38.2	1,441	87.9	41.3	1,032
50-54	86.1	34.9	965	80.8	38.0	697
55-59	82.2	32.1	898	76.8	34.3	683
60-64	78.5	28.8	827	73.9	28.8	663
65+	62.5	24.6	1,776	59.9	24.1	1,652
Total 15-24	67.7	36.8	5,965	66.9	36.6	5,797
Total 15-49	82.1	44.5	15,608	80.3	45.5	13,859
Total 50+	74.8	29.3	4,466	69.7	29.6	3,695
Total 15+	80.9	41.9	20,074	78.6	43.0	17,554

[1]Relates to PEPFAR indicator HTS_TST: Number of individuals who received HIV testing services and received their test results.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.
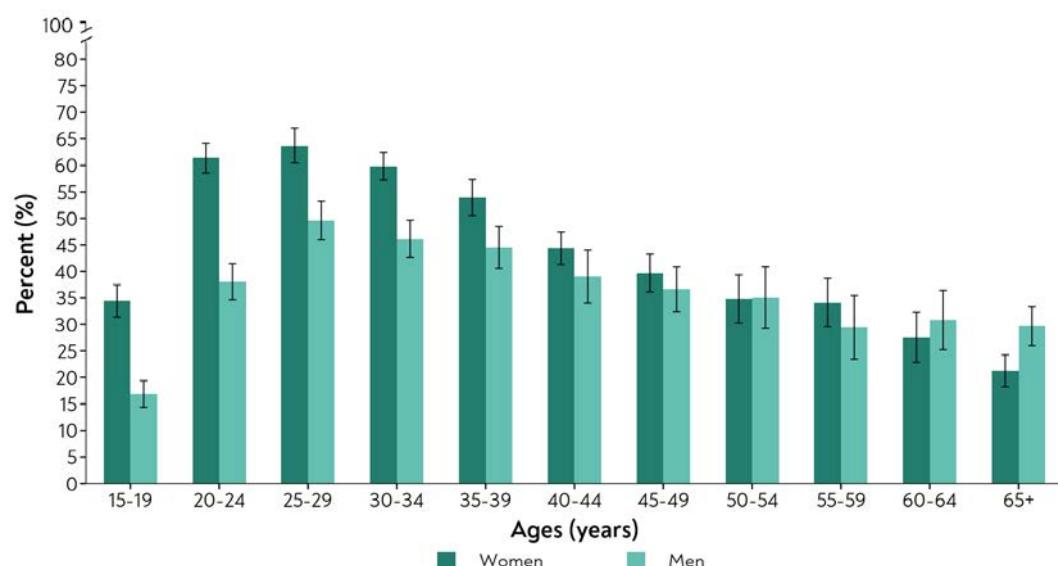
Figure 7.1:
Proportion of adults who reported having received an HIV test in the 12 months before the survey, by age and sex, ZIMPHIA 2020

Table 7.2.A: HIV diagnosis and treatment status: Men

Percent distribution of HIV-positive men, aged 15 years and older, diagnosed and on treatment based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
Residence					
Urban	17.2	5.8	77.0	100.0	224
Rural	15.1	2.5	82.4	100.0	682
Province					
Bulawayo	16.0	7.4	76.6	100.0	78
Manicaland	11.4	1.5	87.1	100.0	77
Mashonaland Central	26.4	1.6	72.0	100.0	107
Mashonaland East	8.4	3.0	88.5	100.0	82
Mashonaland West	17.7	1.7	80.6	100.0	103
Matabeleland North	10.7	0.0	89.3	100.0	97
Matabeleland South	9.3	1.0	89.8	100.0	93
Midlands	16.1	6.1	77.8	100.0	107
Masvingo	21.9	4.3	73.8	100.0	99
Harare	16.7	7.2	76.1	100.0	63
Marital status					
Never married	24.0	4.6	71.3	100.0	93
Married or living together	14.4	3.1	82.4	100.0	671
Divorced or separated	18.1	5.4	76.5	100.0	88
Widowed	9.4	1.7	89.0	100.0	54
Education					
No education	(10.4)	(0.0)	(89.6)	(100.0)	26
Primary	15.5	3.9	80.6	100.0	347
Secondary	16.4	3.5	80.1	100.0	490
More than secondary	(10.2)	(2.1)	(87.7)	(100.0)	41
Wealth quintile					
Lowest	14.6	2.9	82.5	100.0	254
Second	14.5	4.9	80.6	100.0	209
Middle	16.4	1.9	81.7	100.0	183
Fourth	16.5	3.8	79.7	100.0	142
Highest	17.0	4.2	78.8	100.0	118
Age					
15-19	(19.8)	(3.2)	(77.0)	(100.0)	33
20-24	(35.7)	(2.9)	(61.4)	(100.0)	31
25-29	(54.3)	(0.0)	(45.7)	(100.0)	36
30-34	25.6	9.7	64.7	100.0	81
35-39	19.7	1.9	78.4	100.0	123

Table 7.2.A: HIV diagnosis and treatment status: Men (continued)

Percent distribution of HIV-positive men, aged 15 years and older, diagnosed and on treatment based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
40-44	9.7	3.8	86.5	100.0	123
45-49	9.4	2.8	87.8	100.0	159
50-54	7.6	2.0	90.4	100.0	118
55-59	7.1	8.2	84.7	100.0	77
60-64	9.7	0.0	90.3	100.0	63
65+	1.1	0.0	98.9	100.0	62
Total 15-24	28.1	3.1	68.8	100.0	64
Total 15-49	19.4	3.6	77.0	100.0	586
Total 50+	6.8	3.1	90.1	100.0	320
Total 15+	15.7	3.5	80.9	100.0	906

[1] Relates to Global AIDS Monitoring 2020 indicator 1.2: People living with HIV on ART; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving ART.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 7.2.B: HIV diagnosis and treatment status: Women

Percent distribution of HIV-positive women, aged 15 years and older, diagnosed and on treatment, based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
Residence					
Urban	14.5	2.2	83.3	100.0	582
Rural	10.4	2.1	87.5	100.0	1,470
Province					
Bulawayo	14.0	2.3	83.6	100.0	196
Manicaland	10.8	0.9	88.3	100.0	203
Mashonaland Central	11.0	2.2	86.8	100.0	202
Mashonaland East	13.2	1.6	85.2	100.0	173
Mashonaland West	6.5	2.9	90.5	100.0	235
Matabeleland North	7.4	1.2	91.4	100.0	205
Matabeleland South	11.7	1.3	87.1	100.0	231
Midlands	12.5	2.8	84.7	100.0	238
Masvingo	9.0	2.3	88.7	100.0	211
Harare	18.7	2.9	78.4	100.0	158
Marital status					
Never married	17.1	3.1	79.8	100.0	185
Married or living together	12.5	2.3	85.2	100.0	990
Divorced or separated	10.8	2.4	86.8	100.0	373
Widowed	8.7	1.1	90.2	100.0	502

Table 7.2.B: HIV diagnosis and treatment status: Women (continued)

Percent distribution of HIV-positive women, aged 15 years and older, diagnosed and on treatment, based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
Education					
No education	9.5	1.5	89.1	100.0	120
Primary	8.0	1.6	90.4	100.0	900
Secondary	14.9	2.7	82.4	100.0	966
More than secondary	11.1	1.1	87.8	100.0	63
Wealth quintile					
Lowest	9.3	2.0	88.7	100.0	521
Second	11.3	1.0	87.7	100.0	474
Middle	9.7	2.5	87.8	100.0	377
Fourth	12.7	2.6	84.7	100.0	333
Highest	16.2	2.8	81.0	100.0	347
Age					
15-19	23.2	2.3	74.4	100.0	66
20-24	22.6	4.8	72.6	100.0	117
25-29	24.5	2.1	73.3	100.0	168
30-34	13.9	2.4	83.7	100.0	257
35-39	7.0	3.3	89.7	100.0	318
40-44	11.0	2.8	86.3	100.0	308
45-49	5.3	1.1	93.6	100.0	289
50-54	3.6	0.8	95.5	100.0	176
55-59	7.5	0.6	91.8	100.0	162
60-64	7.1	0.0	92.9	100.0	115
65+	13.7	0.0	86.3	100.0	76
Total 15-24	22.8	3.8	73.4	100.0	183
Total 15-49	13.0	2.6	84.4	100.0	1,523
Total 50+	7.0	0.5	92.5	100.0	529
Total 15+	11.7	2.1	86.2	100.0	2,052

[1] Relates to Global AIDS Monitoring 2020 indicator 1.2: People living with HIV on ART; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving ART.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 7.2.C: HIV diagnosis and treatment status: Total

Percent distribution of HIV-positive adults, aged 15 years and older, diagnosed and on treatment, based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
Residence					
Urban	15.4	3.5	81.1	100.0	806
Rural	12.2	2.3	85.6	100.0	2,152
Province					
Bulawayo	14.7	4.1	81.2	100.0	274
Manicaland	11.0	1.1	87.9	100.0	280
Mashonaland Central	17.4	1.9	80.7	100.0	309
Mashonaland East	11.3	2.2	86.5	100.0	255
Mashonaland West	10.6	2.5	86.9	100.0	338
Matabeleland North	8.7	0.7	90.6	100.0	302
Matabeleland South	10.8	1.2	88.0	100.0	324
Midlands	13.8	4.0	82.2	100.0	345
Masvingo	13.8	3.1	83.1	100.0	310
Harare	18.0	4.4	77.6	100.0	221
Marital status					
Never married	20.1	3.8	76.2	100.0	278
Married or living together	13.4	2.7	83.9	100.0	1,661
Divorced or separated	12.5	3.1	84.4	100.0	461
Widowed	8.7	1.2	90.1	100.0	556
Education					
No education	9.6	1.2	89.2	100.0	146
Primary	10.5	2.4	87.1	100.0	1,247
Secondary	15.5	3.0	81.5	100.0	1,456
More than secondary	10.7	1.6	87.7	100.0	104
Wealth quintile					
Lowest	11.4	2.4	86.2	100.0	775
Second	12.5	2.4	85.1	100.0	683
Middle	12.3	2.3	85.4	100.0	560
Fourth	14.1	3.0	82.9	100.0	475
Highest	16.4	3.3	80.3	100.0	465
Age					
15-19	22.0	2.7	75.4	100.0	99
20-24	26.5	4.2	69.3	100.0	148
25-29	32.0	1.6	66.4	100.0	204
30-34	17.2	4.5	78.3	100.0	338
35-39	11.6	2.8	85.6	100.0	441

Table 7.2.C: HIV diagnosis and treatment status: Total (continued)

Percent distribution of HIV-positive adults, aged 15 years and older, diagnosed and on treatment, based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, ZIMPHIA 2020
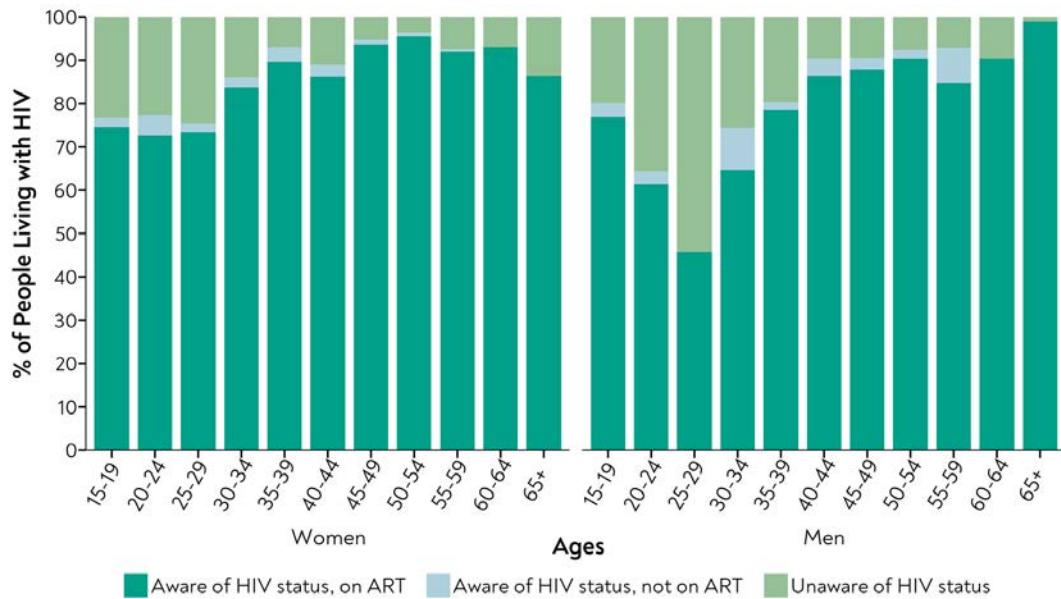
Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
40-44	10.5	3.2	86.4	100.0	431
45-49	7.0	1.8	91.2	100.0	448
50-54	5.6	1.4	93.0	100.0	294
55-59	7.3	4.0	88.6	100.0	239
60-64	8.0	0.0	92.0	100.0	178
65+	8.3	0.0	91.7	100.0	138
Total 15-24	24.6	3.5	71.9	100.0	247
Total 15-49	15.2	3.0	81.9	100.0	2,109
Total 50+	6.9	1.6	91.4	100.0	849
Total 15+	13.2	2.6	84.2	100.0	2,958

[1] Relates to Global AIDS Monitoring 2020 indicator 1.2: People living with HIV on ART; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving ART.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Figure 7.2:
Proportion of adults living with HIV who reported awareness of HIV status and antiretroviral therapy use, by sex and age, ZIMPHIA 2020

Abbreviation: ART, antiretroviral therapy.

Table 7.3.A: Concordance of self-reported treatment status versus presence of detectable antiretrovirals: Men

Percent distribution of HIV-positive men aged 15 years and older by presence of detectable antiretrovirals (ARVs) versus self-reported HIV treatment status, ZIMPHIA 2020

Characteristic	ARV status		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	75.6	24.4	100.0	170
Previously diagnosed, not on ART	(83.2)	(16.8)	100.0	35
Previously diagnosed, on ART	2.3	97.7	100.0	698
Total 15-24	32.8	67.2	100.0	64
Total 15-49	24.6	75.4	100.0	584
Total 50+	12.0	88.0	100.0	319
Total 15+	20.9	79.1	100.0	903

( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.

Table 7.3.B: Concordance of self-reported treatment status versus presence of detectable antiretrovirals: Women

Percent distribution of HIV-positive women aged 15 years and older by presence of detectable antiretrovirals (ARVs) versus self-reported HIV treatment status, ZIMPHIA 2020

Characteristic	ARV status		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	76.7	23.3	100.0	273
Previously diagnosed, not on ART	80.0	20.0	100.0	50
Previously diagnosed, on ART	3.2	96.8	100.0	1,723
Total 15-24	30.4	69.6	100.0	181
Total 15-49	18.6	81.4	100.0	1,518
Total 50+	7.9	92.1	100.0	529
Total 15+	16.3	83.7	100.0	2,047

Table 7.3.C: Concordance of self-reported treatment status versus presence of detectable antiretrovirals: Total

Characteristic	ARV status		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	76.2	23.8	100.0	443
Previously diagnosed, not on ART	81.6	18.4	100.0	85
Previously diagnosed, on ART	2.9	97.1	100.0	2,421
Total 15-24	31.2	68.8	100.0	245
Total 15-49	20.7	79.3	100.0	2,102
Total 50+	9.7	90.3	100.0	848
Total 15+	18.0	82.0	100.0	2,950

Percent distribution of HIV-positive adults aged 15 years and older by presence of detectable antiretrovirals (ARVs) versus self-reported HIV treatment status, ZIMPHIA 2020

7.3 REFERENCES

1. World Health Organization. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection. Geneva: World Health Organization; 2016. https://apps.who.int/iris/bitstream/handle/10665/208825/9789241549684_eng.pdf?sequence=1&isAllowed=y. Accessed April 7, 2021.

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3. Ministry of Health and Child Care (MoHCC). Guidelines for Antiretroviral Therapy for the Prevention and Treatment of HIV in Zimbabwe. Harare: MoHCC; 2016. https://depts.washington.edu/edgh/zw/vl/project-resources/ZIM_ART_Guidelines_2016_-_review_final.pdf. Accessed April 7, 2021.

8. VIRAL LOAD SUPPRESSION

8.1 BACKGROUND

Viral load suppression (VLS) is a key indicator of treatment efficacy in people living with HIV. Achieving VLS reduces the damage that HIV can do to the immune system, improves health outcomes, and reduces the risk of HIV transmission.

VLS among all people living with HIV with suppressed viral loads in a population is also an indicator of HIV programmatic success. In the *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection,* WHO set a threshold for VLS of less than 1,000 HIV RNA copies per mL.[1] This definition of VLS, which is used across PHIAs, allows us to compare progress across countries and subnational areas. This chapter describes VLS among the population of HIV-positive adults by age, sex, region, and other demographic characteristics.

Recent research suggests other potential programmatic uses for viral load data. For instance, this chapter presents estimates on the proportion of a population with HIV viremia by province (defined as an unsuppressed viral load: HIV RNA of 1,000 copies per mL or more in this analysis) which may be correlated with HIV incidence.[2] It should be noted that population viremia is measured without regard to HIV status—the numerator is the number of people with HIV viremia, and the denominator is the entire population tested.

ZIMPHIA 2020 also reports on the proportion of people living with HIV with viral load of less than 200 HIV RNA copies per mL. Although the current definition for VLS serves as a benchmark for monitoring global targets over time, using a lower viral load threshold for clinical monitoring may provide a number of potential benefits. Studies have shown that ongoing viral replication at levels below 1,000 HIV RNA copies per mL is associated with a significant risk of treatment failure and drug resistance.[3,4] In addition, several recent studies of couples in which one partner had HIV and the other did not, found that there was no HIV transmission when viral load is below 200 HIV RNA copies per mL despite sexual activity.[5]

Finally, given the advantages that viral load monitoring offers people living with HIV, ZIMPHIA 2020 also evaluated access to viral load tests and receipt of results among people living with HIV in Zimbabwe.

8.2 RESULTS

The following tables and figures present VLS data of people living with HIV in Zimbabwe, population viremia by province, and other VL data at the time of the ZIMPHIA 2020 survey.

Table 8.1: Viral load suppression (HIV RNA < 1,000 copies per milliliter) by demographic characteristics

Characteristic	Men		Women		Total	
Among HIV-positive adults aged 15 years and older, percentage with viral load suppression (VLS), by sex, self-reported HIV diagnosis and antiretroviral therapy (ART) use (adjusted by antiretroviral [ARV] biomarker testing), and selected demographic characteristics, ZIMPHIA 2020						
	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number
HIV diagnosis and treatment status[2]						
Unaware of HIV status	3.8	129	9.8	211	7.1	340
Aware of HIV status and not on ART	(11.5)	29	(8.8)	41	10.1	70
Aware of HIV status and on ART	89.0	748	91.0	1,799	90.3	2,547
Residence						
Urban	71.5	224	75.6	582	74.2	806
Rural	73.6	682	81.8	1,469	78.7	2,151

Table 8.1: Viral load suppression (HIV RNA < 1,000 copies per milliliter) by demographic characteristics (continued)

Among HIV-positive adults aged 15 years and older, percentage with viral load suppression (VLS), by sex, self-reported HIV diagnosis and antiretroviral therapy (ART) use (adjusted by antiretroviral [ARV] biomarker testing), and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number
Province						
Bulawayo	70.7	78	75.3	196	73.7	274
Manicaland	74.3	77	84.4	202	80.9	279
Mashonaland Central	61.3	107	76.4	202	70.1	309
Mashonaland East	76.5	82	80.3	173	78.8	255
Mashonaland West	71.3	103	82.5	235	78.4	338
Matabeleland North	80.8	97	81.9	205	81.5	302
Matabeleland South	85.2	93	80.6	231	82.2	324
Midlands	75.1	107	79.8	238	78.0	345
Masvingo	67.8	99	81.7	211	76.5	310
Harare	71.6	63	74.5	158	73.5	221
Marital status						
Never married	55.4	93	73.5	185	65.7	278
Married or living together	76.4	671	78.0	989	77.2	1,660
Divorced or separated	64.6	88	79.7	373	76.1	461
Widowed	81.2	54	86.4	502	85.8	556
Education						
No education	(79.8)	26	87.4	120	86.0	146
Primary	73.2	347	85.8	900	81.5	1,247
Secondary	71.5	490	73.9	965	72.9	1,455
More than secondary	(85.4)	41	86.7	63	86.0	104
Wealth quintile						
Lowest	75.3	254	80.5	521	78.5	775
Second	70.3	209	84.0	473	78.9	682
Middle	73.7	183	84.0	377	80.0	560
Fourth	70.0	142	76.9	333	74.4	475
Highest	75.6	118	72.3	347	73.4	465
Total 15-24	49.2	64	66.2	182	60.6	246
Total 15-49	68.1	586	76.8	1,522	73.8	2,108
Total 50+	84.5	320	91.0	529	88.1	849
Total 15+	73.0	906	79.8	2,051	77.3	2,957
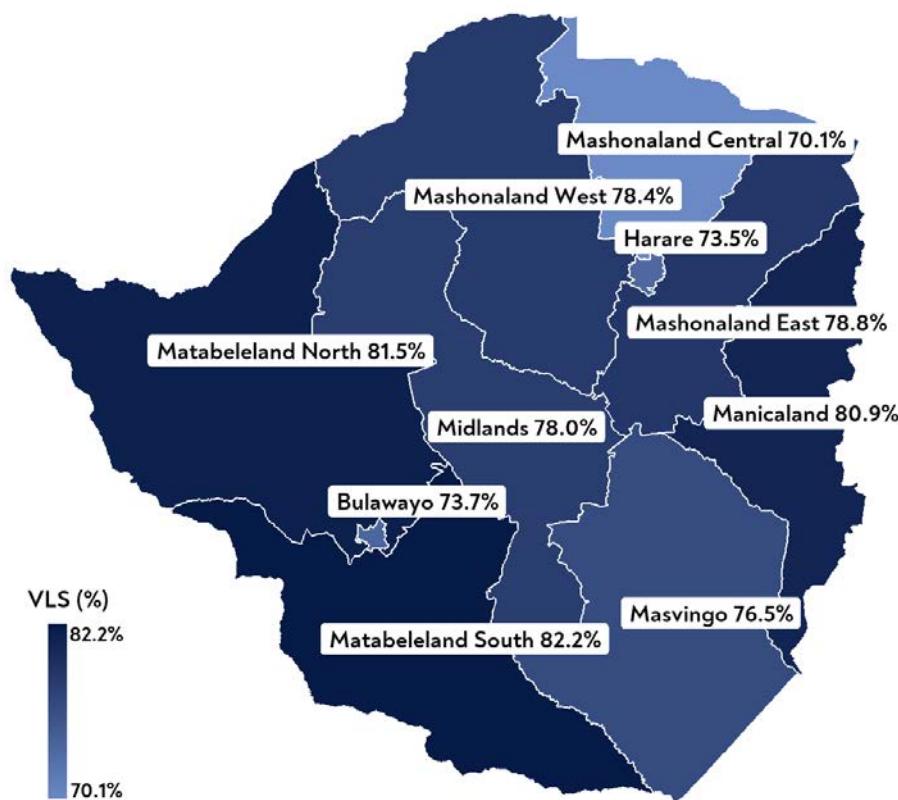
[1] Relates to Global AIDS Monitoring 2020 indicator 1.3: People living with HIV who have suppressed viral loads.
[2] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Figure 8.1.1:
Viral load suppression among HIV-positive adults by province, ZIMPHIA 2020

Abbreviation: VLS, viral load suppression.

Figure 8.1.2:
Viral load suppression among HIV-positive adults by province, ZIMPHIA 2020
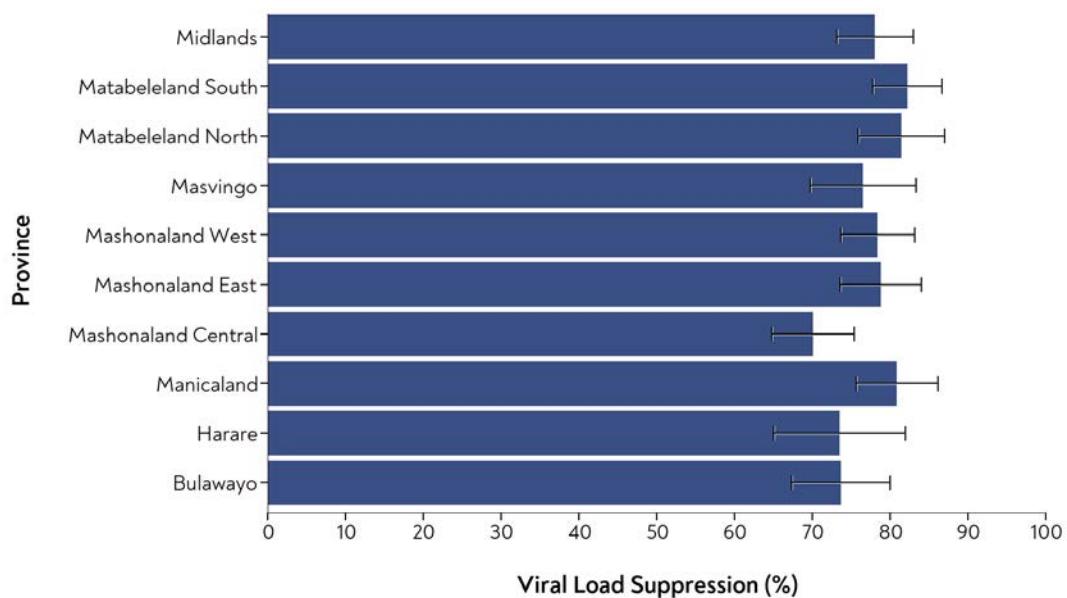
Table 8.2: Viral load suppression (HIV RNA < 1,000 copies per milliliter) by age and sex

Age	Men		Women		Total	
	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number
15-19	(57.8)	33	66.5	66	63.4	99
20-24	(41.4)	31	65.9	116	58.5	147
25-29	(45.4)	36	69.3	168	63.3	204
30-34	56.1	81	71.6	257	67.2	338
35-39	68.2	123	82.2	318	77.2	441
40-44	79.4	123	78.2	308	78.6	431
45-49	81.2	159	88.1	289	85.2	448
50-54	84.8	118	93.9	176	89.4	294
55-59	77.6	77	88.6	162	83.6	239
60-64	89.2	63	91.3	115	90.5	178
65+	91.7	62	88.2	76	89.7	138
15-24	49.2	64	66.2	182	60.6	246
25-34	52.4	117	70.7	425	65.7	542
35-44	74.3	246	80.1	626	78	872
45-54	82.8	277	90.3	465	86.9	742
55-64	81.8	140	89.8	277	86.5	417
Total 15-49	68.1	586	76.8	1,522	73.8	2,108
Total 50+	84.5	320	91	529	88.1	849
Total 15+	73	906	79.8	2,051	77.3	2,957

[1] Relates to Global AIDS Monitoring 2020 indicator 1.3: People living with HIV who have suppressed viral loads.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
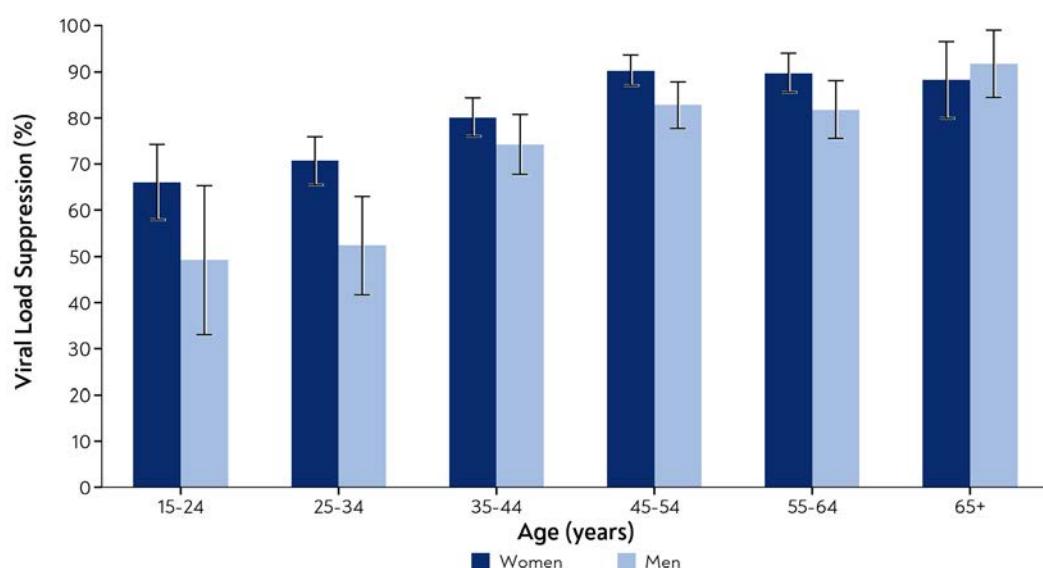
Figure 8.2: Proportion of viral load suppression among adults living with HIV by age and sex, ZIMPHIA 2020

Table 8.3: Population viremia among the adult population in Zimbabwe by province
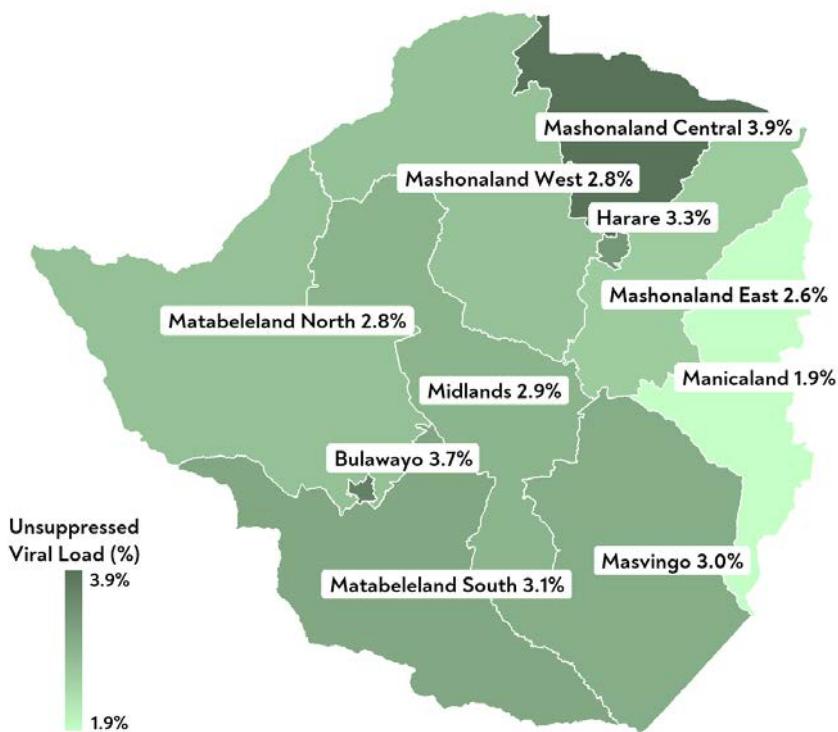
Population viremia[1] (unsuppressed viral load [VL], defined as HIV RNA ≥ 1,000 copies per milliliter) among adults aged 15 years and older, by province, ZIMPHIA 2020

	Percentage with VL ≥ 1,000 copies/mL[1]	Number of adults tested for HIV	Mean $\log_{10}$ VL	Number of HIV-positive individuals with VL results
Province				
Bulawayo	3.7	1,660	2.1	274
Manicaland	1.9	2,360	1.8	279
Mashonaland Central	3.9	2,127	2.2	309
Mashonaland East	2.6	1,807	1.9	255
Mashonaland West	2.8	2,364	1.9	338
Matabeleland North	2.8	1,753	1.8	302
Matabeleland South	3.1	1,599	1.8	324
Midlands	2.9	2,268	1.9	345
Masvingo	3.0	2,086	1.9	310
Harare	3.3	1,511	2.1	221
Total 15+	2.9	19,535	1.9	2,957

[1] Population viremia is defined with a numerator of those with unsuppressed VL (≥1,000 copies/mL) and denominator of all adults tested (regardless of HIV status).

Figure 8.3:
Proportion of unsuppressed viral load in the adult population by province, ZIMPHIA 2020

Note: Unsuppressed viral load is defined as HIV RNA ≥ 1,000 copies per milliliter among all adults tested in ZIMPHIA 2020 (regardless of HIV status).

Table 8.4: Viral load < 200 HIV RNA copies per milliliter by demographic and treatment characteristics

Among HIV-positive adults aged 15 years and older, percentage with a viral load (VL) < 200 copies per milliliter, by sex, self-reported diagnosis and antiretroviral therapy (ART) use (adjusted by antiretroviral [ARV] biomarker testing), and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage with VL < 200 copies/ mL	Number	Percentage with VL < 200 copies/ mL	Number	Percentage with VL < 200 copies/ mL	Number
HIV diagnosis and treatment status[1]						
Unaware of HIV status	3.0	129	3.2	211	3.1	340
Aware of HIV status and not on ART	(9.6)	29	(4.4)	41	6.9	70
Aware of HIV status and on ART	86.6	747	89.5	1,797	88.4	2,544
Number of years since initiating ART						
Less than 12 months	85.3	76	85.0	144	85.1	220
12 months or more	86.5	631	89.2	1,583	88.2	2,214
1 to less than 5 years	89.6	206	89.4	510	89.5	716
5 to less than 10 years	83.4	276	89.1	687	87.2	963
10 years or more	89.3	142	89.4	358	89.4	500
Residence						
Urban	69.5	224	72.8	581	71.6	805
Rural	71.4	681	79.9	1,468	76.6	2,149
Province						
Bulawayo	66.8	78	71.3	195	69.7	273
Manicaland	74.3	77	82.9	202	79.9	279
Mashonaland Central	59.1	107	73.3	202	67.4	309
Mashonaland East	74.7	82	77.9	173	76.6	255
Mashonaland West	69.2	103	81.6	235	77.1	338
Matabeleland North	78.7	97	80.8	205	80.0	302
Matabeleland South	81.8	93	79.4	231	80.3	324
Midlands	71.9	106	76.1	238	74.5	344
Masvingo	65.8	99	80.0	210	74.7	309
Harare	69.5	63	71.8	158	71.0	221
Marital status						
Never married	54.6	93	69.7	185	63.2	278
Married or living together	74.2	671	76.0	988	75.1	1,659
Divorced or separated	61.8	87	77.7	373	73.9	460
Widowed	77.9	54	84.2	501	83.5	555
Education						
No education	(79.8)	26	86.4	120	85.2	146
Primary	70.0	346	83.7	899	79.1	1,245
Secondary	69.8	490	71.5	964	70.8	1,454
More than secondary	(83.6)	41	82.2	63	82.9	104

Table 8.4: Viral load < 200 HIV RNA copies per milliliter by demographic and treatment characteristics (continued)

Among HIV-positive adults aged 15 years and older, percentage with a viral load (VL) < 200 copies per milliliter, by sex, self-reported diagnosis and antiretroviral therapy (ART) use (adjusted by antiretroviral [ARV] biomarker testing), and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage with VL < 200 copies/mL	Number	Percentage with VL < 200 copies/mL	Number	Percentage with VL < 200 copies/mL	Number
Wealth quintile						
Lowest	72.7	253	79.1	520	76.6	773
Second	69.7	209	81.3	473	77.0	682
Middle	71.4	183	82.7	377	78.2	560
Fourth	65.7	142	74.6	332	71.3	474
Highest	74.9	118	68.8	347	70.7	465
Age						
15-19	(57.8)	33	63.2	66	61.2	99
20-24	(39.2)	31	61.7	116	54.9	147
25-29	(45.4)	36	64.9	167	60.0	203
30-34	53.9	81	68.9	257	64.6	338
35-39	63.9	123	79.0	318	73.6	441
40-44	75.5	123	77.6	308	76.8	431
45-49	80.3	159	87.9	289	84.7	448
50-54	82.5	118	93.3	175	88.0	293
55-59	77.6	77	87.2	162	82.9	239
60-64	89.1	62	87.9	115	88.3	177
65+	89.2	62	84.2	76	86.3	138
Total 15-24	48.1	64	62.3	182	57.6	246
Total 15-49	65.7	586	74.5	1,521	71.4	2,107
Total 50+	83.1	319	89.0	528	86.4	847
Total 15+	70.8	905	77.6	2,049	75.1	2,954

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 8.5: Self-reported viral load testing

Percentage of HIV-positive adults aged 15 years and older who reported that they had ever had a viral load (VL) test, and among those who had a VL test, percentage who reported that they received VL results from their last test, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all HIV-positive adults receiving HIV care		Among adults who had ever had a VL test	
	Percentage who had ever had a VL test	Number	Percentage who received VL results from their last test	Number
Sex				
Male	73.4	707	51.6	519
Female	77.7	1,711	54.0	1,329
Residence				
Urban	83.4	627	56.8	519
Rural	73.3	1,791	51.5	1,329
Province				
Bulawayo	84.2	219	67.6	185
Manicaland	78.0	239	60.0	184
Mashonaland Central	59.1	233	51.6	139
Mashonaland East	66.6	215	50.3	144
Mashonaland West	74.2	292	53.7	214
Matabeleland North	86.5	266	53.4	231
Matabeleland South	74.6	260	56.0	194
Midlands	76.8	285	39.0	220
Masvingo	77.7	254	49.3	199
Harare	89.2	155	57.7	138
Marital status				
Never married	77.1	196	55.9	153
Married or living together	76.4	1,359	53.0	1,039
Divorced or separated	71.5	379	54.7	272
Widowed	79.1	482	51.5	382
Education				
No education	62.7	114	52.2	72
Primary	73.1	1,058	51.7	794
Secondary	78.2	1,157	52.4	902
More than secondary	92.5	86	71.4	78
Wealth quintile				
Lowest	74.4	646	48.4	489
Second	73.6	577	51.2	427
Middle	69.5	459	55.7	328
Fourth	82.2	376	57.6	303
Highest	84.7	360	54.2	301

Table 8.5: Self-reported viral load testing (continued)

Percentage of HIV-positive adults aged 15 years and older who reported that they had ever had a viral load (VL) test, and among those who had a VL test, percentage who reported that they received VL results from their last test, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among all HIV-positive adults receiving HIV care		Among adults who had ever had a VL test	
	Percentage who had ever had a VL test	Number	Percentage who received VL results from their last test	Number
Age				
15-19	72.4	64	58.0	45
20-24	73.8	96	43.8	72
25-29	67.2	134	54.6	89
30-34	73.6	259	45.2	192
35-39	74.7	363	59.7	270
40-44	76.4	362	54.0	276
45-49	79.5	396	50.3	313
50-54	83.2	255	54.8	215
55-59	78.2	212	61.6	166
60-64	79.8	157	51.0	126
65+	68.6	120	44.7	84
Total 15-24	73.2	160	49.9	117
Total 15-49	75.2	1,674	52.6	1,257
Total 50+	79.0	744	54.6	591
Total 15+	76.2	2,418	53.2	1,848

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

8.3 REFERENCES

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9. UNAIDS 90-90-90 TARGETS

9.1 BACKGROUND

To bring the HIV epidemic under control, UNAIDS has set targets that by 2020, 90% of all people living with HIV would know their HIV status; 90% of all persons diagnosed with HIV would receive sustained ART; and 90% of all persons receiving ART would have VLS.[1] After 2020, the targets were set at 95-95-95, originally by 2030, but UNAIDS has now shortened the timeline for achieving the targets to 2025.[2]

While Chapter 7 provides results on coverage of HIV testing and treatment services, and chapter 8 reports VLS among all HIV-positive individuals, irrespective of knowledge of status or ART use, this chapter presents the status of the 90-90-90 indicators, which reflects each stage of program performance. Awareness of HIV-positive status among people living with HIV and current ART use among those who are aware of their HIV-positive status are indicators of access to services. VLS among those who know their HIV-positive status and are on treatment not only provides an indication of access to and retention in care, but also provides a measure of program success. The overall 90-90-90 target of VLS among all HIV-positive individuals of 73% (the product of 90% of people living with HIV diagnosed, 90% of those diagnosed on treatment, and 90% of those on treatment achieving VLS) or greater is an indication of successful testing and treatment services.[1]

ZIMPHIA 2020 measured the 90-90-90 indicators using both self-reported and two types of biomarker data. For instance, in the ARV-adjusted estimates at the national and province levels, individuals were defined as 'aware' of their HIV-positive status if they reported knowing they were HIV positive before testing as part of ZIMPHIA 2020 or if they had an ARV detectable in their blood. Individuals were categorized as 'on treatment' if they reported ART use or if they had an ARV detectable in their blood. In addition, recent research suggests that a viral load measurement below 200 HIV RNA copies per mL may be a useful alternative to ARV-detection for determining awareness and treatment status since individuals living with HIV are unlikely to achieve a viral load below 200 copies per mL if they are not on ART.[3] ZIMPHIA 2020 also presents 90-90-90 estimates at the national level using self-reported data adjusted for viral load below 200 copies per mL.

The tables in this chapter present the 90-90-90 results as conditional and overall percentages among persons living with HIV. In the conditional 90-90-90 cascade (shown in Tables 9.1.B and 9.2.B), the denominator of each 90 is the value of the 90 preceding it. In other words, the second 90 is the percentage on ART among those aware of their HIV-positive status (diagnosed), and the third 90 is the percentage among those on treatment who have VLS.

In the 90-90-90 overall percentages table (shown in Tables 9.1.A, and 9.2.A), the denominator is the same for each 90: The overall population of adults living with HIV in the country (based on survey participants for whom data on treatment status and viral load were available). Thus, while the first 90 is the same as in the conditional table, the second 90 provides estimates of the prevalence of receiving treatment among the overall population of adults living with HIV in the country, while the third 90 provides the prevalence of achieving VLS on ART among all the adults living with HIV in Zimbabwe.

The figures in this chapter present both conditional percentages (the estimates shown in the insets in the figures) and overall percentages (represented by the bar heights in the figures).

Note that in each 90-90-90 table, individuals with VLS who were not aware of their HIV-positive status or were not on ART, were excluded from the numerator for the third 90 (VLS among those on ART). For this reason, the VLS estimates in the overall 90-90-90 are sometimes slightly lower than VLS estimates reported in the previous chapter, which may include VLS data from individuals with low viral loads who were not receiving treatment, such as individuals who have transiently low viral loads after seroconversion and elite controllers—a small subset of people living with HIV whose immune systems are able to maintain VLS for a period of time without treatment. Thus, the overall 90-90-90 VLS estimates represent the percentage of the adult population living with HIV known to have been reached by the national HIV program and who are benefiting at each step of the cascade.

9.2 RESULTS

The following tables and figure describe progress towards the 90-90-90 targets overall and by demographic characteristics.

Table 9.1.A: Adult 90-90-90 (self-reported and antiretroviral biomarker data); overall percentages

90-90-90 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, by sex and age, ZIMPHIA 2020

| Age | Diagnosed | | | | | |
| | Men | | Women | | Total | |
	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
15-24	71.9	64	77.2	183	75.4	247
25-34	64.3	117	81.9	425	77.1	542
35-49	87.3	405	92.0	915	90.2	1,320
15-49	80.6	586	87.0	1,523	84.8	2,109
50+	93.2	320	93.0	529	93.1	849
15+	84.3	906	88.3	2,052	86.8	2,958

| Age | On Treatment | | | | | |
| | Men | | Women | | Total | |
	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
15-24	68.8	64	73.4	183	71.9	247
25-34	58.0	117	79.7	425	73.8	542
35-49	84.4	405	89.5	915	87.6	1,320
15-49	77.0	586	84.4	1,523	81.9	2,109
50+	90.1	320	92.5	529	91.4	849
15+	80.9	906	86.2	2,052	84.2	2,958

| Age | Viral Load Suppression (VLS) on Treatment | | | | | |
| | Men | | Women | | Total | |
	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
15-24	49.2	64	62.6	183	58.2	247
25-34	49.7	117	68.5	425	63.4	542
35-49	75.6	405	81.9	915	79.4	1,320
15-49	66.9	586	75.3	1,523	72.4	2,109
50+	84.0	320	89.9	529	87.3	849
15+	72.0	906	78.5	2,052	76.0	2,958

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
[2] Relates to Global AIDS Monitoring 2020 indicator (GAM 2020) 1.1: People living with HIV who know their HIV status; and PEPFAR indicator DIAGNOSED_NAT: Percentage of adults and children living with HIV who know their status (have been diagnosed).
[3] Relates to GAM 2020 1.2: People living with HIV on ART; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Number of adults and children currently receiving ART.
[4] Relates to GAM 2020 1.3: People living with HIV who have suppressed viral loads; and PEPFAR indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Table 9.1.B: Adult 90-90-90 (self-reported and antiretroviral biomarker data); conditional percentages

90-90-90 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral (ART) use, both adjusted for having a detectable antiretroviral (ART) in blood, by sex and age, ZIMPHIA 2020

Age	Diagnosed					
	Men		Women		Total	
	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
15-24	71.9	64	77.2	183	75.4	247
25-34	64.3	117	81.9	425	77.1	542
35-49	87.3	405	92.0	915	90.2	1,320
15-49	80.6	586	87.0	1,523	84.8	2,109
50+	93.2	320	93.0	529	93.1	849
15+	84.3	906	88.3	2,052	86.8	2,958

Age	On Treatment Among Those Diagnosed					
	Men		Women		Total	
	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
15-24	95.7	46	95.1	142	95.3	188
25-34	90.2	78	97.2	360	95.6	438
35-49	96.7	353	97.3	845	97.1	1,198
15-49	95.5	477	97.0	1,347	96.5	1,824
50+	96.7	300	99.5	493	98.2	793
15+	95.9	777	97.6	1,840	97.0	2,617

Age	Viral Load Suppression (VLS) Among Those on Treatment					
	Men		Women		Total	
	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
15-24	71.5	44	85.3	136	81.0	180
25-34	85.7	70	86.0	350	86.0	420
35-49	89.5	342	91.4	823	90.7	1,165
15-49	86.9	456	89.2	1,309	88.5	1,765
50+	93.3	292	97.2	490	95.5	782
15+	89.0	748	91.0	1,799	90.3	2,547

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
[2] Relates to Global AIDS Monitoring 2020 indicator (GAM 2020) 1.1: People living with HIV who know their HIV status; and PEPFAR indicator DIAGNOSED_NAT: Percentage of adults and children living with HIV who know their status (have been diagnosed).
[3] Relates to GAM 2020 1.2: People living with HIV on ART; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Number of adults and children currently receiving ART.
[4] Relates to GAM 2020 1.3: People living with HIV who have suppressed viral loads; and PEPFAR indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Figure 9.1:
Adult 90-90-90 (adjusted with laboratory antiretroviral biomarker data), ZIMPHIA 2020

Note: In the antiretroviral (ARV)-adjusted 90-90-90, participants are classified as "aware" or "diagnosed" if they reported knowing their HIV-positive status before testing positive in ZIMPHIA 2020 or had detectable ARVs in their blood. Participants are classified as "on treatment" if they reported that they were on treatment or if they had detectable ARVs in their blood. Inset numbers are conditional proportions; the heights of the bars represent the unconditional proportions among all adults living with HIV.

Table 9.2.A: Adult 90-90-90 (self-reported data adjusted for viral load < 200 HIV RNA copies per milliliter); overall percentages

90-90-90 targets among adults living with HIV aged 15 years and older, based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a viral load (VL) < 200 copies per milliliter, by sex and age, ZIMPHIA 2020

	Diagnosed					
	Men		Women		Total	
Age	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
15-24	69.1	64	78.1	183	75.1	247
25-34	64.5	117	81.8	425	77.1	542
35-49	86.5	405	91.7	915	89.7	1,320
15-49	79.8	586	86.9	1,523	84.4	2,109
50+	92.6	320	93.5	529	93.1	849
15+	83.6	906	88.4	2,052	86.6	2,958

	On Treatment					
	Men		Women		Total	
Age	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
15-24	66.0	64	74.3	183	71.6	247
25-34	58.2	117	79.2	425	73.5	542
35-49	84.0	405	89.2	915	87.2	1,320
15-49	76.4	586	84.2	1,523	81.5	2,109
50+	90.0	320	92.8	529	91.6	849
15+	80.4	906	86.1	2,052	84.0	2,958

Table 9.2.A: Adult 90-90-90 (self-reported data adjusted for viral load < 200 HIV RNA copies per milliliter); overall percentages (continued)

90-90-90 targets among adults living with HIV aged 15 years and older, based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a viral load (VL) < 200 copies per milliliter, by sex and age, ZIMPHIA 2020

| | Viral Load Suppression (VLS) on Treatment | | | | | |
| | Men | | Women | | Total | |
Age	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
15-24	49.2	64	63.9	183	59.1	247
25-34	51.7	117	69.0	425	64.3	542
35-49	76.0	405	82.1	915	79.7	1,320
15-49	67.6	586	75.8	1,523	72.9	2,109
50+	84.5	320	90.4	529	87.8	849
15+	72.6	906	78.9	2,052	76.6	2,958

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a VL < 200 copies/mL.
[2] Relates to Global AIDS Monitoring 2020 indicator (GAM 2020) 1.1: People living with HIV who know their HIV status; and PEPFAR indicator DIAGNOSED_NAT: The percentage of adults and children living with HIV who know their status (have been diagnosed).
[3] Relates to GAM 2020 1.2: People living with HIV on ART; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving ART.
[4] Relates to GAM 2020 1.3: People living with HIV who have suppressed viral loads; and PEPFAR indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Table 9.2.B: Adult 90-90-90 (self-reported data adjusted for viral load < 200 HIV RNA copies per milliliter); conditional percentages

90-90-90 targets among adults living with HIV aged 15 years and older, based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a viral load (VL) < 200 copies per milliliter, by sex and age, ZIMPHIA 2020

| | Diagnosed | | | | | |
| | Men | | Women | | Total | |
Age	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
15-24	69.1	64	78.1	183	75.1	247
25-34	64.5	117	81.8	425	77.1	542
35-49	86.5	405	91.7	915	89.7	1,320
15-49	79.8	586	86.9	1,523	84.4	2,109
50+	92.6	320	93.5	529	93.1	849
15+	83.6	906	88.4	2,052	86.6	2,958

| | On Treatment Among Those Diagnosed | | | | | |
| | Men | | Women | | Total | |
Age	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
15-24	(95.6)	44	95.2	143	95.3	187
25-34	90.2	78	96.8	359	95.3	437
35-49	97.1	349	97.3	842	97.2	1,191
15-49	95.8	471	96.9	1,344	96.5	1,815
50+	97.2	298	99.3	496	98.4	794
15+	96.2	769	97.4	1,840	97	2,609

Table 9.2.B: Adult 90-90-90 (self-reported data adjusted for viral load < 200 HIV RNA copies per milliliter); conditional percentages (continued)

90-90-90 targets among adults living with HIV aged 15 years and older, based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a viral load (VL) < 200 copies per milliliter, by sex and age, ZIMPHIA 2020

| Age | Viral Load Suppression (VLS) Among Those on Treatment | | | | | |
| | Men | | Women | | Total | |
	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
15-24	(74.6)	42	85.9	137	82.5	179
25-34	88.8	70	87.2	348	87.5	418
35-49	90.5	339	92	820	91.4	1,159
15-49	88.5	451	89.9	1,305	89.5	1,756
50+	93.9	291	97.4	492	95.8	783
15+	90.3	742	91.7	1,797	91.2	2,539

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a VL < 200 copies/mL.
[2] Relates to Global AIDS Monitoring 2020 indicator (GAM 2020) 1.1: People living with HIV who know their HIV status; and PEPFAR indicator DIAGNOSED_NAT: The percentage of adults and children living with HIV who know their status (have been diagnosed).
[3] Relates to GAM 2020 1.2: People living with HIV on ART; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving ART.
[4] Relates to GAM 2020 1.3: People living with HIV who have suppressed viral loads; and PEPFAR indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
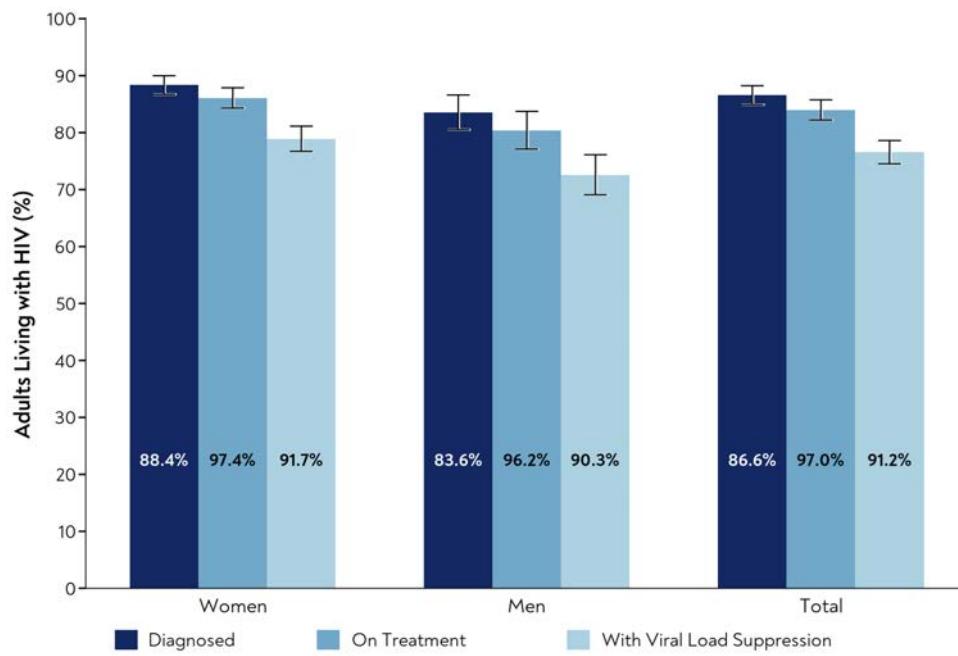
Figure 9.2:
Adult 90-90-90 (adjusted for a viral load result below 200 copies per milliliter), ZIMPHIA 2020

Note: In the VL<200 copies/mL-adjusted 90-90-90, participants are classified as "aware" or "diagnosed" if they reported knowing their HIV-positive status before testing positive in ZIMPHIA 2020 or had a VL<200 copies/mL. Participants are classified as "on treatment" if they reported that they were on treatment or if they had a VL<200 copies/mL. Inset numbers are conditional proportions; the heights of the bars represent the unconditional proportions among all adults living with HIV.

Table 9.3.A: Adult 90-90-90 by geography (self-reported and antiretroviral biomarker data); overall percentages

90-90-90 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, ZIMPHIA 2020

| | Diagnosed | | | | | |
| | Men | | Women | | Total | |
	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
Residence						
Urban	82.8	224	85.5	582	84.6	806
Rural	84.9	682	89.6	1,470	87.8	2,152
Province						
Bulawayo	84.0	78	86.0	196	85.3	274
Manicaland	88.6	77	89.2	203	89.0	280
Mashonaland Central	73.6	107	89.0	202	82.6	309
Mashonaland East	91.6	82	86.8	173	88.7	255
Mashonaland West	82.3	103	93.5	235	89.4	338
Matabeleland North	89.3	97	92.6	205	91.3	302
Matabeleland South	90.7	93	88.3	231	89.2	324
Midlands	83.9	107	87.5	238	86.2	345
Masvingo	78.1	99	91.0	211	86.2	310
Harare	83.3	63	81.3	158	82.0	221

| | On Treatment | | | | | |
| | Men | | Women | | Total | |
	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
Residence						
Urban	77.0	224	83.3	582	81.1	806
Rural	82.4	682	87.5	1,470	85.6	2,152
Province						
Bulawayo	76.6	78	83.6	196	81.2	274
Manicaland	87.1	77	88.3	203	87.9	280
Mashonaland Central	72.0	107	86.8	202	80.7	309
Mashonaland East	88.5	82	85.2	173	86.5	255
Mashonaland West	80.6	103	90.5	235	86.9	338
Matabeleland North	89.3	97	91.4	205	90.6	302
Matabeleland South	89.8	93	87.1	231	88.0	324
Midlands	77.8	107	84.7	238	82.2	345
Masvingo	73.8	99	88.7	211	83.1	310
Harare	76.1	63	78.4	158	77.6	221

Table 9.3.A: Adult 90-90-90 by geography (self-reported and antiretroviral biomarker data); overall percentages (continued)

90-90-90 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, ZIMPHIA 2020

	Viral Load Suppression (VLS) on Treatment					
	Men		Women		Total	
	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
Residence						
Urban	70.2	224	74.0	582	72.7	806
Rural	72.7	682	80.5	1,470	77.5	2,152
Province						
Bulawayo	67.6	78	73.8	196	71.6	274
Manicaland	74.3	77	82.4	203	79.6	280
Mashonaland Central	61.3	107	75.2	202	69.4	309
Mashonaland East	76.5	82	79.7	173	78.4	255
Mashonaland West	69.6	103	82.2	235	77.6	338
Matabeleland North	80.8	97	81.9	205	81.5	302
Matabeleland South	84.2	93	80.6	231	81.8	324
Midlands	73.4	107	76.2	238	75.2	345
Masvingo	66.5	99	80.0	211	74.9	310
Harare	70.0	63	72.7	158	71.7	221

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
[2] Relates to Global AIDS Monitoring 2020 indicator (GAM 2020) 1.1: People living with HIV who know their HIV status; and PEPFAR indicator DIAGNOSED_NAT: The percentage of adults and children living with HIV who know their status (have been diagnosed).
[3] Relates to GAM 2020 1.2: People living with HIV on ART; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving ART.
[4] Relates to GAM 2020 1.3: People living with HIV who have suppressed viral loads; and PEPFAR indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Table 9.3.B: Adult 90-90-90 by geography (self-reported and antiretroviral biomarker data); conditional percentages

90-90-90 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, ZIMPHIA 2020

	Diagnosed					
	Men		Women		Total	
	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
Residence						
Urban	82.8	224	85.5	582	84.6	806
Rural	84.9	682	89.6	1,470	87.8	2,152
Province						
Bulawayo	84.0	78	86.0	196	85.3	274
Manicaland	88.6	77	89.2	203	89.0	280
Mashonaland Central	73.6	107	89.0	202	82.6	309
Mashonaland East	91.6	82	86.8	173	88.7	255
Mashonaland West	82.3	103	93.5	235	89.4	338
Matabeleland North	89.3	97	92.6	205	91.3	302

Table 9.3.B: Adult 90-90-90 by geography (self-reported and antiretroviral biomarker data); conditional percentages (continued)

90-90-90 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, ZIMPHIA 2020

	Diagnosed					
	Men		Women		Total	
	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
Province						
Matabeleland South	90.7	93	88.3	231	89.2	324
Midlands	83.9	107	87.5	238	86.2	345
Masvingo	78.1	99	91.0	211	86.2	310
Harare	83.3	63	81.3	158	82.0	221

	On Treatment Among Those Diagnosed					
	Men		Women		Total	
	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
Residence						
Urban	93.0	189	97.4	508	95.9	697
Rural	97.0	588	97.7	1,332	97.4	1,920
Province						
Bulawayo	91.1	66	97.3	171	95.2	237
Manicaland	98.4	70	99.0	184	98.7	254
Mashonaland Central	97.9	81	97.5	180	97.6	261
Mashonaland East	96.7	75	98.2	152	97.5	227
Mashonaland West	98.0	87	96.9	221	97.2	308
Matabeleland North	100.0	88	98.7	190	99.2	278
Matabeleland South	98.9	85	98.6	207	98.7	292
Midlands	92.8	91	96.8	211	95.3	302
Masvingo	94.5	80	97.4	194	96.4	274
Harare	91.3	54	96.4	130	94.6	184

	Viral Load Suppression (VLS) Among Those on Treatment					
	Men		Women		Total	
	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
Residence						
Urban	91.1	176	88.9	495	89.6	671
Rural	88.2	572	92.0	1,304	90.6	1,876
Province						
Bulawayo	88.2	61	88.2	167	88.2	228
Manicaland	85.3	69	93.4	182	90.6	251
Mashonaland Central	85.1	79	86.6	176	86.1	255

Table 9.3.B: Adult 90-90-90 by geography (self-reported and antiretroviral biomarker data); conditional percentages (continued)

90-90-90 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, ZIMPHIA 2020

	Viral Load Suppression (VLS) Among Those on Treatment					
	Men		Women		Total	
	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
Province						
Mashonaland East	86.4	72	93.6	150	90.7	222
Mashonaland West	86.3	85	90.8	213	89.3	298
Matabeleland North	90.5	88	89.6	188	89.9	276
Matabeleland South	93.8	84	92.6	204	93.0	288
Midlands	94.2	85	90.0	205	91.5	290
Masvingo	90.1	76	90.2	189	90.2	265
Harare	92.0	49	92.7	125	92.5	174
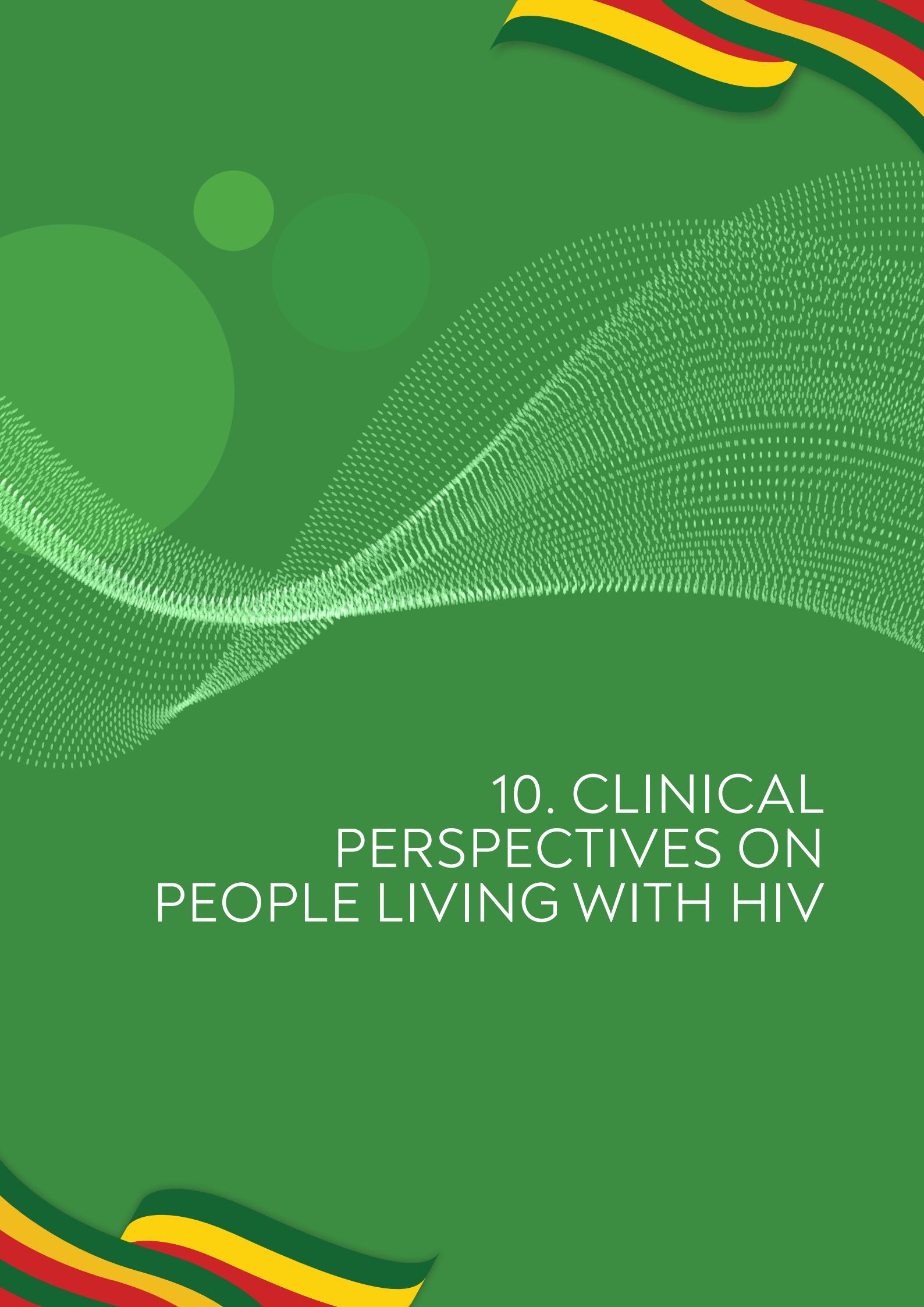
[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
[2] Relates to Global AIDS Monitoring 2020 indicator (GAM 2020) 1.1: People living with HIV who know their HIV status; and PEPFAR indicator DIAGNOSED_NAT: The percentage of adults and children living with HIV who know their status (have been diagnosed).
[3] Relates to GAM 2020 1.2: People living with HIV on antiretroviral therapy; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving antiretroviral therapy.
[4] Relates to GAM 2020 1.3: People living with HIV who have suppressed viral loads; and PEPFAR indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

9.3 REFERENCES

1.   Joint United Nations Programme on HIV/AIDS (UNAIDS). 90-90-90: *An ambitious treatment target to help end the AIDS epidemic*. Geneva: UNAIDS; 2014. https://www.unaids.org/sites/default/files/media_asset/90-90-90_en.pdf. Accessed April 7, 2021.

2.   Joint United Nations Programme on HIV/AIDS (UNAIDS). *Prevailing against pandemics by putting people at the centre*. Geneva: UNAIDS; 2020. https://www.unaids.org/sites/default/files/media_asset/prevailing-against-pandemics-en.pdf.

3.   Young PW, Zielinski-Gutierrez E, Wamicwe J, et al. Use of viral load to improve survey estimates of known HIV-positive status and antiretroviral treatment coverage. AIDS. 2020;34(4):631-636. doi: 10.1097/QAD.0000000000002453.

10. CLINICAL PERSPECTIVES ON PEOPLE LIVING WITH HIV

10.1 BACKGROUND

As countries implement treatment for all people living with HIV, ensuring a sustainable health system that is people-centered and innovative requires diligent monitoring and responsiveness.[1] Keeping track of whether those started on ART remain on treatment can help identify factors associated with disruptions in care and to understand whether there are barriers to retention on ART among certain populations. The data can be used to demonstrate the effectiveness of programs and highlight obstacles to expanding and improving them.

ZIMPHIA 2020 provided a unique opportunity to gauge progress in the expansion of HIV clinical services in Zimbabwe, as well as identify gaps and future challenges. Indicators such as CD4 count at diagnosis and retention on ART can provide evidence of program coverage, the ability to reach vulnerable populations, and quality of care. The distribution of CD4 counts also reflects population health, and the potential impact of HIV on mortality. Social factors may also have an impact on key clinical measures. For instance, mobility with extended stays away from home among people living with HIV could interfere with continuity of care and potentially lead to treatment disruptions and failure, although this may be mitigated by differentiated approaches to treatment delivery. In addition, mental health issues may affect health-seeking behavior, adherence, retention in care, and other clinical outcomes though more data may be needed to validate the utility of mental health symptom screening tools.

10.2 RESULTS

The following tables and figure present clinical and mobility characteristics of people living with HIV.

Table 10.1: Median CD4 count by HIV diagnosis and antiretroviral therapy status
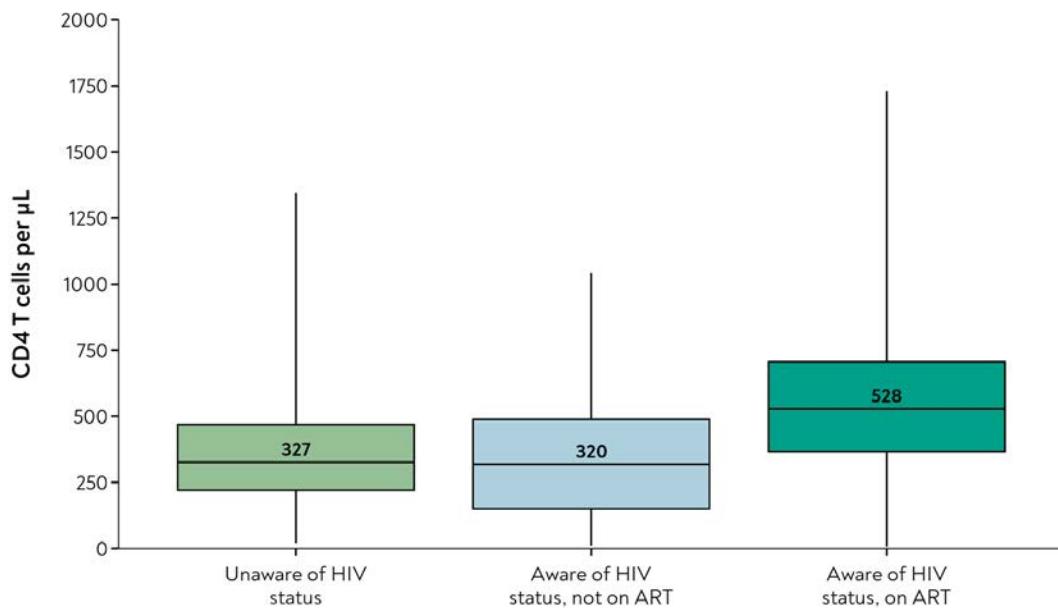
Among HIV-positive adults aged 15 years and older, median (quartile 1 [Q1], quartile 3 [Q3]) CD4 count (cells per microliter), by sex, and HIV diagnosis and treatment status based upon self-reported HIV-status and current antiretroviral therapy (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, ZIMPHIA 2020

Characteristic	Men			Women			Total		
	Median (Q1, Q3)	Range	Number	Median (Q1, Q3)	Range	Number	Median (Q1, Q3)	Range	Number
HIV diagnosis and treatment status[1]									
Unaware of HIV status	315 (206, 445)	30-916	129	331 (230, 506)	21-1344	211	327 (221, 469)	21-1344	340
Aware of HIV status and not on ART	260 (127, 368)†	46-655†	29	396 (156, 554)†	11-1042†	41	320 (150, 488)	11-1042	70
Aware of HIV status and on ART	411 (282, 558)	3-1394	748	603 (437, 768)	2-1730	1,794	528 (366, 706)	2-1730	2,542
Total 15-24	400 (245, 586)	29-991	64	607 (417, 755)	28-1589	182	529 (360, 703)	28-1589	246
Total 15-49	399 (267, 530)	6-1394	586	578 (388, 760)	2-1730	1,519	504 (331, 696)	2-1730	2,105
Total 50+	377 (262, 523)	3-1152	320	557 (417, 716)	60-1401	527	477 (334, 644)	3-1401	847
Total 15+	395 (265, 530)	3-1394	906	572 (397, 750)	2-1730	2,046	494 (332, 683)	2-1730	2,952

[1]Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
† Estimates based on a denominator of 25-49 should be interpreted with caution.

Figure 10.1:
CD4 count distribution among adults living with HIV by HIV diagnosis and antiretroviral therapy status, ZIMPHIA 2020

This box plot shows the CD4 count distribution among those who tested positive in the survey, based upon their self-reported awareness of HIV-positive status and antiretroviral therapy (ART) use. The band and number within each box represent the median CD4 count; the box represents the interquartile range (where half of the CD4 count measurements lie); while the whiskers (vertical lines) above and below the box show the range from the minimum to the maximum CD4 count.

Table 10.2: CD4 count distribution

Percent distribution of CD4 count among adults aged 15 years and older who tested HIV positive in the survey but reported an HIV-negative status and had no antiretroviral detectable in blood, by sex and selected demographic characteristics, ZIMPHIA 2020

Characteristic	CD4 Count				Number
	< 200 cells/μL[1]	200-349 cells/μL	350-499 cells/μL	≥ 500 cells/μL	
Sex					
Male	21.6	36.1	28.3	14.0	129
Female	16.7	36.1	21.5	25.7	211
Residence					
Urban	23.2	33.3	21.8	21.7	109
Rural	16.5	37.7	26.0	19.8	231
Province					
Bulawayo	(27.8)	(31.8)	(12.0)	(28.4)	37
Manicaland	(9.3)	(35.4)	(29.8)	(25.4)	25
Mashonaland Central	(27.2)	(32.6)	(31.6)	(8.5)	48
Mashonaland East	(25.1)	(40.5)	(20.0)	(14.4)	28
Mashonaland West	(12.0)	(37.9)	(33.4)	(16.6)	30
Matabeleland North	*	*	*	*	24
Matabeleland South	(16.4)	(35.4)	(21.0)	(27.2)	32
Midlands	(19.4)	(38.6)	(23.8)	(18.2)	43
Masvingo	(14.4)	(36.4)	(15.2)	(34.0)	36
Harare	(17.5)	(34.7)	(26.1)	(21.7)	37

Table 10.2: CD4 count distribution (continued)

Percent distribution of CD4 count among adults aged 15 years and older who tested HIV positive in the survey but reported an HIV-negative status and had no antiretroviral detectable in blood, by sex and selected demographic characteristics, ZIMPHIA 2020

Characteristic	CD4 Count				Number
	< 200 cells/µL[1]	200-349 cells/µL	350-499 cells/µL	≥ 500 cells/µL	
Age					
15-24	14.4	31.4	19.5	34.7	58
25-34	13.2	36.1	27.0	23.7	104
35-44	23.6	38.5	26.7	11.2	92
45-54	(27.4)	(35.5)	(19.6)	(17.5)	45
55-64	(24.2)	(42.8)	(21.1)	(12.0)	31
65+	*	*	*	*	10
Total 15-24	14.4	31.4	19.5	34.7	58
Total 15-49	18.4	35.0	24.6	22.0	284
Total 50+	22.3	43.5	23.8	10.4	56
Total 15+	18.9	36.1	24.5	20.5	340

[1] Relates to Global AIDS Monitoring 2020 indicator 1.4: Late HIV Diagnosis.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
*Estimates based on a denominator less than 25 have been suppressed.

Table 10.3: Retention on antiretroviral therapy

Among HIV-positive adults aged 15 years and older who reported initiating antiretroviral therapy (ART), percentage who reported they were still taking ART, by sex and years since initiating ART, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage still taking ART	Number	Percentage still taking ART	Number	Percentage still taking ART	Number
Number of years since initiating ART						
Less than 12 months	96.8	76	97.5	144	97.2	220
12 months or more	97.5	632	98.8	1,585	98.4	2,217
1 to less than 5 years	97.1	207	98.8	512	98.2	719
5 to less than 10 years	97.0	276	99.0	687	98.3	963
10 years or more	100.0	142	99.0	358	99.3	500
Total 15-24	(100.0)	36	96.8	127	97.8	163
Total 15-49	96.6	433	98.4	1,264	97.8	1,697
Total 50+	98.5	285	99.8	481	99.2	766
Total 15+	97.3	718	98.7	1,745	98.2	2,463

( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.

Table 10.4: HIV care and treatment status by extended stay away from home

Among HIV-positive adults aged 15 years and older, percent distribution of HIV care and antiretroviral therapy (ART) status and receipt characteristics, by extended stay away from home, based upon self-report, ZIMPHIA 2020

Characteristic	Lived away from home for more than one month at a time in the year before the survey			
	Yes	Number	No	Number
HIV diagnosis and treatment status[1]				
Unaware of HIV status	14.2	51	13.6	251
Aware of HIV status and not on ART	2.9	13	2.4	43
Aware of HIV status and on ART	82.8	392	84.0	1,765
Viral load suppression (VLS)				
Yes	73.6	348	78.4	1,648
No	26.4	108	21.6	410
Treatment interrupted				
Yes	8.3	33	*	0
No	89.0	334	*	0
Never on ART	2.7	9	*	0
Was ART changed				
Yes	31.8	112	32.1	544
No	65.4	251	66.1	1,131
Never on ART	2.7	9	1.9	28
How normally receive ART				
Pick up at local clinic	65.4	244	72.6	1,243
Pick up at hospital	21.4	83	19.6	335
From the community support group/adherence club	3.3	15	3.2	64
Delivery	1.4	5	0.5	6
A family member or friend collects them	6.6	21	2.3	36
Not currently on ART	1.7	6	1.8	26
Total 15+	100.0	456	100.0	2,059

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable antiretroviral in the blood.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.

Table 10.5: Mental health and HIV care and treatment

Percent distribution of care and treatment outcomes among HIV positive adults by mental health screening symptoms, ZIMPHIA 2020

Characteristic	Screened likely for depressive symptoms[2]		Did not screen likely for depressive symptoms		Screened likely for generalized anxiety symptoms[3]		Did not screen likely for generalized anxiety symptoms	
	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number
HIV diagnosis and treatment status[1]								
Unaware of HIV status	9.7	19	13.4	319	11.0	17	13.2	319
Aware of HIV status and not on antiretroviral therapy (ART)	4.3	9	2.5	60	6.2	10	2.4	58
Aware of HIV status and on ART	86.1	185	84.1	2,351	82.8	141	84.4	2,396
Presence of a detectable antiretroviral (ARV)								
Detectable	82.7	178	82.0	2,282	78.7	133	82.4	2,328
Not detectable	17.3	35	18.0	440	21.3	34	17.6	438
Viral load suppression (VLS)								
Yes	75.8	163	77.4	2,171	72.4	124	77.6	2,210
No	24.2	50	22.6	558	27.6	44	22.4	562
Ever on ART								
Yes	95.7	174	98.1	2,279	94.4	134	98.1	2,319
No	4.3	7	1.9	40	5.6	7	1.9	39
Retention (among those who reported ever initiating ART)								
Reported current ART use[1]	97.6	170	98.3	2,245	96.0	129	98.3	2,286
Reported initiating but not on ART at time of the survey[1]	2.4	4	1.7	34	4.0	5	1.7	33
Adherence (among those who reported current ART use)								
Adherent	91.5	154	95.0	2,129	92.9	120	94.8	2,163
Non-adherent	8.5	14	5.0	105	7.1	9	5.2	110
Total 15+	100.0	213	100.0	2,730	100.0	168	100.0	2,773
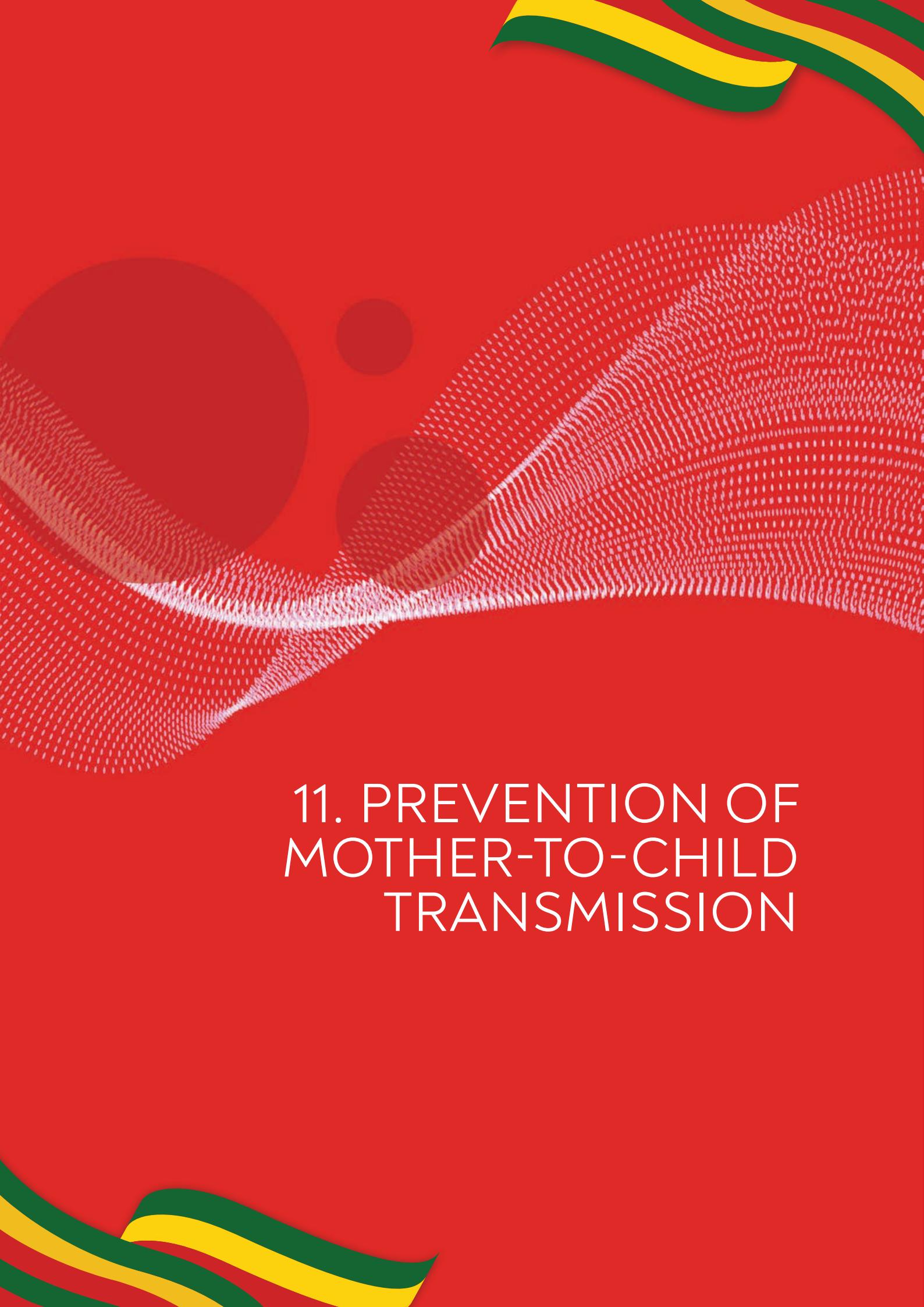
[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
[2] Patient Health Questionnaire 2 score over 3 indicating depressive symptoms.
[3] Generalized Anxiety Disorder 2-item score over 3 indicating generalized anxiety symptoms.

10.3 REFERENCES

1. World Health Organization. *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection.* Geneva: World Health Organization; 2016. https://apps.who.int/iris/bitstream/handle/10665/208825/9789241549684_eng.pdf?sequence=1&isAllowed=y/. Accessed April 7, 2019.

11. PREVENTION OF MOTHER-TO-CHILD TRANSMISSION

11.1 BACKGROUND

Pregnant women living with HIV are at high risk of transmitting HIV to their infants during pregnancy, during birth, or through breastfeeding. Over 90% of new infections among infants and young children occur through mother-to-child transmission (MTCT).[1] Without any interventions, between 20% to 45% of infants may become infected with HIV, with an estimated risk of 5% to 10% during pregnancy, 10% to 20% during labor and delivery, and 5% to 20% through breastfeeding.[1] In 2010, global targets were set to decrease new HIV infections in children and reduce mortality among mothers living with HIV, including a 90% reduction in child HIV infections, a 50% reduction in AIDS-related maternal deaths, and virtual elimination of MTCT.[2]

To prevent MTCT, WHO recommends a comprehensive four-pronged approach including: (1) primary prevention of HIV infection among women of childbearing age (ages 15-49 years, henceforth referred to as women in this chapter); (2) preventing unintended pregnancies among women living with HIV; (3) preventing HIV transmission from women living with HIV to their infants; and (4) providing appropriate treatment, care, and support to mothers living with HIV and their children and families.[2]

The broader health goal is to deliver an integrated package of care for the mothers and infants that includes maternal, newborn, and child health, and PMTCT services. Antenatal care (ANC) is a critical entry platform where most women access PMTCT. It provides the opportunity to monitor pregnancy, provide the interventions needed for PMTCT, and reduce risk of morbidity for mother and infant. In order to achieve the "Elimination of MTCT" goal, 95% of mothers need to know their status, 95% of HIV-positive women need to be on ART, and 95% need to achieve VLS.[3] With such high targets, countries can ill-afford to miss any woman in need of these services.

11.2 RESULTS

The following tables present ANC attendance, breastfeeding practices, awareness of a woman's HIV status prior to or during pregnancy, use of ART during pregnancy in women who were aware of their HIV-positive status during pregnancy, VLS among women of childbearing age, and mother-reported infant HIV testing during the survey.

Table 11.1: Antenatal care

Characteristic	Percentage who attended at least one ANC visit	Number
Residence		
Urban	95.7	778
Rural	96.0	2,155
Province		
Bulawayo	98.4	215
Manicaland	93.6	389
Mashonaland Central	96.1	353
Mashonaland East	96.3	280
Mashonaland West	95.0	350
Matabeleland North	98.1	262
Matabeleland South	98.5	194
Midlands	98.2	325
Masvingo	96.6	296
Harare	93.9	269

Among women aged 15-49 years who delivered in the three years before the survey, percentage who reported attending at least one antenatal care (ANC) visit for her most recent birth, by selected demographic characteristics, ZIMPHIA 2020

Table 11.1: Antenatal care (continued)

Among women aged 15-49 years who delivered in the three years before the survey, percentage who reported attending at least one antenatal care (ANC) visit for her most recent birth, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Percentage who attended at least one ANC visit	Number
Marital status		
Never married	95.1	196
Married or living together	95.9	2,451
Divorced or separated	96.7	259
Widowed	(86.8)	26
Education		
No education	(94.7)	45
Primary	94.8	925
Secondary	96.1	1,817
More than secondary	99.1	145
Wealth quintile		
Lowest	94.9	825
Second	96.1	617
Middle	95.6	536
Fourth	95.8	495
Highest	97.5	460
Age		
15-19	93.8	284
20-24	96.4	800
25-29	96.1	739
30-34	96.5	537
35-39	96.4	428
40-44	93.9	127
45-49	*	18
Total 15-24	95.7	1,084
Total 15-49	95.9	2,933

( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 11.2: Prevention of mother-to-child transmission: Known HIV status

Among women aged 15-49 years who gave birth within the 12 months before the survey, percentage who reported that they were tested for HIV during antenatal care (ANC) and received their results or that they already knew they were HIV positive during their last pregnancy, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Tested for HIV during ANC and received results		Percentage who already knew they were HIV positive	Total percentage with known HIV status[1]	Number of women who gave birth within the 12 months before the survey
	Percentage who tested HIV positive	Percentage who tested HIV negative			
Residence					
Urban	1.8	85.5	7.5	94.7	311
Rural	2.4	83.9	6.7	93.0	863
Province					
Bulawayo	2.4	90.3	5.0	97.8	82
Manicaland	3.6	85.5	1.8	90.8	152
Mashonaland Central	1.7	86.7	7.5	95.9	143
Mashonaland East	2.7	84.1	7.2	93.9	107
Mashonaland West	3.1	89.2	4.7	97.0	150
Matabeleland North	0.0	83.7	11.7	95.4	105
Matabeleland South	2.7	72.8	17.9	93.3	74
Midlands	1.4	87.5	6.1	95.0	132
Masvingo	1.9	79.4	9.3	90.6	111
Harare	1.7	80.2	8.3	90.3	118
Marital status					
Never married	0.0	81.8	6.2	88.0	84
Married or living together	1.8	85.6	6.3	93.7	990
Divorced or separated	7.6	75.1	15.2	97.9	88
Widowed	*	*	*	*	12
Education					
No education	*	*	*	*	16
Primary	2.5	77.3	10.5	90.3	378
Secondary	2.0	87.4	5.5	94.9	724
More than secondary	2.7	88.9	4.2	95.8	56
Wealth quintile					
Lowest	1.2	84.5	6.1	91.8	320
Second	3.7	79.0	9.1	91.7	252
Middle	2.8	84.2	8.6	95.5	225
Fourth	1.4	86.4	6.7	94.6	202
Highest	2.2	88.7	3.6	94.5	175

Table 11.2: Prevention of mother-to-child transmission: Known HIV status (continued)

Among women aged 15-49 years who gave birth within the 12 months before the survey, percentage who reported that they were tested for HIV during antenatal care (ANC) and received their results or that they already knew they were HIV positive during their last pregnancy, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Tested for HIV during ANC and received results		Percentage who already knew they were HIV positive	Total percentage with known HIV status[1]	Number of women who gave birth within the 12 months before the survey
	Percentage who tested HIV positive	Percentage who tested HIV negative			
Age					
15-19	1.8	88.7	1.2	91.8	174
20-24	1.4	88.5	3.4	93.3	317
25-29	2.6	87.4	5.7	95.7	268
30-34	2.6	79.2	12.4	94.2	217
35-39	3.1	74.5	13.5	91.1	149
40-44	(3.4)	(71.3)	(18.4)	(93.1)	46
45-49	*	*	*	*	3
Total 15-24	1.6	88.6	2.5	92.7	491
Total 15-49	2.2	84.4	6.9	93.5	1,174

[1] Relates to PEPFAR indicator PMTCT_STAT_NAT / SUBNAT: Percentage of pregnant women with known HIV status and Global AIDS Monitoring 2020indicator 2.6: HIV testing in pregnant women.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 11.3: Prevention of mother-to-child transmission: HIV-positive pregnant women who received antiretroviral therapy

Among self-reported HIV-positive women aged 15-49 years who gave birth within the 12 months before the survey, percentage who reported they had received antiretroviral therapy (ART) during their last pregnancy to reduce the risk of mother-to-child transmission, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Percentage who were already on ART prior to pregnancy	Percentage who were newly initiated on ART during pregnancy or labor and delivery	Total percentage who received ART[1]	Number of HIV-positive women who gave birth within the 12 months before the survey
Residence				
Urban	(78.4)	(21.6)	(100.0)	28
Rural	67.3	30.8	98.1	87
Province				
Bulawayo	*	*	*	6
Manicaland	*	*	*	8
Mashonaland Central	*	*	*	14
Mashonaland East	*	*	*	11
Mashonaland West	*	*	*	12
Matabeleland North	*	*	*	13
Matabeleland South	*	*	*	16
Midlands	*	*	*	10
Masvingo	*	*	*	13
Harare	*	*	*	12

Table 11.3: Prevention of mother-to-child transmission: HIV-positive pregnant women who received antiretroviral therapy (continued)

Among self-reported HIV-positive women aged 15-49 years who gave birth within the 12 months before the survey, percentage who reported they had received antiretroviral therapy (ART) during their last pregnancy to reduce the risk of mother-to-child transmission, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Percentage who were already on ART prior to pregnancy	Percentage who were newly initiated on ART during pregnancy or labor and delivery	Total percentage who received ART[1]	Number of HIV-positive women who gave birth within the 12 months before the survey
Marital status				
Never married	*	*	*	7
Married or living together	72.1	26.8	98.9	84
Divorced or separated	*	*	*	21
Widowed	*	*	*	3
Education				
No education	*	*	*	3
Primary	75.7	21.0	96.8	53
Secondary	69.0	31.0	100.0	56
More than secondary	*	*	*	3
Wealth quintile				
Lowest	(71.6)	(21.2)	(92.8)	28
Second	(69.3)	(30.7)	(100.0)	35
Middle	(69.9)	(30.1)	(100.0)	25
Fourth	*	*	*	17
Highest	*	*	*	10
Age				
15-19	*	*	*	5
20-24	*	*	*	18
25-29	*	*	*	22
30-34	(77.9)	(22.1)	(100.0)	34
35-39	(78.4)	(21.6)	(100.0)	25
40-44	*	*	*	10
45-49	*	*	*	1
Total 15-24	*	*	*	23
Total 15-49	70.7	28.0	98.7	115

[1]Relates to Global AIDS Monitoring 2020 indicator 2.3: Preventing mother-to-child transmission of HIV; and PEPFAR indicator PMTCT_ARV_NAT / SUBNAT: Number and percentage of HIV-positive pregnant women who received antiretroviral medicine during pregnancy to reduce the risk of mother-to-child transmission.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.
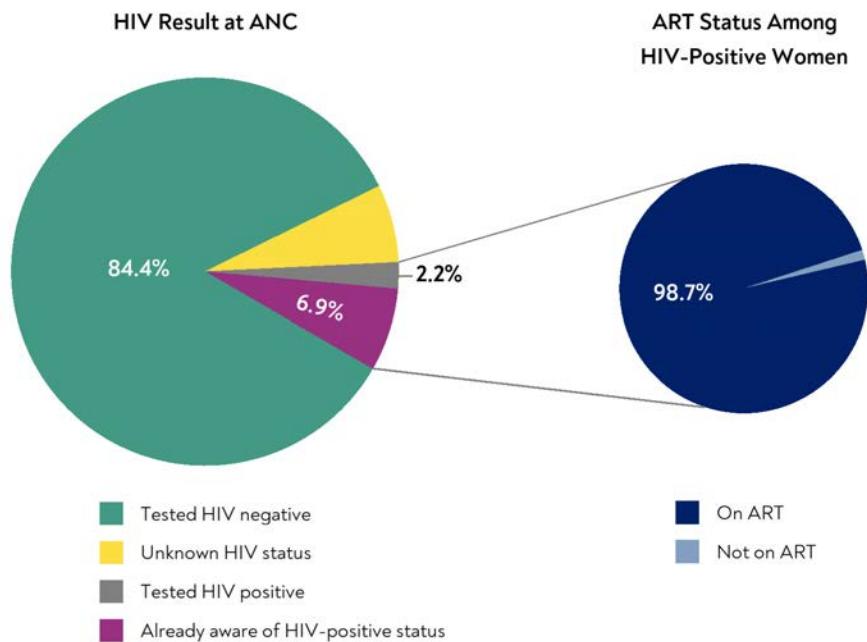
Figure 11.3:
Self-reported HIV testing status and antiretroviral therapy use during antenatal care among mothers aged 15-49 years who delivered in the 12 months before the survey, ZIMPHIA 2020

Abbreviations: ANC, antenatal care; ART, antiretroviral therapy.
Note that data points not shown in the final report tables are also not shown in the pie charts. Each pie represents 100% of the total sample size.

Table 11.4: Breastfeeding status by child's age and mother's HIV status

Percent distribution of last-born children born to women aged 15-49 years in the three years before the survey by breastfeeding status reported by their mothers, by child's age and mother's HIV status, ZIMPHIA 2020

Characteristic	Never breastfed	Ever breastfed, but not currently breastfeeding	Currently breastfeeding	Total	Number
Child's age (months)					
0-1	1.3	3.1	95.6	100.0	206
2-3	0.9	8.0	91.1	100.0	180
4-5	1.5	6.3	92.2	100.0	217
6-8	2.4	5.4	92.1	100.0	296
9-11	1.0	9.1	89.9	100.0	268
12-17	0.6	24.7	74.6	100.0	515
18-23	1.4	75.7	22.9	100.0	477
24-36	1.1	94.4	4.6	100.0	762
Result of mother's ZIMPHIA HIV test					
HIV positive	3.1	44.5	52.3	100.0	352
HIV negative	1.0	43.2	55.8	100.0	2,398
Not tested	1.0	41.2	57.7	100.0	182
Total	1.2	43.2	55.6	100.0	2,932

Table 11.5: Prevention of mother-to-child transmission: Early infant testing

Among self-reported HIV-positive women aged 15-49 years who delivered in the 3 years before the survey, percentage who reported their last-born infant had an HIV test done within 2 months of birth and within 12 months of birth, by result of infant's HIV test, ZIMPHIA 2020

Characteristic	Percentage of infants who had an HIV test within 2 months of age[1,2]	Percentage of infants who had an HIV test between 3 and 11 months of age[2]	Number of infants born in the 3 years before the survey to HIV-positive women[3]
Result of infant's HIV test			
HIV positive	*	*	7
HIV negative	71.8	21.7	208
Don't know/other	*	*	20
Total	64.3	18.5	269

[1] Relates to Global AIDS Monitoring 2020 indicator 2.1: Early infant diagnosis.
[2] Relates to PEPFAR indicator PMTCT_EID: Percentage of infants born to HIV-positive women who received a first virologic HIV test (sample collected) by 12 months of age.
[3] Includes only last-born infants.
* Estimates based on a denominator less than 25 have been suppressed.
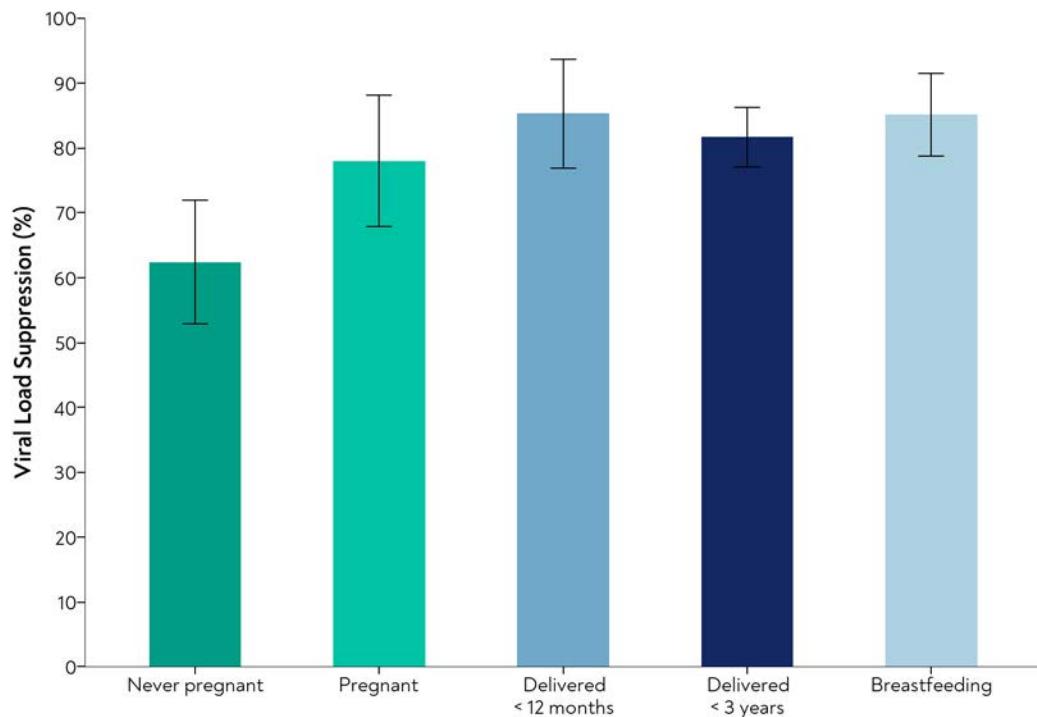
Table 11.6: Viral load suppression in HIV-positive women of childbearing age (ages 15-49 years), by pregnancy status and postpartum-related characteristics

Among HIV-positive women aged 15-49 years, percentage with viral load suppression (VLS) (HIV RNA < 1,000 copies per milliliter), by self-reported pregnancy and postpartum-related characteristics, ZIMPHIA 2020

Characteristic	Percentage with VLS	Number
Ever pregnant		
Yes	78.4	1,381
No	62.4	140
Pregnancy status		
Pregnant at time of the survey	78.0	72
Not pregnant at time of the survey	76.8	1,433
Delivered in the 12 months before the survey		
Delivered in the 12 months before the survey	85.3	133
Did not deliver in the 12 months before the survey	77.3	324
Delivered in the 3 years before the survey		
Delivered in the 3 years before the survey	81.7	352
Did not deliver in the 3 years before the survey	73.2	105
Breastfeeding status		
Never breastfed	*	15
Ever breastfed, but not currently breastfeeding	76.2	259
Currently breastfeeding	85.2	183

* Estimates based on a denominator less than 25 have been suppressed.

Figure 11.6:
Viral load suppression among women aged 15-49 years by pregnancy status, postpartum timing, and breastfeeding status at time of survey, ZIMPHIA 2020

11.3 REFERENCES

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12. HIV RISK FACTORS AND PREVENTION INTERVENTIONS

12.1 BACKGROUND

This chapter describes the prevalence of sexual behaviors that increase the risk of HIV infection as well as the uptake of key HIV prevention methods. ZIMPHIA 2020 provides evidence on high-risk behaviors, including early sexual debut, number of lifetime sexual partners, and recent engagement in multiple sexual partnerships among adults in Zimbabwe. The survey also presents data on the uptake of proven HIV prevention interventions including condom use; male circumcision; and knowledge about, willingness to take, and uptake of pre-exposure prophylaxis (PrEP), the use of ARVs by people at risk for HIV to prevent HIV acquisition.

Risk taking behavior among young adolescents (ages 10-14 years) and young people (ages 15-24 years) is a particularly important challenge for long-term epidemic control. Young people are particularly more likely to engage in risky sexual behaviors than older adults and have less frequent contact with the healthcare system.[1] Although young adolescents were not included in ZIMPHIA 2020, the survey asked young people whether they had sex while they were young adolescents. This was done in order to assess the prevalence of early sexual debut (before the age of 15 years) reported by young people in Zimbabwe, according to their sex, province, and other selected sociodemographic characteristics. The findings may help identify where young adolescents and young people could benefit from enhanced HIV education and prevention efforts.

Although the scale-up of universal testing and treatment is expected to lead to reduced HIV transmission, eliminating HIV transmission will require a combination of prevention options that can meet the current needs of different people.[2] Condoms remain an inexpensive and effective tool that can prevent HIV, sexually transmitted infections, and unwanted pregnancies. ZIMPHIA 2020 asked participants about their condom use at last sexual intercourse, particularly with nonmarital, noncohabitating partners. Since 2007, WHO and UNAIDS have also recommended voluntary medical male circumcision as a cost-effective strategy to reduce male acquisition of HIV.[3] To inform the national voluntary medical male circumcision program, ZIMPHIA 2020 asked men whether they had been medically or traditionally circumcised. Finally, PrEP, the use of ARVs by people at risk for HIV to prevent HIV acquisition, has become an important prevention tool among some populations and in regions with the highest HIV prevalence.[4] ZIMPHIA 2020 assessed the knowledge levels and acceptability of and update of PrEP among adults in Zimbabwe at the time of the survey.

With this information, the national program can tailor its prevention efforts to reach those individuals most at risk for HIV infection and most in need of services and provide them with prevention options that work for them.

12.2 RESULTS

The following tables present ZIMPHIA 2020's data on HIV risk factors and uptake of prevention interventions by demographic characteristics.

Table 12.1: Sexual behavior by demographic characteristics

Percent distribution of self-reported sexual behavior characteristics among adults aged 15 years and older, by sex, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
Ever had sex						
Yes	82.7	6,898	86.6	11,223	84.8	18,121
No	17.3	1,244	13.4	1,341	15.2	2,585
Had sex in the 12 months before the survey						
Yes	65.0	5,131	63.3	7,814	64.1	12,945
No	17.1	1,442	23.0	3,075	20.3	4,517
Never had sex	17.9	1,244	13.7	1,341	15.7	2,585
Had sexual intercourse before the age of 15						
Yes	3.6	294	3.0	400	3.3	694
No	78.8	6,452	83.4	10,546	81.2	16,998
Never had sex	17.6	1,244	13.6	1,341	15.5	2,585
Total 15-24	36.4	2,673	32.2	3,451	34.1	6,124
Total 15-49	84.3	6,404	81.0	9,623	82.5	16,027
Total 50+	15.7	1,816	19.0	2,950	17.5	4,766
Total 15+	100.0	8,220	100.0	12,573	100.0	20,793

Table 12.2: HIV prevalence by sexual behavior

Prevalence of HIV among adults aged 15 years and older, by sex and self-reported sexual behavior characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Age at first sexual intercourse						
Under 15	8.7	280	24.6	387	16.3	667
15-19	10.8	3,025	16.8	6,579	14.4	9,604
20-24	12.9	2,114	16.6	2,861	14.7	4,975
25+	13.7	858	19.8	507	15.6	1,365
Number of lifetime sexual partners						
0	2.4	1,173	3.0	1,282	2.7	2,455
1	4.4	1,121	8.7	5,979	7.8	7,100
2+	13.5	5,063	29.5	4,437	19.5	9,500
Number of sexual partners in the 12 months before the survey						
0	12.1	1,340	23.3	2,866	18.9	4,206
1	12.5	3,604	14.2	6,958	13.5	10,562
2+	9.8	1,164	27.9	285	12.6	1,449

Table 12.2: HIV prevalence by sexual behavior (continued)

Prevalence of HIV among adults aged 15 years and older, by sex and self-reported sexual behavior characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Condom use at last sexual intercourse in the 12 months before the survey						
Used condom	21.5	1,423	37.9	1,435	28.2	2,858
Did not use condom	7.6	3,342	9.3	5,802	8.5	9,144
No sexual intercourse in the 12 months before the survey	12.1	1,340	23.3	2,866	18.9	4,206
Total 15-24	2.4	2,510	5.0	3,283	3.7	5,793
Total 15-49	8.6	5,946	14.8	9,088	11.8	15,034
Total 50+	19.2	1,718	17.3	2,783	18.1	4,501
Total 15+	10.2	7,664	15.3	11,871	12.9	19,535

Table 12.3: Sex before the age of 15 years

Percentage of young people aged 15-24 years who reported that they had sexual intercourse before the age of 15 years; by sex and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage who had sex before the age of 15 years	Number	Percentage who had sex before the age of 15 years	Number	Percentage who had sex before the age of 15 years	Number
Residence						
Urban	5.1	391	1.9	677	3.3	1,068
Rural	11.3	1,074	5.4	1,483	8.3	2,557
Province						
Bulawayo	6.5	133	2.0	200	4.2	333
Manicaland	11.4	134	4.6	249	7.6	383
Mashonaland Central	14.0	173	9.3	215	11.8	388
Mashonaland East	8.0	123	0.5	176	4.2	299
Mashonaland West	7.2	185	3.9	255	5.5	440
Matabeleland North	14.6	165	6.1	217	10.6	382
Matabeleland South	13.5	177	5.5	206	9.8	383
Midlands	8.0	128	6.6	228	7.2	356
Masvingo	8.8	150	4.8	181	6.9	331
Harare	4.2	97	1.8	233	2.7	330
Marital status						
Never married	10.2	1,136	4.0	568	8.6	1,704
Married or living together	6.3	267	3.8	1,357	4.3	1,624
Divorced or separated	10.0	58	6.5	222	7.4	280
Widowed	*	0	*	13	*	13

Table 12.3: Sex before the age of 15 years (continued)

Percentage of young people aged 15-24 years who reported that they had sexual intercourse before the age of 15 years; by sex and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage who had sex before the age of 15 years	Number	Percentage who had sex before the age of 15 years	Number	Percentage who had sex before the age of 15 years	Number
Education						
No education	*	9	*	20	13.2	29
Primary	13.4	415	8.8	560	11.1	975
Secondary	8.4	960	2.6	1,491	5.3	2,451
More than secondary	3.0	80	1.0	89	2.1	169
Wealth quintile						
Lowest	10.8	334	8.1	565	9.3	899
Second	11.9	329	4.4	428	8.2	757
Middle	11.6	324	4.6	385	8.3	709
Fourth	5.3	220	1.4	393	3.0	613
Highest	6.3	258	2.0	389	4.0	647
Age						
15-19	15.2	518	7.1	675	10.8	1,193
20-24	6.8	947	2.7	1,485	4.7	2,432
Total 15-24	9.4	1,465	4.1	2,160	6.6	3,625

( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
*Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 12.4.A: Condom use at last sex with a nonmarital, noncohabitating partner: Men

Among men aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among men who reported having sex in the 12 months before the survey		Among men who reported having sex with a nonmarital, noncohabitating partner	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with a such a partner[2]	Number
Residence				
Urban	45.2	1,317	66.6	585
Rural	36.7	3,797	64.0	1,303
Province				
Bulawayo	50.7	430	64.4	205
Manicaland	33.4	580	67.5	173
Mashonaland Central	35.7	597	68.1	192
Mashonaland East	36.9	488	67.1	164

Table 12.4.A: Condom use at last sex with a nonmarital, noncohabiting partner: Men (continued)

Among men aged 15 years and older, self-reported condom use with nonmarital, noncohabiting partners in the 12 months before the survey by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among men who reported having sex in the 12 months before the survey		Among men who reported having sex with a nonmarital, noncohabiting partner	
	Percentage who reported having sex with a nonmarital, noncohabiting partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with a such a partner[2]	Number
Mashonaland West	40.4	604	66.5	228
Matabeleland North	49.2	493	52.0	217
Matabeleland South	57.0	447	66.2	234
Midlands	34.3	559	63.2	161
Masvingo	35.5	573	65.6	184
Harare	39.6	343	64.5	130
Marital status				
Never married	96.9	1,111	68.5	1,070
Married or living together	14.3	3,649	59.1	481
Divorced or separated	95.9	295	59.2	282
Widowed	96.4	57	69.8	54
Education				
No education	20.8	121	*	24
Primary	34.4	1,674	53.7	520
Secondary	42.4	2,860	69.4	1,174
More than secondary	38.4	452	66.9	169
Wealth quintile				
Lowest	33.5	1,346	59.1	418
Second	36.0	1,126	63.5	372
Middle	39.8	987	67.0	383
Fourth	42.1	775	68.9	321
Highest	46.5	880	65.6	394
Age				
15-19	98.2	355	69.7	347
20-24	75.5	732	67.8	553
25-29	46.3	657	62.8	311
30-34	30.1	640	59.0	196
35-39	24.8	655	60.3	173
40-44	18.7	487	65.8	88
45-49	13.9	455	59.7	71
50-54	17.5	294	80.1	54
55-59	10.4	226	(52.7)	26
60-64	15.1	221	(38.1)	35
65+	8.3	392	(40.7)	34

Table 12.4.A: Condom use at last sex with a nonmarital, noncohabitating partner: Men (continued)

Among men aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among men who reported having sex in the 12 months before the survey		Among men who reported having sex with a nonmarital, noncohabitating partner	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with a such a partner[2]	Number
Total 15-24	81.8	1,087	68.4	900
Total 15-49	44.4	3,981	65.3	1,739
Total 50+	12.8	1,133	59.2	149
Total 15+	39.3	5,114	64.9	1,888

[1] For individuals with more than three partners, having sex with a nonmarital, noncohabitating partner is determined using information about the last three partners.
[2] Relates to Global AIDS Monitoring 2020 indicator 3.18: Condom use at last high-risk sex.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 12.4.B: Condom use at last sex with a nonmarital, noncohabitating partner: Women

Among women aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among women who reported having sex in the 12 months before the survey		Among women who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with such a partner[2]	Number
Residence				
Urban	27.1	2,260	55.4	618
Rural	14.9	5,376	47.2	811
Province				
Bulawayo	35.2	692	55.4	232
Manicaland	13.8	921	43.1	116
Mashonaland Central	12.5	765	40.2	91
Mashonaland East	15.1	678	52.8	91
Mashonaland West	14.0	873	50.5	113
Matabeleland North	20.9	715	55.5	139
Matabeleland South	37.4	640	43.9	223
Midlands	17.8	896	51.2	150
Masvingo	15.9	804	51.7	124
Harare	24.0	652	57.8	150
Marital status				
Never married	88.2	662	54.0	581
Married or living together	1.8	6,171	41.3	115
Divorced or separated	94.6	580	48.4	550
Widowed	79.9	219	57.0	181

Table 12.4.B: Condom use at last sex with a nonmarital, noncohabitating partner: Women (continued)

Among women aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among women who reported having sex in the 12 months before the survey		Among women who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with such a partner[2]	Number
Education				
No education	8.5	241	*	19
Primary	15.8	2,634	44.2	413
Secondary	20.1	4,253	52.0	862
More than secondary	27.3	498	63.5	135
Wealth quintile				
Lowest	14.6	1,927	44.7	296
Second	13.5	1,567	45.7	217
Middle	15.7	1,388	44.0	215
Fourth	24.4	1,314	56.5	326
Highest	26.6	1,440	56.6	375
Age				
15-19	39.4	568	47.9	230
20-24	27.6	1,238	52.5	357
25-29	16.6	1,273	48.2	218
30-34	14.2	1,147	52.5	164
35-39	14.5	1,090	45.6	163
40-44	15.8	757	55.0	118
45-49	16.4	568	67.0	92
50-54	11.7	322	(67.2)	40
55-59	8.0	293	(43.8)	27
60-64	3.1	191	*	7
65+	6.2	189	*	13
Total 15-24	31.6	1,806	50.6	587
Total 15-49	20.2	6,641	51.2	1,342
Total 50+	7.9	995	49.2	87
Total 15+	18.9	7,636	51.1	1,429

[1] For individuals with more than three partners, having sex with a nonmarital, noncohabitating partner is determined using information about the last three partners.
[2] Relates to Global AIDS Monitoring 2020 indicator 3.18: Condom use at last high-risk sex.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
*Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 12.4.C: Condom use at last sex with a nonmarital, noncohabitating partner: Total

Among adults aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among adults who reported having sex in the 12 months before the survey		Among adults who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with a such a partner[2]	Number
Residence				
Urban	35.3	3,577	61.9	1,203
Rural	25.5	9,173	59.0	2,114
Province				
Bulawayo	42.5	1,122	60.4	437
Manicaland	23.1	1,501	59.8	289
Mashonaland Central	24.5	1,362	61.2	283
Mashonaland East	25.9	1,166	62.9	255
Mashonaland West	26.8	1,477	62.1	341
Matabeleland North	34.8	1,208	53.1	356
Matabeleland South	46.9	1,087	57.0	457
Midlands	25.3	1,455	58.5	311
Masvingo	25.4	1,377	61.0	308
Harare	30.8	995	61.5	280
Marital status				
Never married	94.4	1,773	64.6	1,651
Married or living together	7.3	9,820	56.6	596
Divorced or separated	95.1	875	52.6	832
Widowed	83.7	276	60.3	235
Education				
No education	12.9	362	(44.7)	43
Primary	24.3	4,308	50.3	933
Secondary	30.7	7,113	63.4	2,036
More than secondary	33.6	950	65.7	304
Wealth quintile				
Lowest	23.8	3,273	54.5	714
Second	24.5	2,693	58.3	589
Middle	27.5	2,375	60.3	598
Fourth	32.6	2,089	63.9	647
Highest	35.6	2,320	61.9	769

Table 12.4.C: Condom use at last sex with a nonmarital, noncohabitating partner: Total (continued)

Among adults aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among adults who reported having sex in the 12 months before the survey		Among adults who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with a such a partner[2]	Number
Age				
15-19	63.4	923	61.7	577
20-24	50.1	1,970	63.3	910
25-29	30.2	1,930	58.4	529
30-34	21.0	1,787	56.4	360
35-39	19.2	1,745	54.3	336
40-44	17.2	1,244	60.6	206
45-49	15.1	1,023	63.5	163
50-54	15.0	616	75.8	94
55-59	9.3	519	49.3	53
60-64	9.8	412	(36.8)	42
65+	7.6	581	(33.4)	47
Total 15-24	54.2	2,893	62.7	1,487
Total 15-49	31.3	10,622	60.3	3,081
Total 50+	10.8	2,128	56.2	236
Total 15+	28.6	12,750	60.1	3,317
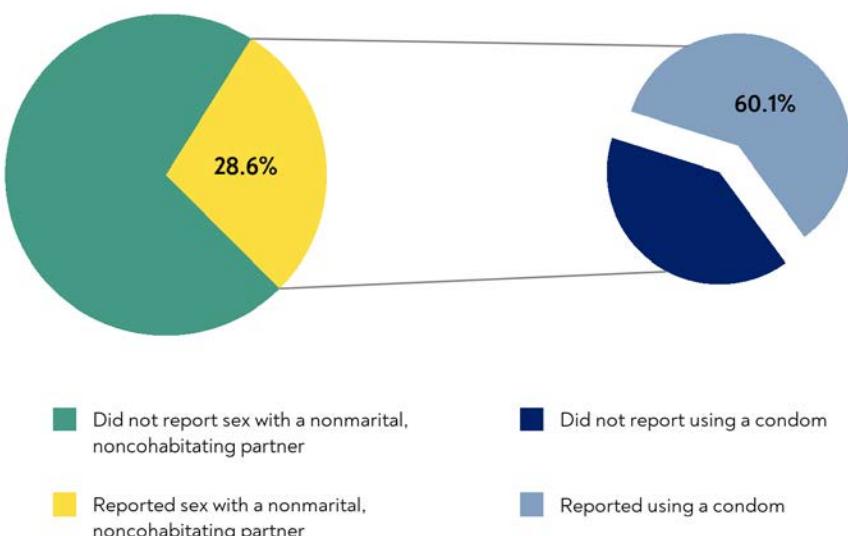
[1] For individuals with more than three partners, having sex with a nonmarital, noncohabitating partner is determined using information about the last three partners.
[2] Relates to Global AIDS Monitoring 2020 indicator 3.18: Condom use at last high-risk sex.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Figure 12.4:
Self-reported sex and condom use at last sex with a nonmarital, noncohabitating partner in the 12 months before the survey, ZIMPHIA 2020

- Did not report sex with a nonmarital, noncohabitating partner
- Reported sex with a nonmarital, noncohabitating partner
- Did not report using a condom
- Reported using a condom

Note that data points not shown in the final report tables are also not shown in the pie charts. Each pie represents 100% of the total sample size.

Table 12.5: Male circumcision

Percent distribution of men aged 15 years and older by self-reported circumcision status, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Circumcised[1]		Uncircumcised	Total	Number
	Medical circumcision	Nonmedical circumcision			
Result of ZIMPHIA HIV test					
HIV positive	6.2	4.7	89.1	100.0	905
HIV negative	20.8	3.8	75.5	100.0	6,746
Not tested	19.7	3.8	76.5	100.0	554
Residence					
Urban	23.7	2.6	73.7	100.0	2,045
Rural	17.4	4.4	78.2	100.0	6,160
Province					
Bulawayo	36.9	3.6	59.5	100.0	652
Manicaland	17.5	3.3	79.2	100.0	970
Mashonaland Central	11.7	3.0	85.3	100.0	996
Mashonaland East	15.5	2.4	82.1	100.0	805
Mashonaland West	19.6	2.8	77.6	100.0	1,049
Matabeleland North	23.8	5.1	71.1	100.0	718
Matabeleland South	33.6	7.4	59.0	100.0	708
Midlands	16.8	3.7	79.5	100.0	889
Masvingo	19.2	8.5	72.3	100.0	865
Harare	17.5	2.4	80.1	100.0	553
Marital status					
Never married	32.5	1.3	66.2	100.0	2,846
Married or living together	10.4	5.6	84.0	100.0	4,701
Divorced or separated	16.4	4.0	79.7	100.0	483
Widowed	6.2	7.0	86.8	100.0	166
Education					
No education	9.4	13.1	77.5	100.0	234
Primary	14.5	5.0	80.5	100.0	2,666
Secondary	21.6	3.0	75.3	100.0	4,693
More than secondary	20.4	3.9	75.7	100.0	601
Wealth quintile					
Lowest	15.1	5.4	79.4	100.0	2,102
Second	17.7	3.9	78.4	100.0	1,884
Middle	18.6	4.0	77.4	100.0	1,644
Fourth	21.5	2.5	76.1	100.0	1,211
Highest	24.6	3.2	72.2	100.0	1,364

Table 12.5: Male circumcision (continued)

Percent distribution of men aged 15 years and older by self-reported circumcision status, by result of ZIMPHIA HIV test and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Circumcised[1]		Uncircumcised	Total	Number
	Medical circumcision	Nonmedical circumcision			
Age					
15-19	37.4	1.2	61.4	100.0	1,535
20-24	30.8	1.4	67.9	100.0	1,134
25-29	15.4	2.7	81.9	100.0	853
30-34	11.8	4.8	83.3	100.0	823
35-39	12.7	5.3	82.1	100.0	820
40-44	10.7	4.4	84.9	100.0	623
45-49	7.3	7.4	85.3	100.0	607
50-54	8.1	5.0	86.9	100.0	395
55-59	7.5	7.9	84.6	100.0	312
60-64	4.2	6.9	88.9	100.0	327
65+	3.6	10.0	86.4	100.0	776
Total 15-24	34.4	1.3	64.4	100.0	2,669
Total 15-49	21.8	3.2	75.1	100.0	6,395
Total 50+	5.7	7.7	86.6	100.0	1,810
Total 15+	19.2	3.9	76.9	100.0	8,205

[1] Relates to Global AIDS Monitoring 2020 indicator 3.16: Prevalence of male circumcision; and PEPFAR indicator VMMC_TOTALCIRC NAT / SUBNAT: Total number of men ever circumcised.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Figure 12.5:
Self-reported male circumcision status by survey HIV test result, ZIMPHIA 2020
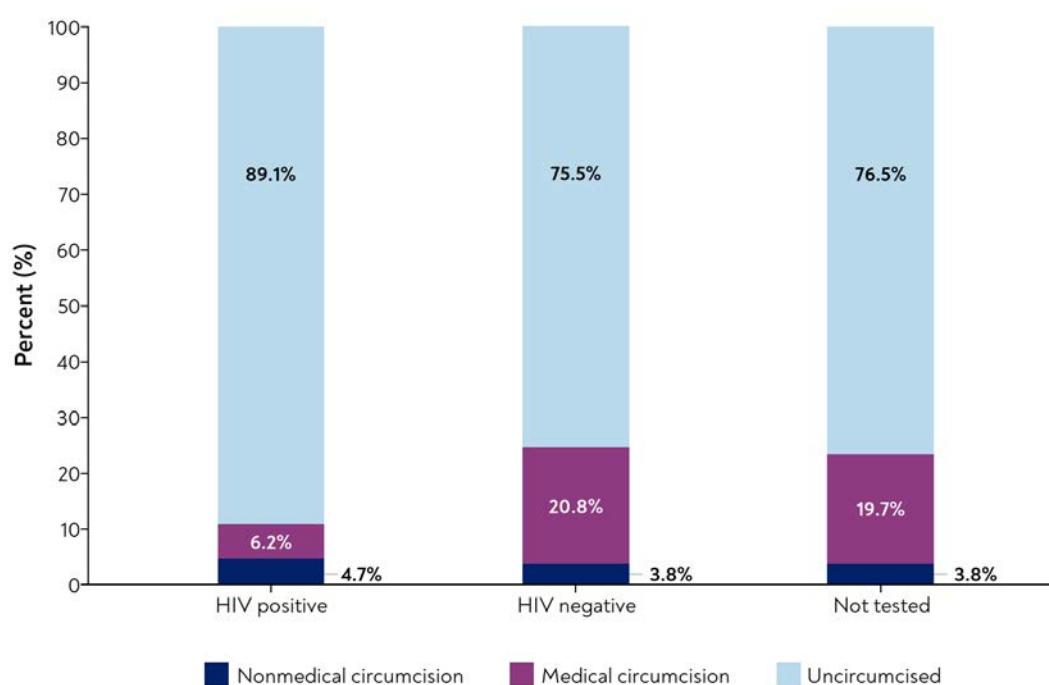
Table 12.6: Self-reported knowledge of pre-exposure prophylaxis

Among adults aged 15 years and older, percentage who reported they had heard of pre-exposure prophylaxis (PrEP), by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage who had heard of PrEP	Number	Percentage who had heard of PrEP	Number	Percentage who had heard of PrEP	Number
Residence						
Urban	11.8	2,046	14.3	3,684	13.2	5,730
Rural	7.5	6,168	7.2	8,859	7.3	15,027
Province						
Bulawayo	14.9	651	18.8	1,118	17.0	1,769
Manicaland	9.7	970	12.8	1,578	11.4	2,548
Mashonaland Central	10.5	996	9.0	1,271	9.8	2,267
Mashonaland East	7.6	807	7.7	1,168	7.6	1,975
Mashonaland West	9.2	1,052	8.0	1,427	8.6	2,479
Matabeleland North	8.2	717	7.1	1,123	7.6	1,840
Matabeleland South	6.2	708	6.7	1,015	6.5	1,723
Midlands	7.3	890	8.1	1,457	7.8	2,347
Masvingo	6.5	867	6.3	1,307	6.4	2,174
Harare	9.0	556	11.3	1,079	10.3	1,635
Marital status						
Never married	8.1	2,847	10.8	2,281	9.1	5,128
Married or living together	9.4	4,707	9.1	7,252	9.2	11,959
Divorced or separated	7.5	483	13.7	1,227	11.6	1,710
Widowed	6.4	168	6.0	1,772	6.0	1,940
Education						
No education	3.1	235	2.2	695	2.4	930
Primary	5.3	2,669	6.3	4,526	5.9	7,195
Secondary	8.4	4,699	9.8	6,557	9.1	11,256
More than secondary	24.3	600	29.1	744	26.5	1,344
Wealth quintile						
Lowest	5.9	2,106	4.9	3,093	5.4	5,199
Second	6.3	1,885	5.5	2,689	5.9	4,574
Middle	7.5	1,647	7.8	2,299	7.6	3,946
Fourth	10.5	1,212	13.9	2,006	12.3	3,218
Highest	14.8	1,364	15.7	2,456	15.3	3,820
Age						
15-19	5.3	1,537	8.2	1,752	6.7	3,289
20-24	10.0	1,135	9.5	1,684	9.8	2,819
25-29	9.8	853	10.9	1,540	10.3	2,393
30-34	11.2	823	12.2	1,385	11.7	2,208

Table 12.6: Self-reported knowledge of pre-exposure prophylaxis (continued)

Among adults aged 15 years and older, percentage who reported they had heard of pre-exposure prophylaxis (PrEP), by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage who had heard of PrEP	Number	Percentage who had heard of PrEP	Number	Percentage who had heard of PrEP	Number
35-39	11.1	820	13.1	1,363	12.2	2,183
40-44	11.1	623	12.3	985	11.7	1,608
45-49	8.0	609	9.3	892	8.7	1,501
50-54	9.6	394	9.3	603	9.5	997
55-59	9.0	312	6.8	635	7.8	947
60-64	6.6	328	5.6	552	6.0	880
65+	3.4	780	2.3	1,152	2.7	1,932
Total 15-24	7.5	2,672	8.8	3,436	8.1	6,108
Total 15-49	9.1	6,400	10.5	9,601	9.9	16,001
Total 50+	6.7	1,814	5.2	2,942	5.8	4,756
Total 15+	8.7	8,214	9.5	12,543	9.1	20,757

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 12.7: Willingness to take pre-exposure prophylaxis

Among adults aged 15 years and older who are HIV negative, percentage who reported they would take pre-exposure prophylaxis (PrEP) to prevent HIV, by selected demographics characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage who would take PrEP	Number	Percentage who would take PrEP	Number	Percentage who would take PrEP	Number
Heard of PrEP						
Yes	72.2	485	69.0	751	70.6	1,236
No	62.3	6,000	55.3	8,614	58.7	14,614
Residence						
Urban	60.6	1,578	55.3	2,704	57.7	4,282
Rural	64.1	4,910	56.9	6,670	60.5	11,580
Province						
Bulawayo	60.2	503	54.1	806	57.0	1,309
Manicaland	60.9	786	54.2	1,212	57.4	1,998
Mashonaland Central	70.8	793	61.7	958	66.5	1,751
Mashonaland East	60.2	621	55.8	857	58.0	1,478
Mashonaland West	75.5	873	62.2	1,081	69.1	1,954
Matabeleland North	63.1	554	61.2	831	62.1	1,385
Matabeleland South	65.4	510	57.0	686	61.2	1,196
Midlands	59.5	732	56.6	1,138	57.9	1,870
Masvingo	56.7	696	49.2	1,014	52.8	1,710
Harare	57.5	420	55.2	791	56.2	1,211

Table 12.7: Willingness to take pre-exposure prophylaxis (continued)

Among adults aged 15 years and older who are HIV negative, percentage who reported they would take pre-exposure prophylaxis (PrEP) to prevent HIV, by selected demographics characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage who would take PrEP	Number	Percentage who would take PrEP	Number	Percentage who would take PrEP	Number
Marital status						
Never married	63.0	2,454	52.5	1,895	59.1	4,349
Married or living together	61.8	3,580	61.4	5,625	61.6	9,205
Divorced or separated	80.2	346	64.4	763	70.3	1,109
Widowed	46.6	100	28.8	1,084	30.3	1,184
Education						
No education	54.9	188	33.4	519	39.5	707
Primary	61.8	2,075	51.8	3,253	56.4	5,328
Secondary	64.1	3,776	60.4	5,026	62.3	8,802
More than secondary	61.8	440	60.2	560	61.1	1,000
Wealth quintile						
Lowest	67.1	1,658	57.7	2,350	62.3	4,008
Second	62.6	1,518	54.5	2,008	58.6	3,526
Middle	62.0	1,315	60.2	1,712	61.1	3,027
Fourth	61.3	921	57.0	1,437	59.1	2,358
Highest	61.9	1,076	53.1	1,867	57.0	2,943
Age						
15-19	58.4	1,360	53.5	1,515	56.0	2,875
20-24	71.2	990	63.1	1,435	67.2	2,425
25-29	68.6	718	67.1	1,216	67.8	1,934
30-34	68.0	654	67.1	1,000	67.5	1,654
35-39	63.5	610	66.1	930	64.9	1,540
40-44	66.8	438	64.8	598	65.8	1,036
45-49	64.2	395	60.3	537	62.3	932
50-54	64.0	242	49.1	390	56.3	632
55-59	52.9	205	42.5	428	47.1	633
60-64	54.4	233	29.8	388	39.3	621
65+	34.4	643	18.5	937	24.7	1,580
Total 15-24	64.3	2,350	57.9	2,950	61.2	5,300
Total 15-49	65.6	5,165	62.4	7,231	64.0	12,396
Total 50+	47.8	1,323	30.0	2,143	37.4	3,466
Total 15+	63.1	6,488	56.4	9,374	59.7	15,862

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 12.8: Ever taken pre-exposure prophylaxis

Among adults aged 15 years and older who are HIV negative who had been offered pre-exposure prophylaxis (PrEP) to prevent HIV, percentage who reported they had ever taken it, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage who had ever taken PrEP	Number	Percentage who had ever taken PrEP	Number	Percentage who had ever taken PrEP	Number
Residence						
Urban	15.6	202	11.5	407	13.3	609
Rural	8.1	358	8.0	450	8.1	808
Province						
Bulawayo	10.4	78	3.4	149	6.5	227
Manicaland	16.5	71	11.8	145	13.8	216
Mashonaland Central	7.1	79	6.9	89	7.0	168
Mashonaland East	(7.2)	48	8.6	58	7.9	106
Mashonaland West	5.6	78	2.3	76	4.3	154
Matabeleland North	(10.4)	47	4.9	58	7.9	105
Matabeleland South	(15.8)	32	(7.5)	41	11.8	73
Midlands	(12.4)	49	8.1	83	10.1	132
Masvingo	(14.4)	41	16.1	64	15.3	105
Harare	(15.2)	37	17.1	94	16.3	131
Marital status						
Never married	10.7	192	7.4	209	9.3	401
Married or living together	10.4	339	10.0	489	10.2	828
Divorced or separated	(22.9)	26	13.5	106	15.9	132
Widowed	*	3	10.9	52	12.2	55
Education						
No education	*	7	*	11	*	18
Primary	9.7	112	10.4	190	10.1	302
Secondary	13.0	332	9.4	488	11.2	820
More than secondary	7.5	108	9.6	168	8.5	276
Wealth quintile						
Lowest	9.0	99	8.7	107	8.9	206
Second	7.4	98	9.0	105	8.1	203
Middle	8.9	92	11.8	128	10.3	220
Fourth	19.6	107	11.5	207	14.9	314
Highest	9.5	164	8.2	310	8.8	474

Table 12.8: Ever taken pre-exposure prophylaxis (continued)

Among adults aged 15 years and older who are HIV negative, percentage who reported they had ever taken pre-exposure prophylaxis (PrEP) to prevent HIV, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Men		Women		Total	
	Percentage who had ever taken PrEP	Number	Percentage who had ever taken PrEP	Number	Percentage who had ever taken PrEP	Number
Age						
15-19	4.6	76	9.7	130	7.6	206
20-24	14.5	96	9.5	133	12.1	229
25-29	13.1	70	15.0	140	14.1	210
30-34	13.9	77	9.7	114	11.8	191
35-39	9.5	78	7.7	129	8.5	207
40-44	4.6	50	9.4	61	6.7	111
45-49	(10.5)	37	(2.3)	42	7.0	79
50-54	(14.4)	26	(4.4)	36	9.4	62
55-59	*	15	(9.6)	28	(13.0)	43
60-64	*	15	*	23	(15.3)	38
65+	*	20	*	21	(7.1)	41
Total 15-24	10.5	172	9.6	263	10.1	435
Total 15-49	10.7	484	10.1	749	10.4	1,233
Total 50+	15.2	76	6.8	108	10.9	184
Total 15+	11.1	560	9.8	857	10.4	1,417
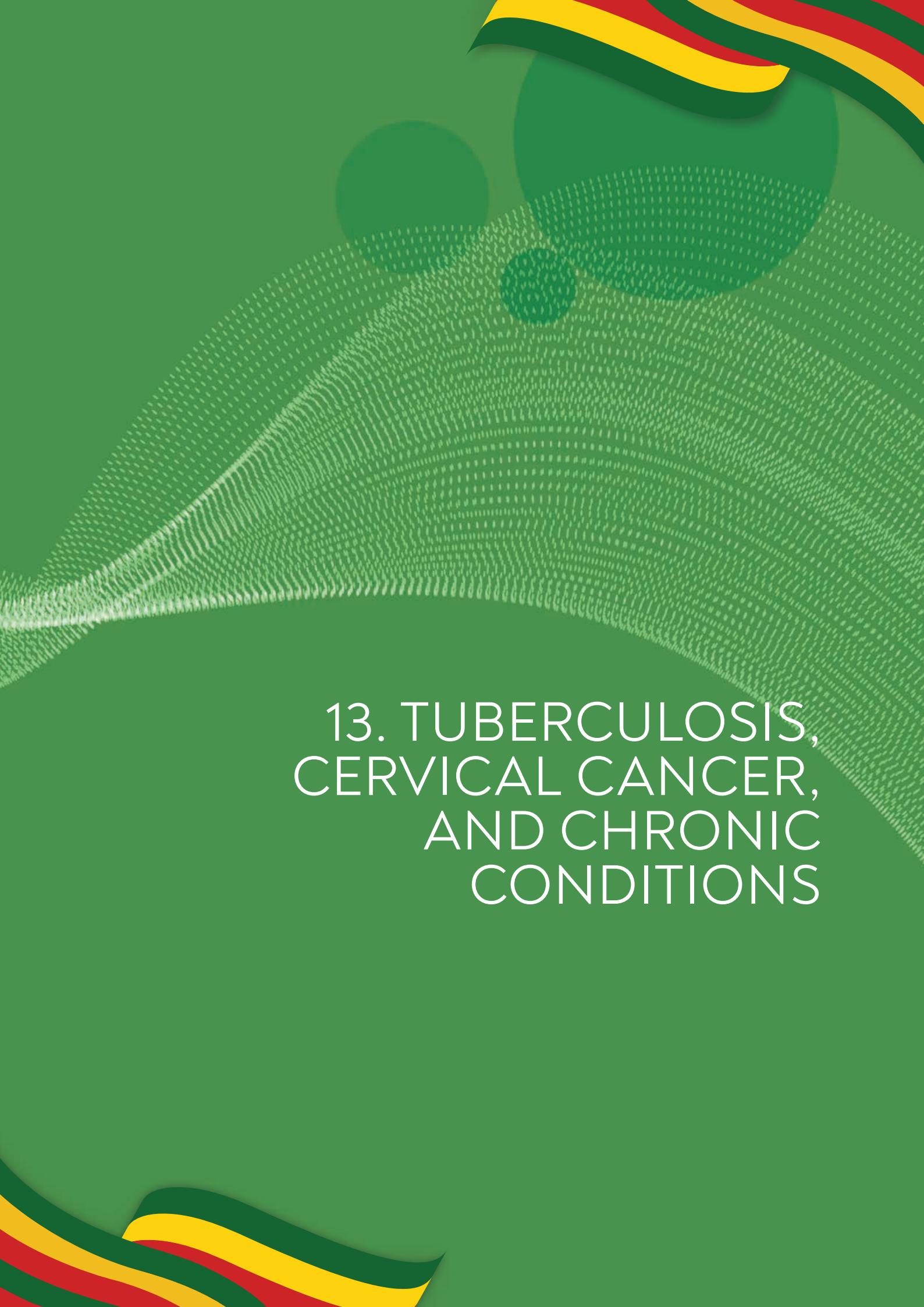
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

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13. TUBERCULOSIS, CERVICAL CANCER, AND CHRONIC CONDITIONS

13.1 BACKGROUND

People living with HIV are at a heightened risk for acquiring other diseases such as cervical cancer among women and TB, and other common noncommunicable chronic health conditions can also complicate their clinical care.

Cervical cancer is the leading cause of death among women living with HIV. HIV-positive women are at greater risk of developing cervical cancer because their weakened immune systems are not able to clear human papillomavirus (HPV) infections. WHO recommends HPV screening and treatment for all sexually-active HIV-positive women, with priority given to screening women aged 30-49 years.[1] ZIMPHIA 2020 provides population-based rates of screening not available from routine clinic data, which does not capture women not in care. This chapter presents cervical cancer screening rates by age and sociodemographic characteristics.

With changes in lifestyle and diet, noncommunicable health conditions (including diabetes, hypertension, heart disease, kidney disease, cancers, lung diseases, and depression or other mental health issues) have become an increasingly important causes of illness and mortality in low and middle income countries.[2] While it is not clear whether these conditions are more common among people living with HIV, there are some data to suggest that people living with HIV may develop comorbidities at younger ages and may be at higher risk of developing multiple chronic comorbidities.[3] Regardless, as people live longer with HIV on treatment, their care is more likely to require prevention and/or management of chronic health comorbidities.[4] In order to inform national program planning, ZIMPHIA 2020 asked both HIV-negative and HIV-positive participants whether they have been told by clinicians that they have a chronic health condition.

Finally, TB remains the leading cause of death for people living with HIV in Africa.[5] HIV infection increases a person's susceptibility to TB infection and dramatically increases the risk of progression of latent TB to active disease.[6,7] A UNAIDS model estimates there were 4,600 [95% CI: 3,300-6,200] TB-related deaths among HIV-positive persons in Zimbabwe in 2019.[5] Information regarding health-seeking behavior and access to services among people living with HIV, particularly for TB health services, can help the HIV program decrease the impact of TB on people living with HIV. This chapter also describes the self-reported uptake of TB services (TB clinic attendance, TB diagnosis, and TB treatment initiation) among people living with HIV in Zimbabwe. In addition, this chapter presents data on the performance of two of the key collaborative TB/HIV activities recommended by WHO: HIV testing of all of those visiting a TB clinic who are not already aware of their HIV-positive status; and TB symptom screen of all people living with HIV at every HIV clinic visit.

13.2 RESULTS

The following tables report on cervical cancer screening among women living with HIV, the proportion of self-reported chronic health conditions among all survey participants and the uptake and delivery of the key TB/HIV services.

Table 13.1: Cervical cancer screening among women living with HIV

Among HIV-positive women aged 15 years and older, percentage who reported they had ever received a cervical cancer screening test, by selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among HIV-positive women		Among HIV-positive women who reported they had received a cervical cancer screening test	
	Percentage who reported they had ever received a cervical cancer screening test	Number	Percentage with an abnormal result	Number
Residence				
Urban	45.1	581	6.4	272
Rural	28.6	1,470	5.2	405
Province				
Bulawayo	47.1	196	4.8	96
Manicaland	31.2	203	4.4	60
Mashonaland Central	21.6	202	(1.8)	43
Mashonaland East	35.3	173	8.9	61
Mashonaland West	34.6	235	2.5	78
Matabeleland North	27.6	205	4.7	57
Matabeleland South	27.4	231	6.3	62
Midlands	26.9	237	4.7	66
Masvingo	37.1	211	5.5	78
Harare	46.3	158	8.7	76
Marital status				
Never married	20.9	185	(4.7)	46
Married or living together	32.4	989	3.5	313
Divorced or separated	41.7	373	7.5	148
Widowed	35.7	502	8.4	170
Education				
No education	19.1	120	*	22
Primary	29.1	899	4.5	255
Secondary	37.8	966	5.7	365
More than secondary	57.6	63	(10.2)	35
Wealth quintile				
Lowest	23.5	521	2.5	116
Second	25.1	474	4.2	123
Middle	37.3	377	7.0	132
Fourth	43.8	332	7.9	149
Highest	43.1	347	5.4	157
Age				
15-19	1.7	66	*	1
20-24	19.3	117	*	22
25-29	27.0	168	(2.6)	42

Table 13.1: Cervical cancer screening among women living with HIV (continued)

Among HIV-positive women aged 15 years and older, percentage who reported they had ever received a cervical cancer screening test, by selected demographic characteristics, ZIMPHIA 2020
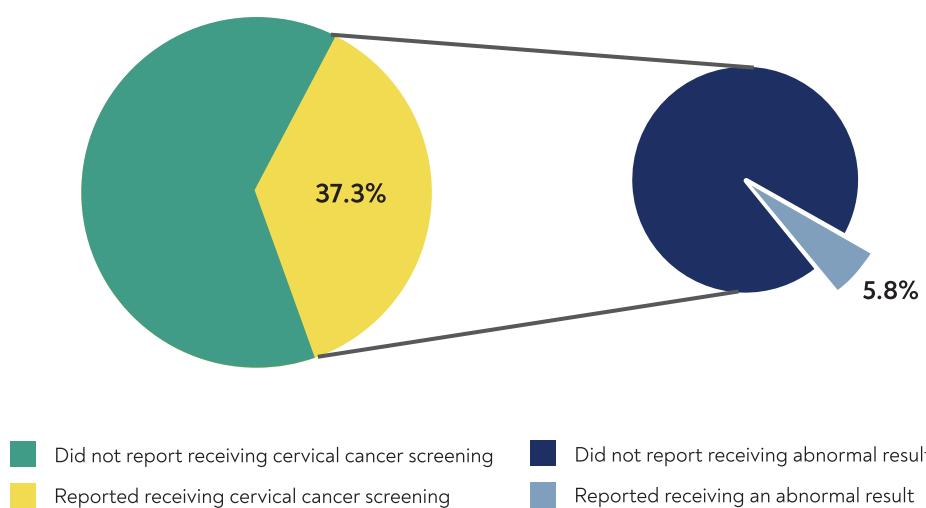
Characteristic	Among HIV-positive women		Among HIV-positive women who reported they had received a cervical cancer screening test	
	Percentage who reported they had ever received a cervical cancer screening test	Number	Percentage with an abnormal result	Number
30-34	36.4	257	8.4	88
35-39	32.5	318	4.4	104
40-44	38.2	307	0.5	108
45-49	42.9	289	10.6	119
50-54	47.3	176	2.9	76
55-59	38.9	162	6.6	62
60-64	35.4	115	(4.5)	40
65+	18.6	76	*	15
Total 15-24	12.1	183	*	23
Total 15-49	32.7	1,522	5.9	484
Total 30-49	37.3	1,171	5.8	419
Total 50+	37.9	529	5.1	193
Total 15+	33.9	2,051	5.7	677

[1] Relates to Global AIDS Monitoring 2020 indicator 10.8: Cervical cancer screening among women living with HIV; and PEPFAR indicator CXCA_SCRN NAT/SUBNAT: Percentage of HIV-positive women on antiretroviral therapy screened for cervical cancer.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

**Figure 13.1:** Self-reported cervical cancer screening history and abnormal results among HIV-positive women aged 30-49 years, ZIMPHIA 2020

Did not report receiving cervical cancer screening
Reported receiving cervical cancer screening
Did not report receiving abnormal result
Reported receiving an abnormal result

Note that data points not shown in the final report tables are also not shown in the pie charts. Each pie represents 100% of the total sample size.

Table 13.2: Chronic health conditions among HIV-positive and HIV-negative individuals

Among HIV-positive and HIV-negative adults aged 15 years and older, percentage indicating that they have ever been told by a doctor or health worker that they have chronic health conditions, by self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral [ARV] in blood), ZIMPHIA 2020

Chronic health conditions	HIV negative		Unaware of HIV status[1]		Aware of HIV status and not on ART[1]		Aware of HIV status and on ART[1]		Total	
	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number
High blood sugar or diabetes										
Yes	1.9	366	2.2	9	0.0	0	1.9	47	1.9	56
No	98.1	16,145	97.8	331	100.0	69	98.1	2,494	98.1	2,894
High blood pressure or hypertension										
Yes	9.1	1,837	10.8	40	7.2	6	8.8	247	9.0	293
No	90.9	14,674	89.2	300	92.8	63	91.2	2,294	91.0	2,657
Heart disease or chronic heart condition										
Yes	1.1	214	1.2	4	0.0	0	0.6	16	0.6	20
No	98.9	16,297	98.8	336	100.0	69	99.4	2,525	99.4	2,930
Kidney disease										
Yes	0.3	53	0.4	2	1.6	1	0.3	6	0.3	9
No	99.7	16,458	99.6	338	98.4	68	99.7	2,535	99.7	2,941
Cancer or tumor										
Yes	0.2	41	0.7	3	0.0	0	0.7	22	0.7	25
No	99.8	16,470	99.3	337	100.0	69	99.3	2,519	99.3	2,925
Lung disease or chronic lung condition										
Yes	0.5	93	0.4	2	0.0	0	0.7	16	0.7	18
No	99.5	16,418	99.6	338	100.0	69	99.3	2,525	99.3	2,932
Depression or mental health condition										
Yes	0.3	52	0.0	0	0.0	0	0.4	10	0.3	10
No	99.7	16,459	100.0	340	100.0	69	99.6	2,531	99.7	2,940
Total 15+	100.0	16,511	100.0	340	100.0	69	100.0	2,541	100.0	2,950

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.

Table 13.3: HIV testing in tuberculosis clinics

Among adults aged 15 years and older who reported visiting a tuberculosis (TB) clinic in the 12 months before the survey, percentage who reported that they were tested for HIV during a TB clinic visit in that period, by sex and self-reported TB diagnosis, ZIMPHIA 2020

Characteristic	Tested for HIV during a TB clinic visit in the 12 months before the survey	Not tested for HIV during a TB clinic visit in the 12 months before the survey		Total	Number
		Did not know their HIV status	Already knew they were HIV positive		
Sex					
Male	54.2	30.9	15.0	100.0	396
Female	52.3	28.4	19.2	100.0	598
TB Diagnosis in the 12 months before the survey					
Diagnosed with TB	68.5	12.8	18.7	100.0	103
Not diagnosed with TB	51.5	31.4	17.1	100.0	887
Total 15+	53.2	29.6	17.2	100.0	994

17.2%
Already knew they were HIV positive

29.6%
Not tested, did not know their HIV status

53.2%
Tested for HIV
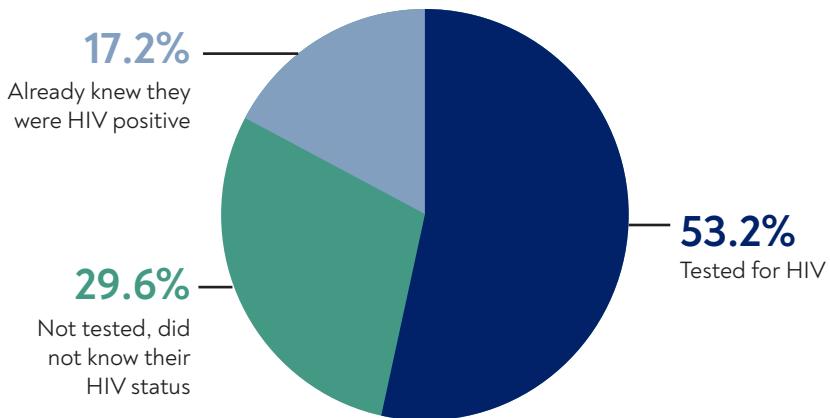
Figure 13.3:
Self-reported receipt of HIV testing in tuberculosis clinics in the 12 months before the survey, ZIMPHIA 2020

Table 13.4: Self-reported tuberculosis clinic attendance and services among HIV-positive adults

Among self-reported HIV-positive adults aged 15 years and older, percentage who reported that they had visited a tuberculosis (TB) clinic in the 12 months before the survey; among those who visited a TB clinic during that period, percentage who were diagnosed for TB; and among those diagnosed with TB in that period, percentage who reported receiving treatment for TB, by sex and selected demographic characteristics, ZIMPHIA 2020

Characteristic	Among HIV-positive adults		Among HIV-positive adults who visited a TB clinic in the 12 months before the survey		Among HIV-positive adults diagnosed with TB in the 12 months before the survey	
	Percentage who visited a TB clinic in the 12 months before the survey	Number	Percentage diagnosed with TB in the 12 months before the survey	Number	Percentage treated for TB in the 12 months before the survey	Number
Sex						
Male	17.4	756	25.1	125	(95.1)	28
Female	13.7	1,828	9.1	245	*	20
Residence						
Urban	15.3	680	15.1	95	*	14
Rural	14.9	1,904	15.9	275	(95.2)	34
Province						
Bulawayo	8.3	235	*	19	*	2
Manicaland	18.8	253	(15.1)	48	*	6
Mashonaland Central	12.1	249	(3.2)	31	*	1
Mashonaland East	13.8	228	(25.5)	32	*	6
Mashonaland West	11.7	310	(15.9)	35	*	6
Matabeleland North	17.7	279	(18.2)	43	*	7
Matabeleland South	11.9	288	(8.8)	35	*	3
Midlands	14.5	297	(11.6)	44	*	4
Masvingo	19.9	267	17.0	51	*	8
Harare	18.4	178	(17.4)	32	*	5
Age						
15-24	17.6	177	(40.1)	29	*	9
25-34	11.3	429	(16.8)	47	*	8
35-44	15.8	771	13.0	116	*	13
45-54	15.4	687	15.2	102	*	14
55-64	16.6	390	8.9	60	*	4
65+	12.3	130	*	16	*	0
Pregnancy status						
Currently pregnant	12.0	64	*	7	*	1
Not currently pregnant	13.6	1,751	9.3	234	*	19
Total 15-24	17.6	177	(40.1)	29	*	9
Total 15-49	15.2	1,792	18.9	260	(90.3)	42
Total 50+	14.5	792	6.6	110	*	6
Total 15+	15.0	2,584	15.7	370	(91.3)	48

( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.

Table 13.5: Tuberculosis symptom screening in HIV clinics

Among self-reported HIV-positive adults aged 15 years and older currently in HIV care, percentage who reported that they were screened for tuberculosis (TB) symptoms during their last HIV clinic visit, by sex, ZIMPHIA 2020		
Characteristic	Percentage screened for TB symptoms[1]	Number
Sex		
Male	45.0	711
Female	41.8	1,761
Total 15+	42.9	2,472

[1]TB symptoms included persistent cough, fever, night sweats, and weight loss.

57.1%
Proportion who did not report
that they received
TB symptom screening

42.9%
Proportion who reported
that they received
TB symptom screening
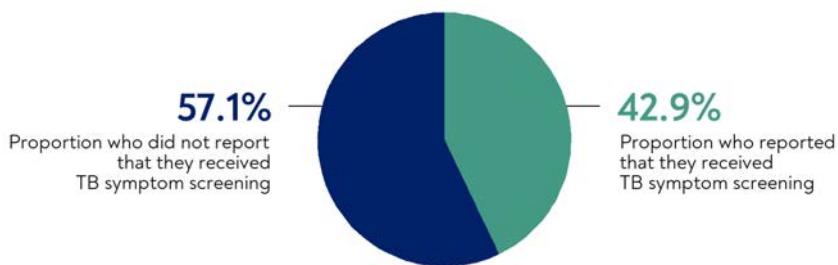
Figure 13.5:
Tuberculosis symptom screening at last clinic visit among people living with HIV, based on self-report, ZIMPHIA 2020

Note that data points not shown in the final report tables are also not shown in the pie charts. Each pie represents 100% of the total sample size.

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APPENDICES

APPENDIX A SAMPLE DESIGN AND IMPLEMENTATION

Appendix A provides a high-level overview of sampling and weighting procedures for ZIMPHIA 2020. In-depth details are provided in the ZIMPHIA 2020 Sampling and Weighting Technical Report, which may be found on the PHIA Project website.

A.1 SAMPLE DESIGN

Overview
The sample design for the ZIMPHIA 2020 is a stratified multistage probability sample design, with strata defined by the 10 provinces of the country, first-stage sampling units defined by EAs within strata, second-stage sampling units defined by households within EAs, and finally eligible persons within households. Within each province, the first-stage sampling units (also referred to as PSUs) were selected with probabilities proportionate to the number of households in the PSU based on the 2012 Zimbabwe Population Census and subsequently updated by the ZIMSTAT in 2017. The allocation of the sample PSUs to the 10 provinces was made in a manner designed to achieve specified precision levels for (1) a national estimate of the HIV incidence rate and (2) province estimates of VLS.

The second-stage sampling units were selected from lists of dwelling units/households compiled by trained staff for each of the sampled PSUs. Upon completion of the listing process, a random systematic sample of dwelling units/households was selected from each PSU at rates designed to yield self-weighting (ie, equal probability) samples within each province to the extent feasible.

Within the sampled households, all eligible adults defined as those aged 15 years and older were included in the study sample for data collection.

Population of Inference
The population of inference for the ZIMPHIA 2020 is comprised of the de facto household population. The de facto population is comprised of individuals who were present in households (ie, slept in the household) on the night prior to the household interview. In contrast, the *de jure* population is comprised of individuals who are usual residents of the household, irrespective of whether or not they slept in the household on the night prior to the household interview.

Precision Specifications and Assumptions
The following specifications were used to develop the sample design for the ZIMPHIA 2020.

- Relative standard error of the national estimate of HIV incidence among persons 15-49 years old should be 30% or less.
- 95% CI bounds around the estimated VLS rate among HIV positive adults aged 15-49 years for each of the 10 provinces should be ±0.08 or less.

The following assumptions were used to develop the sample design for the ZIMPHIA 2020.

- A national HIV prevalence rate of 0.134 (13.4%) for adults 15-49 years old that varies by province. Source: ZIMPHIA 2015-2016.
- An annual national incidence rate for adults aged 15-49 of P_a = 0.0044 (0.44%). Source: ZIMPHIA 2015-2016.
- Stratum-level (provincial) incidence rates of P_{ah}, h = 0, 2, ..., 9, which are obtained by adjusting the national incidence rate using the provincial prevalence rates as follows:

$$P_{ah} = (P_h/P)\, P_a,$$

where P_h and P are the HIV prevalence rates for province h and the country, respectively, and P_a is the annual national incidence rate obtained from ZIMPHIA 2015-2016.
- An MDRI of 130 days, yielding an annualization rate of 365/130= 2.8077.
- Hence, an estimated incidence rate for MDRI=130 days of P_m= 0.0044/2.8077 = 0.0016 (0.16%). The corresponding provincial estimates are obtained by $P_{mh} = P_{ah}/2.8077$.
- A viral load suppression rate among HIV positive adults aged 15-49 of P_{VLS} = 0.50 (50%) in each province. This assumption provides a conservative estimate of the underlying population variance associated with VLS rate.
- An intracluster correlation (ICC) of 0.05 for VLS and 0.01 for prevalence. Source: Tabulations of ZIMPHIA 2015-2016 data.
- An ICC of 0.000 for incidence. Source: Analyses of prior PHIA surveys.
- Overall sex-age distributions derived from the ZIMPHIA 2015-2016.
- Stratum-level (provincial) population projections for 2020 obtained from the 2015 ZIMSTAT Population Projections Thematic Report.
- Varying number of dwelling units to be sampled per PSU, resulting in an average of 35 sampled dwelling units per PSU.
- An overall occupancy rate of 93.2% for the sampled dwelling units. Source: ZIMPHIA 2015-2016.

- A household response rate of 83.7% among occupied dwelling units. Source: ZIMPHIA 2015-2016.
- An average household size of 3.95 (de facto) persons per household. Source: ZIMPHIA 2015-2016. The de facto population consists of persons of all ages who were present in the household during the night prior to the interview.
- An average of 1.86 de facto persons 15-49 years of age per household. Source: ZIMPHIA 2015-2016.
- An average of 0.49 de facto persons 50+ years of age per household. Source: ZIMPHIA 2015-2016.
- Within the responding households, a person-level interview response rate of 88.9%. Source: ZIMPHIA 2015-2016.
- Among de facto persons 15+ years of age completing the interview, a blood test response rate of 91.4%. Thus, the overall response rate for the blood tests is 88.9% * 91.4% = 81.2%. Source: ZIMPHIA 2015-2016.

Selection of the Primary Sampling Units

The PSUs for the ZIMPHIA 2020 were defined as the EAs created for the 2012 census and subsequently updated by the Zimbabwe National Statistics Agency (ZIMSTAT) in 2017. The EAs in the updated sampling frame were generally the same as in the 2012 census, except that some of the EAs that had grown in population were split into separate EAs while others were deleted due to being devastated by Cyclone Idai. The updated sampling frame consisted of slightly over 30,600 EAs containing an estimated 3.1 million households as of 2017.

A stratified sample of 356 EAs was selected from the sampling frame. The 10 strata specified for sampling were the 10 provinces of Zimbabwe. To avoid re-selecting the same EAs that had been selected for the ZIMPHIA 2015-2016, the following procedure was used to select EAs for the ZIMPHIA 2020. Prior to selection, within each province, the EAs in the updated sampling frame were sorted in the same way they had been sorted in the ZIMPHIA 2015-2016 frame to the extent feasible; ie, by urban/rural status, district within urban/rural status, and finally by ward within district. Since the EAs in the updated frame were defined somewhat differently from those in the original frame, the resulting ordering of the EAs approximated (but did not replicate exactly) the ordering that was used to select the EA sample for ZIMPHIA 2015-2016. The sorting of EAs prior to sample selection induces an implicit geographic substratification within each province.

Next, a systematic sample of the same number of EAs selected for the ZIMPHIA 2015-2016 was selected from the given province using a random starting point that was offset by a specified amount to minimize selecting EAs that had been selected for the ZIMPHIA 2015-2016, and an adjusted sampling interval that reflected the change in measure of size (number of households) between the original and updated sampling frames. The EAs were selected with probabilities proportionate to a measure of size (MOS) equal to the estimated number of households in the EA in 2017. To select the sample from a given province, the cumulative MOS was determined for each EA in the ordered list of EAs, and the sample selections were designated using the specified random start and a sampling interval equal to the total MOS of the EAs in the province divided by the number of EAs to be selected. The resulting sample has the property that the probability of selecting an EA within a province is proportional to the MOS of the EA.

Since the number of EAs required for the ZIMPHIA 2020 was less than that specified for the ZIMPHIA 2015-2016 for every province, the final step was to select an equal-probability systematic sample of the desired number of EAs from the set of initially-selected EAs. Of the 356 sampled EAs, only three had been selected previously for the ZIMPHIA 2015-2016. Each of the three EAs was replaced by another EA of roughly the same size using guidelines developed for PHIA.

Details regarding EA substitution and segmentation may be found in the ZIMPHIA 2020 Sampling and Weighting Technical Report available on the PHIA Project website.

Selection of Households

For both sampling and analysis purposes, a household was defined as a group of individuals who reside in a physical structure such as a house, apartment, compound, or homestead, and share in housekeeping arrangements. The physical structure in which people reside was referred to as the dwelling unit, which may have contained more than one household meeting the above definition. Households were eligible for participation in the study if they were located within the sampled EA.

The selection of households for the ZIMPHIA 2020 involved the following steps: (1) listing the dwelling units/households within the sampled EAs; (2) assigning eligibility codes to the listed dwelling unit/household records; (3) selecting the samples of dwelling units/households; and (4) designating a subsample of households for data collection for children.

A description of the household listing process as well as a summary of household eligibility may be found in the ZIMPHIA 2020 Sampling and Weighting Technical Report on the PHIA Project website.

Selection of households utilized an equal probability design. In order to achieve equal probability samples of households within each of the 10 provinces of Zimbabwe, the sampling rates required to select dwelling units/households within an EA depended on the difference between the MOS used in sampling and the actual number of dwelling units/households found at the time of listing. Thus, application of these within-EA sampling rates could have yielded more or less than the desired number of households in EAs where the sampling MOS differs from the actual listing count. The ZIMPHIA 2020 Sampling and Weighting Technical Report provides an

in-depth description of the equal probability sample design, as well as a detailed summary of the results of the household selection.

Selection of Individuals

The selection of individuals for the ZIMPHIA 2020 involved the following steps: (1) compiling a list of all individuals known to reside in the household or who slept in the household during the night prior to data collection; (2) identifying those rostered individuals who were eligible for data collection; and (3) selecting for the study those individuals who met the age and residency requirements of the study. However, only those individuals who slept in the household the night before the household interview (ie, the de facto population) were retained for subsequent weighting and analysis.

The ZIMPHIA 2020 Sampling and Weighting Technical Report provides a brief description of the process for listing and selecting individuals for participation in the ZIMPHIA 2020, and also presents detailed summaries of the distributions of eligible individuals and participants in individual interviews and HIV testing by strata and age.

A.2 WEIGHTING

Overview

In general, the purpose of weighting survey data from a complex sample design is to (1) compensate for variable probabilities of selection, (2) account for differential nonresponse rates within relevant subsets of the sample, and (3) adjust for possible under-coverage of certain population groups. Weighting is accomplished by assigning an appropriate sampling weight to each responding sampled unit (eg, a household or person), and using that weight to calculate weighted estimates from the sample. The critical component of the sampling weight is the base weight, which is defined as the reciprocal of the probability of including a household or person in the sample. The base weights are used to inflate the responses of the sampled units to population levels and are generally unbiased (or consistent) if there is no nonresponse or noncoverage in the sample. When nonresponse or noncoverage occurs in the survey, weighting adjustments are applied to the base weights to compensate for both types of sample omissions.

Nonresponse is unavoidable in virtually all surveys of human populations. For ZIMPHIA 2020, nonresponse could have occurred at different stages of data collection, for example, (1) before the enumeration of individuals in the household, (2) after household enumeration and selection of persons, but before completion of the individual interview, and (3) after completion of the interview, but before collection of a viable blood sample.

Noncoverage arises when some members of the survey population have no chance of being selected for the sample. For example, noncoverage can occur if the field operations fail to enumerate all dwelling units during the listing process, or if certain household members are omitted from the household rosters. To compensate for such omissions, post-stratification procedures were used to calibrate the weighted sample counts to available population projections.

Methods

The overall weighting approach for ZIMPHIA 2020 included several steps. Methods and results for each of the steps below are detailed in the ZIMPHIA 2020 Sampling and Weighting Technical Report.

Initial checks: Checks of the data files were carried out as part of the survey and data QC, and the probabilities of selection for PSUs and households were calculated and checked.

Creation of jackknife replicates: The variables needed to create the jackknife replicates for variance estimation were established at this point. This step was implemented immediately after the PSU sample was selected. All of the subsequent weighting steps described below were applied to the full sample, and to each of the jackknife replicates.

Calculation of PSU base weights: The weighting process began with the calculation and checking of the sample PSU (EA) base weights as the reciprocals of the overall PSU probabilities of selection.

Calculation of household weights: The next step was to calculate household weights. The household base weights were calculated as the PSU weights times the reciprocal of the within-PSU household selection probabilities. The household base weights were adjusted first to account for dwelling units for which it could not be determined whether the dwelling unit contained an eligible household and then the responding households had their weights adjusted to account for nonresponding eligible households. This adjustment was made based on the EA the households were in, and the resulting weight was the final household weight.

Calculation of person-level interview weights: Once the household weights were determined, they were used to calculate the individual base weights. The individual base weights were then adjusted for nonresponse among the eligible individuals, with a final adjustment for the individual weights to compensate for under-coverage in the sampling process by post-stratifying (ie, weighting up) to 2020 population projections.

Calculation of person-level HIV testing weights: The individual weights adjusted for nonresponse were in turn the initial weights for the HIV testing data sample, with a further adjustment for nonresponse to HIV testing, and a final post-stratification adjustment to compensate for under-coverage.

Application of weighting adjustments to jackknife replicates: All of the adjustment processes were applied to the full sample and the replicate samples so that the final set of full sample and replicate weights could be used for variance estimation that accounted for the complex sample design and every step of the weighting process.

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APPENDIX B HIV TESTING METHODOLOGY

B.1 SPECIMEN COLLECTION AND HANDLING

Blood was collected by qualified survey staff from consenting participants: Either 14 mL of venous blood or 1 mL of capillary blood using finger-stick from individuals who either refused to give venous blood or where venous blood draw failed.
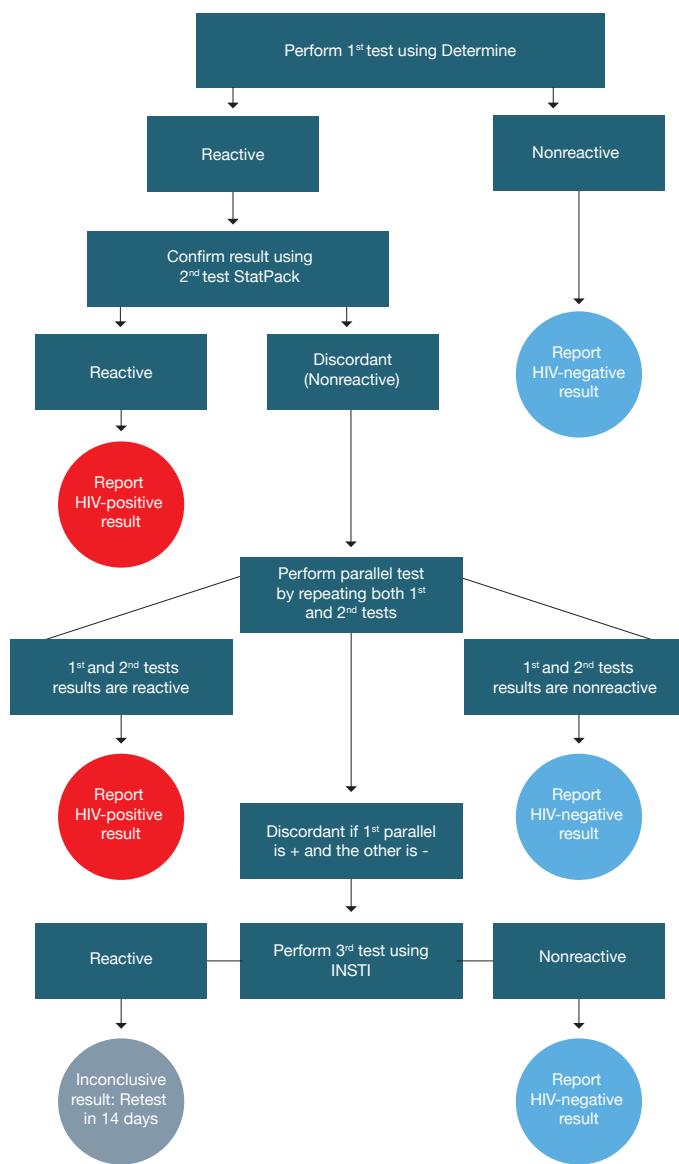
Blood samples were labeled with a unique barcoded participant identification and stored in temperature-controlled cooler boxes. At the end of each day, samples were transported to a satellite laboratory for registration in a laboratory information management system, processing into plasma and DBS, and storage at -20°C within 24 hours of blood collection. Approximately weekly, samples were transported to the central laboratory for additional testing and long-term storage at -80°C.

B.2 HOUSEHOLD-BASED PROCEDURES

HIV Rapid Testing

HIV rapid testing was conducted in each household in accordance with Zimbabwe's national guidelines (Figure B.1). HIV-positive and HIV-indeterminate samples underwent additional testing at a satellite laboratory, as described in section B.3. For participants with a self-reported HIV-positive status but tested HIV negative during the survey, additional testing was conducted the central laboratory, as described in section B.3.

Figure B.1:
Household-based
HIV testing algorithm,
ZIMPHIA 2020

CD4 Count Measurement

Blood samples from the participants who tested HIV-positive underwent CD4 count measurement at the satellite laboratory. The measurement was performed using the Pima™ CD4 Analyzer (Abbott Molecular Inc., Chicago, Illinois, United States, formerly Alere). CD4 count results were returned to the health facility chosen by each HIV-positive participant.

Counseling, Referral to Care, and Active Linkage to Care

Pre- and post-test counseling were conducted in each household in accordance with Zimbabwe's national guidelines. Survey staff communicated results directly to participants aged 16 years or older. Minors 15 years of age who took part in the survey and HIV testing received results with their parent/guardian present. All participants who consented to HIV testing were asked to share contact information and to select a referral health facility prior to testing. Participants with an HIV-positive test result were referred to HIV care and treatment at the health facility of their choice, while participants with an inconclusive HIV test result were advised to seek repeated testing at the health facility of their choice in 14 days. Further, HIV-positive participants were asked to consent to be contacted by qualified healthcare personnel, in order to facilitate active linkage to HIV care and treatment in Zimbabwe's healthcare system.

In rare cases where participants were provided an incorrect HIV test result, reported an HIV-positive status but tested HIV negative during the survey, or required additional collection of blood to complete testing, households were revisited by qualified personnel to provide participants with correct information and guidance on appropriate actions.

Quality Assurance and Control

To control the quality of the performance of HIV rapid tests, field staff conducted testing of a panel of HIV-positive and HIV-negative DTS on a weekly basis. To assure the quality of the performance of field staff conducting HIV testing, proficiency testing using a panel of blinded HIV-positive and HIV-negative DTS was evaluated twice during the course of fieldwork. Additionally, sample re-testing was conducted at a satellite lab for the first 25 samples tested by each field staff member.

A limitation of the survey was the limited potential of rapid tests to detect low levels of HIV antibodies among people within the serological window of infection, and in HIV-positive patients on ART. Participants in these two categories were not expected to be a significant source of bias.

B.3 LABORATORY-BASED PROCEDURES

Satellite laboratories for the survey were established in nine existing health facility laboratories and 11 mobile laboratories. One central reference laboratory was chosen for more specialized tests.

Geenius Testing
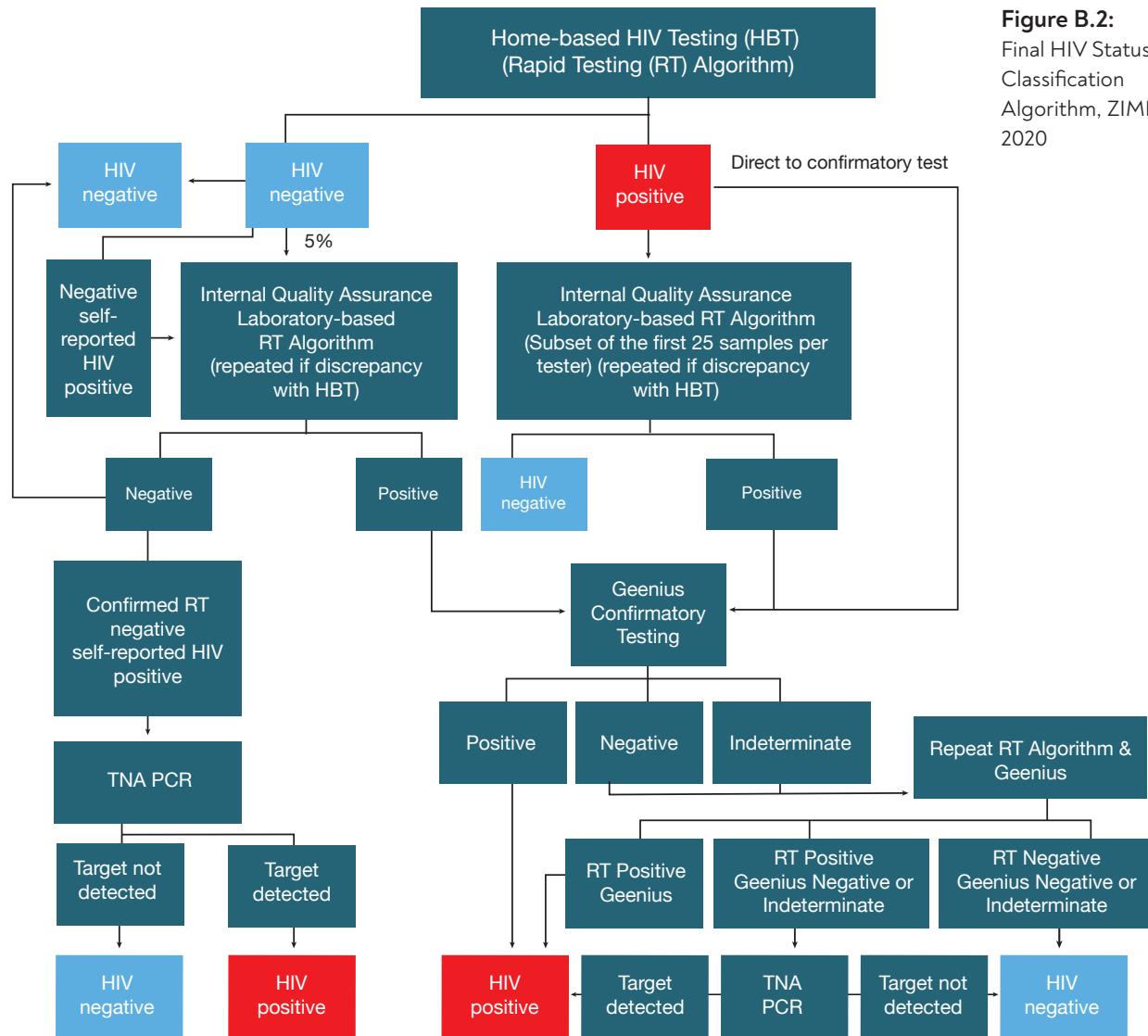
All HIV-positive samples, as well as samples with discrepant or indeterminate results, were tested using the Geenius™ HIV 1/2 Supplemental Assay (Bio-Rad, Hercules, California, United States) (Figure B.2). Testing was conducted at satellite laboratories in accordance with the manufacturer-specified protocol.

HIV Total Nucleic Acid (TNA) Polymerase Chain Reaction (PCR)

HIV TNA PCR was evaluated for participants who reported an HIV-positive status but tested HIV negative during the survey, as well as for samples that were HIV positive by the rapid testing algorithm, but were HIV negative or indeterminate by Geenius testing (Figure B.2). HIV TNA PCR was conducted using the COBAS® AMPLICOR HIV-1 MONITOR Test v1.5 (Roche Molecular Systems, Inc., Branchburg, New Jersey, United States) at Lancet Laboratories in accordance with the manufacturer-specified protocol.

Classification of Final HIV Status

The algorithm for classification of final HIV status included results from HIV rapid testing, Geenius testing, and HIV TNA PCR (Figure B.2).

Figure B.2:
Final HIV Status Classification Algorithm, ZIMPHIA 2020

Abbreviations: TNA PCR, total nucleic acid polymerase chain reaction.

Classification of final HIV status was used to determine estimates for HIV prevalence and to inform estimates for HIV incidence.

Viral Load Testing

Determination of HIV-1 VL (HIV RNA copies per mL) of HIV-positive participants with plasma samples was measured using the COBAS AmpliPrep/Taqman 96 assay on the COBAS AmpliPrep/COBAS TaqMan (CAP/CTM) HIV-1, v2.0 Test (Roche Molecular Diagnostics, Branchburg, New Jersey, United States). In cases where plasma samples were not available, HIV-1 VL was performed on dried blood spot (DBS) samples using the COBAS AmpliPrep/COBAS TaqMan (CAP/CTM) Free Virus Elution (FVE) Protocol (Roche Molecular Diagnostics, Branchburg, New Jersey, United States). The COBAS AmpliPrep/TaqMan HIV-1 is a nucleic acid amplification test for the quantification of HIV Type 1 (HIV-1) RNA in human plasma or dried blood spots. Specimen preparation was automated using COBAS AmpliPrep with amplification and detection using TaqMan.

Viral load results were returned to the health facility chosen by each HIV-positive participant. Participants were provided with a referral form during HTBC for subsequent retrieval of their results. Survey staff also contacted participants who provided contact information, informing them that their VL results were available at the chosen facility and further advising them to seek care and treatment.

HIV Recency Testing

Estimation of annualized HIV-1 incidence was based on the classification of confirmed HIV-positive cases as recent or long-term HIV infections. To distinguish recent from long-term HIV infections, the survey used a laboratory-based testing algorithm that employed a combination of assays: an HIV-1 LAg avidity assay, VL, and ARV detection.
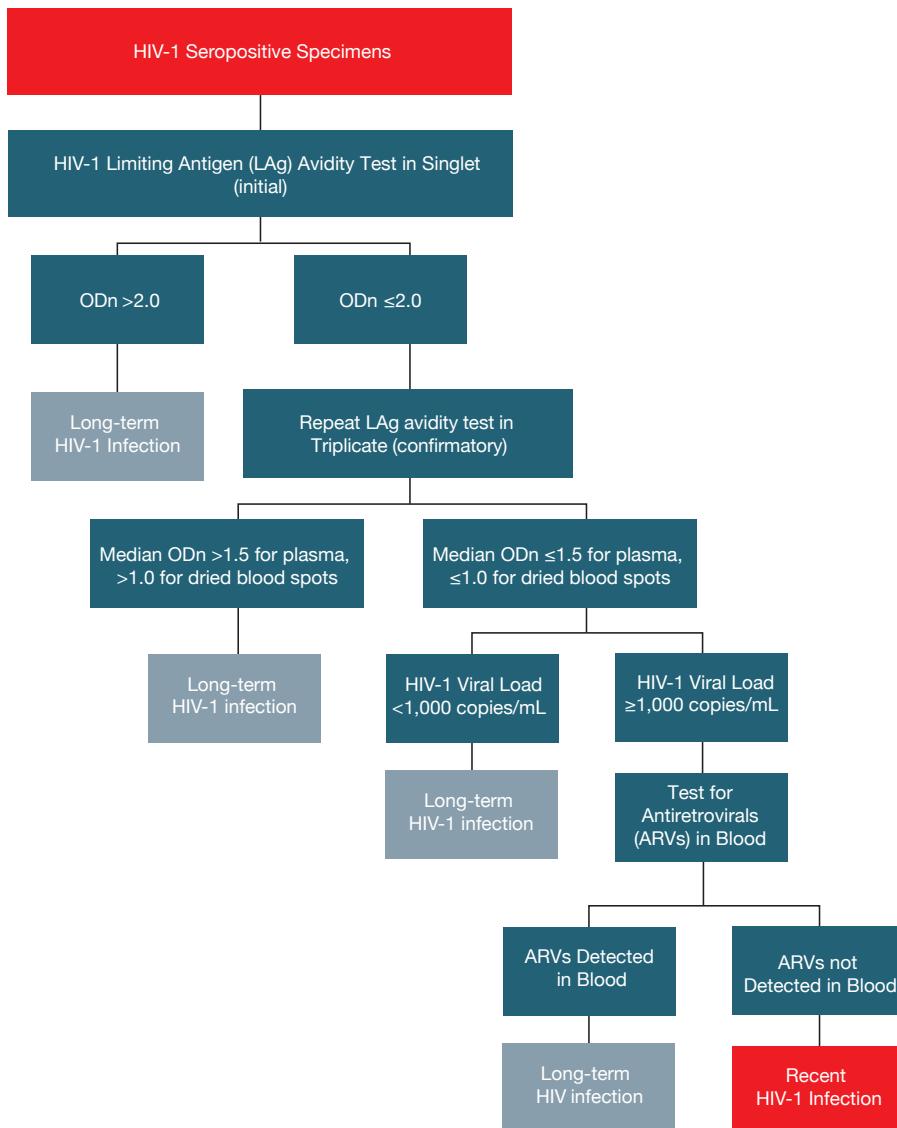
The Sedia HIV-1 LAg-Avidity EIA (Sedia Biosciences Corporation, Portland, Oregon, United States) was used on plasma specimens, while the Maxim HIV-1 Limiting Antigen-Avidity Dried Blood Spot (DBS) EIA (Maxim Biomedical, Bethesda, Maryland, United States) was used on DBS specimens.

In the case of plasma specimens, LAg avidity testing was performed twice, with an initial screening test followed by a confirmatory test. Samples with a ODn > 2.0 during initial testing were classified as long-term infections, while those with ODn ≤ 2.0 underwent further testing of the specimen in triplicate. Samples with a median ODn > 1.5 during confirmatory testing were classified as long-term infections.

In the case of DBS specimens, LAg avidity testing was performed twice, with an initial screening test followed by a confirmatory test. Samples with ODn > 2.0 during initial testing were classified as long-term infections, while those with ODn ≤ 1.0 underwent further testing of the specimen in triplicate. Samples with a median ODn > 1.0 during confirmatory testing were classified as long-term infections.

VL results were assessed for the samples with a median ODn ≤ 1.5 for plasma and ODn ≤ 1.0 for DBS. Specimens with VL <1,000 copies/mL were classified as long-term infections. ARV detection data were assessed for those with VL ≥ 1,000 copies/mL. Specimens with a detectable ARV were classified as long-term infections and those without were classified as recent infections (Figure B.3).

Figure B.3:
HIV-1 Recent Infection Testing Algorithm, ZIMPHIA 2020

Abbreviations: ODn, normalized optical density; mL, milliliter.

HIV Incidence Estimation

Incidence estimates were obtained using the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays. Weighted counts for HIV-negative persons (N); HIV-positive persons (P); numbers tested on the LAg assay (Q); and numbers HIV recent (R) were provided for use in incidence calculations or the UNAIDS Spectrum models (Table B.1). Incidence estimates were calculated using the following parameters: MDRI = 130 days (95% CI: 118-142 days); proportion false recent (PFR) = 0.00; time cutoff (T) = 1 year. In-depth details are provided in the ZIMPHIA Technical Report, which may be found online on the PHIA Project website.

Table B.1: Annual HIV incidence auxiliary data: N, P, Q, R, MDRI, PFR, and T

Annual incidence of HIV among persons aged 15-49 and 15+ years, by sex and age, using the recent infection testing algorithm (limiting antigen [LAg] + viral load + antiretroviral biomarker detection), ZIMPHIA 2020

Age	Men			
	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg assay[1] (Q)	Number HIV recent[1] (R)
15-24	2,449.34	60.66	60.66	0.73
25-34	1,438.70	97.30	96.59	1.53
35-49	1,518.50	381.50	381.50	2.22
50+	1,388.44	329.56	328.57	0.00
15-49	5,436.88	509.12	508.34	4.40
15+	6,879.95	784.05	782.50	4.78

Age	Women			
	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg assay[1] (Q)	Number HIV recent[1] (R)
15-24	3,120.04	162.96	161.82	8.43
25-34	2,349.42	390.58	390.58	5.44
35-49	2,187.45	877.55	875.90	4.14
50+	2,301.08	481.92	481.92	0.00
15-49	7,744.47	1,343.53	1,340.85	18.45
15+	10,058.78	1,812.22	1,809.39	19.51

Age	Total			
	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg assay[1] (Q)	Number HIV recent[1] (R)
15-24	5,579.21	213.79	212.79	8.27
25-34	3,821.60	454.40	453.49	6.55
35-49	3,743.88	1,221.12	1,219.71	6.28
50+	3,686.15	814.85	813.74	0.00
15-49	13,259.81	1,774.19	1,770.93	21.22
15+	17,014.46	2,520.54	2,516.20	22.76

[1]Weighted number.
Note: mean duration recent infection (MDRI) = [130 days (95% CI: 118-142 days); proportion false recent (PFR) = 0.00; time cutoff (T) = 1 year

Detection of Antiretrovirals

Qualitative screening for detectable concentrations of ARVs was conducted on DBS specimens from all HIV-positive participants by means of high-resolution liquid chromatography coupled with tandem mass spectrometry. The method used for ARV detection was a modified version of the methodology described by Koal et al.[1] To qualitatively detect ARVs, a single DBS was eluted, and chromatographic separation carried out on a Luna 5μm PFP column (110 Å, 50 x 2 mm) (Phenomonex, Torrance, California, USA).

Each ARV was detected using an API 4000 LC/MS/MS instrument (Applied Biosystems, Foster City, California, USA). Internal standards and in-house QC cut-off samples, including negative controls, were utilized in each run.

This qualitative assay was highly specific, as it separates the parent compound from the fragments, and highly sensitive, with a limit of detection of 0.02 μg/mL for each drug, and a signal-to-noise ratio of at least 5:1 for all drugs. Samples with concentrations above 0.02 μg/mL were considered positive for each ARV. As detection of all ARVs in use at the time of the survey was cost-prohibitive, four ARVs (efavirenz, nevirapine, atazanavir and dolutegravir) were selected as markers for the most commonly prescribed first- and second-line regimens. These ARVs were also selected based on their relatively long half-lives, allowing for a longer period of detection following intake.

ARV detection was performed by the Division of Clinical Pharmacology of the Department of Medicine at the University of Cape Town, South Africa.

Genotyping for Detection of Antiretroviral Drug Resistance and HIV Subtyping

To determine the extent of transmitted HIV-1 drug resistance mutations among participants in ZIMPHIA 2020, samples from all HIV-positive participants with a viral load ≥ 200 copies/mL were evaluated using a TaqMan® SNP Genotyping Assay (Applied Biosystems) to identify mutations within the HIV-1 pol gene region, which encodes amino acid substitutions known to be responsible for resistance to specific ARVs.

Viral RNA or TNA from plasma or DBS was extracted using the NucliSENS® easyMAG® (bioMerieux) platform. The HIV pol gene was amplified by one-step reverse transcription polymerase chain reaction (RT-PCR), which was followed by nested PCR. Sequencing of the approximately one-kilobase amplicons was performed on the ABI 3730 DNA Analyzer (Applied Biosystems).[2,3,4]

The customized RECall software program was used to edit raw sequences and generate consensus sequences.[3] The classification of mutations potentially associated with drug resistance in the protease, reverse transcriptase and integrase genes was based upon the Stanford University HIV Drug Resistance Database.[5] Sequences with >98% homology were flagged for potential cross-contamination or possible epidemiological links. Internal QA measures and in-house QC standards were included in each run in order to validate results. The assay's sensitivity was established at 1,000 copies/mL for plasma and DBS.[6] Sequences were also analyzed for potential cross-contamination by phylogenetic analysis from code 6 of the protease gene to code 251 of the reverse transcriptase gene.

Subtyping of each sample was performed using the REGA HIV-1 & 2 Automated Subtyping Tool.[7,8,9] This BioAfrica viral subtyping tool was designed to use phylogenetic methods in order to identify the HIV-1 subtype of a specific sequence. The sequence was analyzed for recombination using boot-scanning methods.

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APPENDIX C ESTIMATES OF SAMPLING ERRORS

Estimates from sample surveys are affected by two types of errors: nonsampling errors and sampling errors. Nonsampling errors result from mistakes made during data collection (eg, misinterpretation of an HIV test result) and data management (eg, transcription errors in data entry). While ZIMPHIA 2020 implemented numerous QA and QC measures minimize nonsampling errors, these errors are impossible to avoid and difficult to evaluate statistically.

In contrast, sampling errors can be evaluated statistically. The sample of respondents selected for ZIMPHIA 2020 is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

The standard error, which is the square root of the variance, is the usual measurement of sampling error for a particular statistic (eg, proportion, mean, rate, count). In turn, the standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of approximately plus or minus two times the standard error of that statistic in 95 percent of all possible samples of identical size and design.

ZIMPHIA 2020 utilized a multi-stage stratified sample design, which required complex calculations to obtain sampling errors. Specifically, a variant of the jackknife replication method was implemented in SAS to estimate variance for proportions (eg, HIV prevalence), rates (eg, annual HIV incidence), and counts (eg, numbers of people living with HIV). Each replication considered all but one cluster in the calculation of the estimates. Pseudo-independent replications were thus created. In ZIMPHIA 2020, a jackknife replicate was created by randomly deleting one cluster from each variance-estimation stratum and retaining all of the clusters in the remaining strata. A total of 175 variance-estimation strata were created by pairing (or occasionally tripling) the sample clusters in the systematic order in which they had been selected . Hence, 175 replications were created. The variance of a sample-based statistic, y, was calculated as follows:

$$var(y) = \sum_{k=1}^{K} (y_k - y)^2$$

where y is the full-sample estimate, and y_k is the corresponding estimate for jackknife replicate k (k = 1, 2, …, K).

In addition to the standard error, the design effect for each estimate was also calculated. The design effect is defined as the ratio of the variance using the given sample design to the variance that would result if a simple random sample had been used. A design effect of 1.0 indicates that the sample design is as efficient as a simple random sample, while a value greater than 1.0 indicates the increase in the sampling error due to the use of a more complex and less statistically efficient design. Confidence limits for the estimates, which are calculated as

$$y \pm t(0.975;\ K)\ \sqrt{var(y)},$$

where $t(0.975;\ K)$ is the 97.5th percentile of a t-distribution with K degrees of freedom, were also computed.

Sampling errors for selected variables from the ZIMPHIA 2020 are presented in tables C.1 through C.8, and sampling errors for all survey estimates may be found online on the PHIA website. For each variable, sampling error tables include the weighted estimate, unweighted denominator, standard error, design effect, and lower and upper 95 percent confidence limits.

Table C.1: Sampling errors: Annual HIV incidence by age, ZIMPHIA 2020

Age (years)	Weighted estimate (%)	Standard error	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Men						
15-24	0.08	0.10	0.70	1.17	0.00	0.27
25-34	0.30	0.24	0.83	0.80	0.00	0.77
35-49	0.41	0.30	1.20	0.73	0.00	1.00
50+	0.00	0.00	0.00	0.00	0.00	0.74
15-49	0.23	0.11	0.96	0.48	0.01	0.44
15+	0.20	0.09	1.04	0.47	0.02	0.37
Women						
15-24	0.76	0.26	0.95	0.34	0.25	1.26
25-34	0.65	0.30	1.19	0.46	0.06	1.24
35-49	0.53	0.27	1.07	0.51	0.00	1.06
50+	0.00	0.00	0.00	0.00	0.00	0.45
15-49	0.67	0.16	1.10	0.25	0.34	0.99
15+	0.54	0.13	1.16	0.25	0.28	0.81
Total						
15-24	0.42	0.14	0.83	0.34	0.14	0.70
25-34	0.48	0.19	1.02	0.39	0.11	0.85
35-49	0.47	0.20	1.16	0.43	0.07	0.87
50+	0.00	0.00	0.00	0.00	0.00	0.28
15-49	0.45	0.10	1.12	0.23	0.24	0.65
15+	0.38	0.09	1.20	0.23	0.20	0.55

Note that the Clopper Pearson method was used to calculate the upper limit for cells with no recent infections.

Table C.2: Sampling errors: HIV prevalence by age, ZIMPHIA 2020

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Men							
15-19	2.13	1,455	0.37	0.97	0.18	1.36	2.90
20-24	2.75	1,055	0.60	1.40	0.22	1.52	3.98
25-29	3.98	778	0.67	0.91	0.17	2.60	5.35
30-34	9.31	758	1.05	0.98	0.11	7.16	11.47
35-39	15.61	757	1.54	1.35	0.10	12.45	18.77
40-44	20.80	576	1.86	1.21	0.09	16.97	24.62
45-49	25.95	567	2.00	1.18	0.08	21.83	30.08
50-54	30.92	374	2.74	1.31	0.09	25.27	36.57
55-59	25.59	293	2.53	0.98	0.10	20.38	30.80
60-64	18.74	311	2.31	1.09	0.12	13.98	23.50
65+	7.51	740	1.00	1.06	0.13	5.46	9.57

Table C.2: Sampling errors: HIV prevalence by age, ZIMPHIA 2020 (continued)

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Total 15-24	2.42	2,510	0.32	1.11	0.13	1.75	3.08
Total 15-49	8.56	5,946	0.36	0.98	0.04	7.82	9.30
Total 50+	19.18	1,718	1.12	1.40	0.06	16.87	21.50
Total 15+	10.23	7,664	0.35	1.04	0.03	9.50	10.96
Women							
15-19	3.77	1,676	0.49	1.09	0.13	2.77	4.77
20-24	6.35	1,607	0.61	1.00	0.10	5.10	7.61
25-29	10.58	1,441	0.85	1.09	0.08	8.84	12.32
30-34	18.35	1,299	1.12	1.09	0.06	16.04	20.67
35-39	23.32	1,290	1.14	0.94	0.05	20.96	25.67
40-44	31.82	922	1.68	1.19	0.05	28.37	35.27
45-49	33.34	853	1.73	1.14	0.05	29.78	36.89
50-54	30.19	588	2.10	1.23	0.07	25.86	34.52
55-59	24.50	609	1.80	1.07	0.07	20.79	28.21
60-64	20.16	519	1.84	1.09	0.09	16.37	23.94
65+	6.56	1,067	0.73	0.93	0.11	5.05	8.06
Total 15-24	4.96	3,283	0.40	1.13	0.08	4.13	5.80
Total 15-49	14.78	9,088	0.45	1.46	0.03	13.86	15.71
Total 50+	17.32	2,783	0.73	1.03	0.04	15.82	18.81
Total 15+	15.27	11,871	0.40	1.46	0.03	14.45	16.09
Total							
15-19	2.95	3,131	0.29	0.89	0.10	2.36	3.53
20-24	4.56	2,662	0.41	1.03	0.09	3.71	5.40
25-29	7.46	2,219	0.54	0.95	0.07	6.34	8.58
30-34	14.36	2,057	0.90	1.35	0.06	12.51	16.21
35-39	19.80	2,047	1.05	1.42	0.05	17.63	21.96
40-44	26.52	1,498	1.36	1.43	0.05	23.71	29.33
45-49	29.76	1,420	1.50	1.52	0.05	26.68	32.84
50-54	30.54	962	1.63	1.20	0.05	27.19	33.90
55-59	24.98	902	1.54	1.14	0.06	21.81	28.16
60-64	19.61	830	1.54	1.25	0.08	16.43	22.79
65+	6.93	1,807	0.61	1.03	0.09	5.68	8.18
Total 15-24	3.69	5,793	0.24	0.95	0.07	3.19	4.19
Total 15-49	11.80	15,034	0.35	1.72	0.03	11.09	12.51
Total 50+	18.10	4,501	0.68	1.41	0.04	16.70	19.51
Total 15+	12.90	19,535	0.31	1.67	0.02	12.27	13.54

Table C.3: Sampling errors: HIV prevalence by residence and province among adults, ZIMPHIA 2020

	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Men							
Residence							
Urban	10.06	1,885	0.63	0.82	0.06	8.77	11.35
Rural	10.30	5,779	0.45	1.28	0.04	9.37	11.23
Province							
Bulawayo	10.76	610	1.02	0.66	0.09	8.66	12.85
Manicaland	7.67	891	0.87	0.95	0.11	5.88	9.46
Mashonaland Central	10.53	929	1.12	1.24	0.11	8.22	12.84
Mashonaland East	10.19	729	1.16	1.07	0.11	7.80	12.57
Mashonaland West	9.49	997	1.24	1.78	0.13	6.94	12.04
Mashonaland North	12.48	678	1.09	0.73	0.09	10.25	14.72
Mashonaland South	12.52	645	1.15	0.78	0.09	10.14	14.89
Midlands	11.07	856	1.01	0.88	0.09	8.99	13.14
Masvingo	10.47	821	1.26	1.38	0.12	7.88	13.06
Harare	10.48	508	1.28	0.89	0.12	7.84	13.12
Women							
Residence							
Urban	14.67	3,448	0.73	1.45	0.05	13.18	16.17
Rural	15.56	8,423	0.50	1.62	0.03	14.52	16.59
Province							
Bulawayo	16.79	1,050	1.21	1.10	0.07	14.29	19.29
Manicaland	12.43	1,469	1.10	1.64	0.09	10.16	14.70
Mashonaland Central	15.67	1,198	1.19	1.29	0.08	13.21	18.13
Mashonaland East	14.46	1,078	0.90	0.70	0.06	12.61	16.31
Mashonaland West	15.99	1,367	1.32	1.77	0.08	13.27	18.71
Mashonaland North	17.12	1,075	1.28	1.24	0.07	14.48	19.76
Mashonaland South	22.30	954	1.73	1.65	0.08	18.74	25.87
Midlands	15.31	1,412	1.14	1.41	0.07	12.97	17.66
Masvingo	15.10	1,265	1.60	2.53	0.11	11.80	18.40
Harare	14.20	1,003	1.35	1.51	0.10	11.41	16.99
Total							
Residence							
Urban	12.65	5,333	0.54	1.39	0.04	11.55	13.76
Rural	13.02	14,202	0.40	2.03	0.03	12.19	13.84
Province							
Bulawayo	14.02	1,660	0.85	0.99	0.06	12.28	15.77
Manicaland	10.23	2,360	0.80	1.65	0.08	8.58	11.87
Mashonaland Central	13.02	2,127	0.99	1.84	0.08	10.98	15.06
Mashonaland East	12.39	1,807	0.80	1.06	0.06	10.75	14.04
Mashonaland West	12.78	2,364	1.17	2.89	0.09	10.38	15.19
Mashonaland North	14.93	1,753	0.89	1.10	0.06	13.09	16.77
Mashonaland South	17.56	1,599	1.09	1.32	0.06	15.30	19.81

Table C.3: Sampling errors: HIV prevalence by residence and province among adults, ZIMPHIA 2020 (continued)

	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Midlands	13.39	2,268	0.98	1.86	0.07	11.38	15.40
Masvingo	12.96	2,086	1.27	2.96	0.10	10.35	15.56
Harare	12.63	1,511	0.99	1.34	0.08	10.59	14.66

Table C.4: Sampling errors: Viral load suppression by age, ZIMPHIA 2020

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
				Men			
15-19	(57.79)	33	(8.40)	(0.93)	(0.15)	(40.49)	(75.09)
20-24	(41.43)	31	(14.31)	(2.53)	(0.35)	(11.96)	(70.91)
25-29	(45.42)	36	(8.75)	(1.08)	(0.19)	(27.39)	(63.45)
30-34	56.09	81	5.95	1.15	0.11	43.83	68.35
35-39	68.21	123	5.59	1.76	0.08	56.71	79.71
40-44	79.40	123	3.47	0.90	0.04	72.25	86.55
45-49	81.16	159	3.27	1.10	0.04	74.42	87.89
50-54	84.75	118	3.85	1.34	0.05	76.82	92.68
55-59	77.62	77	4.61	0.93	0.06	68.13	87.10
60-64	89.23	63	4.05	1.06	0.05	80.89	97.57
65+	91.67	62	3.54	1.00	0.04	84.38	98.95
Total 15-24	49.22	64	7.84	1.55	0.16	33.08	65.37
Total 15-49	68.15	586	2.20	1.30	0.03	63.62	72.67
Total 50+	84.50	320	2.14	1.11	0.03	80.10	88.91
Total 15+	72.96	906	1.68	1.30	0.02	69.50	76.43
				Women			
15-19	66.52	66	6.69	1.31	0.10	52.74	80.30
20-24	65.89	116	5.13	1.35	0.08	55.32	76.47
25-29	69.27	168	4.43	1.54	0.06	60.14	78.39
30-34	71.61	257	3.08	1.19	0.04	65.27	77.95
35-39	82.25	318	2.38	1.23	0.03	77.34	87.15
40-44	78.20	308	2.95	1.57	0.04	72.12	84.27
45-49	88.15	289	2.23	1.37	0.03	83.55	92.74
50-54	93.90	176	1.83	1.02	0.02	90.13	97.67
55-59	88.57	162	2.60	1.08	0.03	83.21	93.93
60-64	91.29	115	2.86	1.17	0.03	85.40	97.17
65+	88.24	76	4.04	1.18	0.05	79.91	96.56
Total 15-24	66.15	182	3.96	1.27	0.06	57.99	74.32
Total 15-49	76.76	1,522	1.23	1.29	0.02	74.23	79.30
Total 50+	91.00	529	1.33	1.13	0.01	88.27	93.73
Total 15+	79.84	2,051	1.02	1.33	0.01	77.73	81.95

Table C.4: Sampling errors: Viral load suppression by age, ZIMPHIA 2020 (continued)

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
				Total			
15-19	63.36	99	4.99	1.05	0.08	53.08	73.63
20-24	58.47	147	4.65	1.30	0.08	48.89	68.05
25-29	63.27	204	3.58	1.12	0.06	55.90	70.64
30-34	67.17	338	2.95	1.33	0.04	61.10	73.23
35-39	77.18	441	2.41	1.45	0.03	72.23	82.14
40-44	78.65	431	2.31	1.36	0.03	73.90	83.40
45-49	85.19	448	1.96	1.36	0.02	81.16	89.23
50-54	89.41	294	2.21	1.51	0.02	84.86	93.96
55-59	83.64	239	2.70	1.27	0.03	78.07	89.20
60-64	90.53	178	2.36	1.15	0.03	85.67	95.39
65+	89.69	138	2.72	1.10	0.03	84.09	95.30
Total 15-24	60.58	246	3.25	1.08	0.05	53.90	67.27
Total 15-49	73.76	2,108	1.16	1.47	0.02	71.37	76.15
Total 50+	88.10	849	1.28	1.32	0.01	85.47	90.73
Total 15+	77.28	2,957	0.95	1.52	0.01	75.32	79.24

( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.

Table C.5: Sampling errors: Viral load suppression by residence and province, ZIMPHIA 2020

	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
				Men			
Residence							
Urban	71.48	224	3.77	1.55	0.05	63.71	79.24
Rural	73.56	682	1.86	1.21	0.03	69.74	77.39
Province							
Bulawayo	70.74	78	5.16	0.99	0.07	60.10	81.37
Manicaland	74.30	77	5.82	1.35	0.08	62.32	86.28
Mashonaland Central	61.32	107	5.12	1.17	0.08	50.79	71.86
Mashonaland East	76.50	82	5.40	1.31	0.07	65.38	87.61
Mashonaland West	71.28	103	4.91	1.20	0.07	61.16	81.40
Matabeleland North	80.79	97	3.99	0.99	0.05	72.57	89.02
Matabeleland South	85.21	93	3.08	0.69	0.04	78.87	91.55
Midlands	75.06	107	2.71	0.42	0.04	69.48	80.64
Masvingo	67.83	99	5.18	1.21	0.08	57.16	78.50
Harare	71.63	63	6.63	1.34	0.09	57.98	85.27

Table C.5: Sampling errors: Viral load suppression by residence and province, ZIMPHIA 2020 (continued)

	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Women							
Residence							
Urban	75.61	582	2.11	1.40	0.03	71.27	79.96
Rural	81.81	1,469	1.10	1.18	0.01	79.55	84.06
Province							
Bulawayo	75.27	196	4.33	1.96	0.06	66.36	84.18
Manicaland	84.42	202	2.69	1.10	0.03	78.88	89.96
Mashonaland Central	76.35	202	3.47	1.34	0.05	69.20	83.51
Mashonaland East	80.32	173	2.21	0.53	0.03	75.77	84.86
Mashonaland West	82.51	235	2.97	1.43	0.04	76.39	88.63
Matabeleland North	81.89	205	3.14	1.36	0.04	75.42	88.35
Matabeleland South	80.59	231	2.63	1.01	0.03	75.18	86.00
Midlands	79.82	238	2.97	1.29	0.04	73.71	85.92
Masvingo	81.68	211	3.12	1.36	0.04	75.26	88.10
Harare	74.51	158	3.90	1.26	0.05	66.47	82.55
Total							
Residence							
Urban	74.17	806	2.13	1.91	0.03	69.78	78.56
Rural	78.65	2,151	0.97	1.21	0.01	76.65	80.65
Province							
Bulawayo	73.67	274	3.08	1.34	0.04	67.33	80.02
Manicaland	80.89	279	2.56	1.18	0.03	75.61	86.17
Mashonaland Central	70.08	309	2.56	0.96	0.04	64.81	75.35
Mashonaland East	78.80	255	2.52	0.97	0.03	73.60	83.99
Mashonaland West	78.39	338	2.30	1.05	0.03	73.66	83.13
Matabeleland North	81.46	302	2.70	1.45	0.03	75.90	87.02
Matabeleland South	82.19	324	2.16	1.03	0.03	77.73	86.64
Midlands	78.04	345	2.39	1.15	0.03	73.11	82.96
Masvingo	76.50	310	3.30	1.88	0.04	69.70	83.31
Harare	73.50	221	4.10	1.89	0.06	65.06	81.93

Table C.6: Sampling errors: ARV-adjusted 90-90-90 by age (conditional percentages), ZIMPHIA 2020

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
				Men			
				Diagnosed			
15-24	71.88	64	6.10	1.16	0.08	59.32	84.45
25-34	64.34	117	4.65	1.09	0.07	54.76	73.93
35-49	87.34	405	2.03	1.50	0.02	83.17	91.51
50+	93.16	320	1.55	1.21	0.02	89.96	96.36
15-49	80.63	586	1.97	1.45	0.02	76.57	84.69
15+	84.32	906	1.52	1.57	0.02	81.20	87.44
				On treatment			
15-24	95.74	46	3.01	1.00	0.03	89.55	100.00
25-34	90.18	78	3.89	1.32	0.04	82.16	98.20
35-49	96.69	353	1.06	1.25	0.01	94.49	98.88
50+	96.70	300	1.22	1.40	0.01	94.18	99.22
15-49	95.49	477	0.97	1.05	0.01	93.49	97.50
15+	95.89	777	0.80	1.27	0.01	94.23	97.54
				Viral load suppression			
15-24	71.52	44	8.28	1.45	0.12	54.48	88.57
25-34	85.74	70	4.46	1.12	0.05	76.55	94.92
35-49	89.48	342	1.73	1.08	0.02	85.92	93.04
50+	93.29	292	1.64	1.25	0.02	89.91	96.67
15-49	86.93	456	1.78	1.27	0.02	83.26	90.60
15+	89.02	748	1.27	1.23	0.01	86.41	91.63
				Women			
				Diagnosed			
15-24	77.16	183	3.33	1.15	0.04	70.30	84.02
25-34	81.94	425	2.14	1.32	0.03	77.53	86.36
35-49	92.01	915	1.08	1.45	0.01	89.78	94.23
50+	92.98	529	1.23	1.23	0.01	90.45	95.52
15-49	87.03	1,523	0.98	1.30	0.01	85.01	89.05
15+	88.31	2,052	0.80	1.26	0.01	86.67	89.96
				On treatment			
15-24	95.10	142	2.24	1.51	0.02	90.50	99.70
25-34	97.21	360	0.87	1.01	0.01	95.42	99.01
35-49	97.32	845	0.62	1.25	0.01	96.03	98.60
50+	99.49	493	0.30	0.87	0.00	98.88	100.00
15-49	97.03	1,347	0.51	1.22	0.01	95.97	98.08
15+	97.59	1,840	0.40	1.27	0.00	96.75	98.42

Table C.6: Sampling errors: ARV-adjusted 90-90-90 by age (conditional percentages), ZIMPHIA 2020 (continued)

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Viral load suppression							
15-24	85.29	136	3.26	1.14	0.04	78.59	92.00
25-34	86.01	350	1.95	1.10	0.02	82.00	90.02
35-49	91.42	823	1.13	1.34	0.01	89.09	93.75
50+	97.16	490	0.77	1.06	0.01	95.57	98.75
15-49	89.19	1,309	0.94	1.21	0.01	87.24	91.13
15+	91.04	1,799	0.76	1.28	0.01	89.47	92.61
Total							
Diagnosed							
15-24	75.43	247	3.09	1.27	0.04	69.07	81.79
25-34	77.14	542	2.06	1.31	0.03	72.88	81.39
35-49	90.21	1,320	1.06	1.67	0.01	88.03	92.38
50+	93.06	849	1.01	1.35	0.01	90.98	95.15
15-49	84.80	2,109	0.99	1.62	0.01	82.76	86.85
15+	86.83	2,958	0.81	1.68	0.01	85.17	88.49
On treatment							
15-24	95.30	188	1.70	1.21	0.02	91.80	98.80
25-34	95.61	438	1.08	1.21	0.01	93.39	97.83
35-49	97.08	1,198	0.58	1.43	0.01	95.88	98.28
50+	98.24	793	0.57	1.51	0.01	97.06	99.42
15-49	96.52	1,824	0.48	1.25	0.00	95.53	97.51
15+	96.97	2,617	0.39	1.37	0.00	96.17	97.78
Viral load suppression							
15-24	80.98	180	3.21	1.20	0.04	74.37	87.59
25-34	85.95	420	1.85	1.19	0.02	82.14	89.77
35-49	90.70	1,165	0.96	1.27	0.01	88.72	92.67
50+	95.46	782	0.90	1.45	0.01	93.61	97.31
15-49	88.45	1,765	0.87	1.30	0.01	86.67	90.24
15+	90.32	2,547	0.67	1.30	0.01	88.94	91.69

( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.

Table C.7: Sampling errors: ARV-adjusted 90-90-90 by age (overall percentages), ZIMPHIA 2020

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
				Men			
				Diagnosed			
15-24	71.88	64	6.10	1.16	0.08	59.32	84.45
25-34	64.34	117	4.65	1.09	0.07	54.76	73.93
35-49	87.34	405	2.03	1.50	0.02	83.17	91.51
50+	93.16	320	1.55	1.21	0.02	89.96	96.36
15-49	80.63	586	1.97	1.45	0.02	76.57	84.69
15+	84.32	906	1.52	1.57	0.02	81.20	87.44
				On treatment			
15-24	68.82	64	6.11	1.10	0.09	56.23	81.42
25-34	58.02	117	4.75	1.08	0.08	48.23	67.81
35-49	84.44	405	2.39	1.76	0.03	79.52	89.36
50+	90.09	320	1.89	1.28	0.02	86.19	93.98
15-49	77.00	586	2.11	1.47	0.03	72.65	81.34
15+	80.85	906	1.69	1.66	0.02	77.38	84.32
				Viral load suppression			
15-24	49.22	64	7.84	1.55	0.16	33.08	65.37
25-34	49.75	117	4.97	1.15	0.10	39.51	59.98
35-49	75.56	405	2.59	1.46	0.03	70.23	80.89
50+	84.04	320	2.16	1.11	0.03	79.59	88.49
15-49	66.94	586	2.32	1.42	0.03	62.15	71.72
15+	71.97	906	1.79	1.44	0.02	68.28	75.67
				Women			
				Diagnosed			
15-24	77.16	183	3.33	1.15	0.04	70.30	84.02
25-34	81.94	425	2.14	1.32	0.03	77.53	86.36
35-49	92.01	915	1.08	1.45	0.01	89.78	94.23
50+	92.98	529	1.23	1.23	0.01	90.45	95.52
15-49	87.03	1,523	0.98	1.30	0.01	85.01	89.05
15+	88.31	2,052	0.80	1.26	0.01	86.67	89.96
				On treatment			
15-24	73.38	183	3.49	1.14	0.05	66.18	80.58
25-34	79.66	425	2.17	1.23	0.03	75.19	84.13
35-49	89.54	915	1.17	1.33	0.01	87.13	91.95
50+	92.51	529	1.24	1.16	0.01	89.97	95.06
15-49	84.44	1,523	1.06	1.30	0.01	82.26	86.62
15+	86.18	2,052	0.86	1.28	0.01	84.41	87.96

Table C.7: Sampling errors: ARV-adjusted 90-90-90 by age (overall percentages), ZIMPHIA 2020 (continued)

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
				Women			
				Viral load suppression			
15-24	62.59	183	3.91	1.19	0.06	54.54	70.64
25-34	68.52	425	2.60	1.33	0.04	63.16	73.87
35-49	81.86	915	1.51	1.41	0.02	78.74	84.98
50+	89.89	529	1.40	1.14	0.02	87.00	92.78
15-49	75.31	1,523	1.29	1.37	0.02	72.65	77.97
15+	78.46	2,052	1.08	1.41	0.01	76.24	80.68
				Total			
				Diagnosed			
15-24	75.43	247	3.09	1.27	0.04	69.07	81.79
25-34	77.14	542	2.06	1.31	0.03	72.88	81.39
35-49	90.21	1,320	1.06	1.67	0.01	88.03	92.38
50+	93.06	849	1.01	1.35	0.01	90.98	95.15
15-49	84.80	2,109	0.99	1.62	0.01	82.76	86.85
15+	86.83	2,958	0.81	1.68	0.01	85.17	88.49
				On treatment			
15-24	71.89	247	2.95	1.06	0.04	65.80	77.97
25-34	73.75	542	2.06	1.18	0.03	69.51	77.99
35-49	87.58	1,320	1.26	1.92	0.01	84.98	90.17
50+	91.43	849	1.11	1.33	0.01	89.14	93.71
15-49	81.85	2,109	1.07	1.64	0.01	79.64	84.06
15+	84.20	2,958	0.88	1.73	0.01	82.38	86.02
				Viral load suppression			
15-24	58.21	247	3.28	1.09	0.06	51.46	64.97
25-34	63.39	542	2.38	1.32	0.04	58.50	68.28
35-49	79.43	1,320	1.47	1.75	0.02	76.40	82.46
50+	87.27	849	1.33	1.34	0.02	84.54	90.01
15-49	72.40	2,109	1.26	1.67	0.02	69.81	74.99
15+	76.05	2,958	1.03	1.71	0.01	73.93	78.16

Table C.8: Sampling errors: Number of new infections annually and number of people living with HIV by age, ZIMPHIA 2020

Age (years)	Weighted estimate	Standard error	Design effect	Relative standard error	Lower confidence limit	Upper confidence limit
Number of new infections annually						
15-24	13,030	4,349.7	2.59	0.33	4,054.00	22,006.00
25-34	10,001	3,790.1	2.59	0.38	2,181.00	17,822.00
35-49	8,049	3,318.1	2.93	0.41	1,202.00	14,896.00
50+	0.00	0.00	0.00	0.00	0.00	4,113.00
15-49	31,047	6,959.0	2.93	0.22	16,687.00	45,407.00
15+	31,055	6,962.6	3.14	0.22	16,688.00	45,422.00
People living with HIV						
15-24	119,625	7,813.3	0.95	0.07	103,532.76	135,716.46
25-34	247,187	12,273	1.25	0.05	221,911.26	272,462.64
35-49	557,931	19,551	1.99	0.04	517,664.17	598,198.27
50+	300,446	11,325	1.41	0.04	277,121.66	323,769.42
15-49	924,743	27,051	1.72	0.03	869,030.34	980,455.23
15+	1,225,188	29,392	1.67	0.02	1,164,654.33	1,285,722.33

APPENDIX D SURVEY PERSONNEL

Ministry of Health and Child Care

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Chiedza Mupanguri

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Gibson Mhlanga
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Ngwarai Sithole

Nomalanga Marimo
Owen Mugurungi
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Grace Chaora
Nyaradzi Ngonyamo

Romana Nyahwa
Taguma Muhonde
Winfilda Muroka

Wishy Chipiro

The National AIDS Council

Amon Mpofu

Raymond Yekeye

US Centers for Disease Control and Prevention (CDC)

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Kelsey Mirkovic

Michael Melchior
Prisca Chikwanda
Rachel Silver

Rachel Weber
Shirish Balachandra

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Andrew Voetsch
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Bharat Parekh
Divya Patel

Faith Ussery
Greg Chang
Hetal Patel
Katie Lupoli
Kristin Brown

Rebecca Laws
Stephen McCracken
Steven Kinchen
Tory Seffren
Trudy Dobbs

ICAP

Zimbabwe

Abel Mandishona
Blessed Gumbie
Caroline Mangezi
Godfrey Musuka
Humphrey Chituri

Kenneth Maeka
Kudzanayi Moyo
Lavert Remhunga
Moudy Mugadzaweta
Munyaradzi Mapingure

Nathan Mhungu
Rex Chikara
Salome Manyau
Tarisiro Urayayi

Regional

Blanche Pitt
Bright Phiri
Charles Wentzel
Duncan Chege
Erika Fazito
Helecks Mutengo

Herbert Longwe
Herman Brou
Julius Manjengwa
Mandisa Skhosana
Oliver Murangandi
Pule Mphohle

Sakhile Sithole
Takura Kupamupindi
Tepa Nkumbula
Terefe Gelibo
Vusumuzi Maliwa
Yvonne Mavengere

New York

Andrea Low	Jessica Zheng	Noelle Esquire
Apala Guhathakurta	John Wylie	Olga Crowley
Blair Gilmartin	Karam Sachathep	Rachel Bray
Chelsea Solmo	Katherine Johnson Katherine Yuengling	Sara Winterhalter
Christiana Chang	Kiwon Lee	Shannon Farley
Claudia Mendoza	Leticia Froix	Stephen Delgado
Connor Wright	Mansoor Farahani	Tamara White
David Hoos	Mark Fussell	Theo Smart
Donna Lopp	Mekleet Teferi	Thomas Carpino
Gili Hrusa Castillo	Melissa Metz	Wafaa El-Sadr
Hannah Chung	Natasha McLeod	Zach Keefer
Jacqueline Maxwell	Natazia Fistrovic	

Community Mobilization Coordinators

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Farai Chinoko	Paul Elijah	
Monica Gavera	Precious Siqo	

Field Data Collectors

Field Supervisors

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MacDonald Thandi	Phillis Mukahlera	
Norest Mutukwa	Sibusisiwe Sibanda	

Team Leaders

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Caroline Mundozi	Juster Zhou	Tanatsiwa Chabarika
Caroline N. Sibanda	Lindiwe Deredza	Thabani Mhlanga
Desire Muzamhindo	Melody Ntini	Thomas Madziro
Evans Hove	Orchard Sibanda	Thula Donga
Faith Wazara	Phathisani Makwati	Tinashe Noise-Baudi
Faustine Mupoperi	Portia Mareke	Tinotenda Muganhiri
Fiona Mundoga	Precious Vusile Moyo	Victoria K Buzuzi
Florence Mapokotera	Privillage Charashika	Winnie Mandewo
Fredrick Mbiva	Rutendo Wesley Mukondwa	Warwick Khembo
Future Masango	Shuvai Makainganwa	Webster Jaya

Interviewer Counsellors

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Agnes Matinyarare	Cynthia Marume	Isaac Pasipanodya
Albert M Chitsungo	Dadirai Sharon Chikwire	Isheanesu P Dube
Allen Vunganai	Daudi Kanjanda	Itai Mupawaenda
Alleta Dauka	Davison Nyongo	Jerry Mafume
Alpha Mukaronda	Edwick Nhapata	Julia Phiri
Angeline Matanhire	Elvis Masvaure	Kimbery Varaidzo Rusike
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Clemence Chiweshe	Harriet Chiunda	Maria Nyabocho

Mary Mtume
Mary Mamina
Marylin Mucherera
Mavis Mashamba
Memory Makota
Michael Maphosa
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Mlindelwa Mancitshana
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Nobukhosi Pamela Ncube
Nomandla Sithole
Nonhlanhla Ndondo
Nontokozo Zinyengo
Nesisa Moyo Takawira
Nothando Ndhlovu
Nozipho P Ncube
Nyaradzai Jongoni
Nyaradzo Garapo
Nyaradzo Gonese
Nyarai Manyeruke
Olivia Bwanya
Penelope Tinarwo
Philani Mlilo

Portia Javangwe
Praise Tafara Chadya
Pride Tapfumanei
Ropafadzo   Huchu
Rutendo Magaramombe
Ruth Hove
Ruth Takudzwa Masarirambi
Samatha Mutayaunga
Sandra Masiiwa
Sandra Muzambe
Sanelisiwe N.Ncube
Senzelwe Delbert Moyo
Shingai Mashungupa
Sibongile D Mudiwa
Sisasenkosi Dube
Solomon Madzinga
Studymore Tsimba
Sufficient D Nyoni
Tafadzwa Godi
Takudzwa Chizunza
Talent Goche
Talent Madovi
Tapiwa Gwanzura
Tariro Chinamora
Tariro Gandanga

Tariro Muteti
TatendaTanga
Tavonga Mhungu
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Tinashe Victor Dohwe
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Sandra Munarwo
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Sithabile Dube
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Taruvona Chikova
Talkmore Chauke
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Blessing Mukundwe
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Calvin Chinda
Charles Sibanda
Chevo Moyana
Chrispen Rwazemba
Christopher Mudzingwa
Clayton Maponga
Cletos Chigwedu
Constain Chibanda
Daniel Chekerwa
Denford Jena
Dennis Makuvise
Dim Mutuwa
Edmore Asani
Edwin Gutsa
Elisha Tinofa

Emerold Chibhamu
Emmanuel Zoraunye
Ernest Mauna
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Fredrick Kapfunde
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John Dowerowe
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Joseph Chikono
Joseph Muchatuta
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Thabiso Ndou
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Wellington Malunga
Wilfred Nyesvu

Administrators

Sharon Mwendera

Tecla Nyasha Chada

APPENDIX E HOUSEHOLD QUESTIONNAIRE

	HOUSEHOLD SCHEDULE							
LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX		RESIDENCE			AGE
	INTERVIEWER SAYS: *"Please give me the names of the persons who usually live in your household or guests of the household who stayed here last night, starting with the head of the household."*							IF LESS THAN 2 YEARS, RECORD IN MONTHS.
	AFTER LISTING THE NAME AND RECORDING THE RELATIONSHIP AND SEX FOR EACH PERSON ASK QUESTIONS 2A-2C BELOW TO BE SURE THAT THE SCHEDULE IS COMPLETE.	What is the relationship of (**NAME**) to the head of the household? SEE CODES BELOW	Is (**NAME**) Male or Female?		Does (**NAME**) usually live here?	Did (**NAME**) sleep here last night?	How old is (**NAME**)?	Is age of (**NAME**) recorded in MONTHS/ YEARS?
(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)
1			M	F	Y N	Y N		MONTHS YEARS
2			M	F	Y N	Y N		MONTHS YEARS
3			M	F	Y N	Y N		MONTHS YEARS
4			M	F	Y N	Y N		MONTHS YEARS
5			M	F	Y N	Y N		MONTHS YEARS
6			M	F	Y N	Y N		MONTHS YEARS
7			M	F	Y N	Y N		MONTHS YEARS
8			M	F	Y N	Y N		MONTHS YEARS
9			M	F	Y N	Y N		MONTHS YEARS
10			M	F	Y N	Y N		MONTHS YEARS

CODES FOR COLUMN 3: RELATIONSHIP TO HOUSEHOLD HEAD

01 = HEAD
02 = WIFE/HUSBAND/PARTNER
03 = SON OR DAUGHTER
04 = SON-IN-LAW/DAUGHTER-IN-LAW
05 = GRANDCHILD

06 = PARENT
07 = PARENT-IN-LAW09 = CO-WIFE
09 = CO-WIFE
10 = OTHER RELATIVE

11 = ADOPTED/
     FOSTER/STEPCHILD
12 = NOT RELATED
-8 = DON'T KNOW

	HOUSEHOLD SCHEDULE (continued)				
LINE NO.	IF AGED 15-17 YEARS EMANCIPATION STATUS	LAST TIME USUAL RESIDENT SLEPT IN HOUSEHOLD	LIVES AWAY	COUNTRY OR PROVINCE	SICK PERSON
	Is (**NAME**) an emancipated minor? (Emancipated minors are between ages 15 and 17 years and have been married, pregnant, live alone or are heads of HHs)	CHECK COLUMN 6, IF NO, when was the last time, (**NAME**) slept the night in the household? MONTH (SEE CODES BELOW) / YEAR	Is (**NAME**) in another region or country?	Which province or country is (**NAME**) in currently? (SEE CODES BELOW)	Has (**NAME**) been very sick for at least 3 months during the past 12 months, that is (NAME) was too sick to work or do normal activities?
(1)	(9)	(10)	(11)	(12)	(13)
1	Y N	____ DK = -8 REFUSED = -9	Y N		Y N
2	Y N	____ DK = -8 REFUSED = -9	Y N		Y N
3	Y N	____ DK = -8 REFUSED = -9	Y N		Y N
4	Y N	____ DK = -8 REFUSED = -9	Y N		Y N
5	Y N	____ DK = -8 REFUSED = -9	Y N		Y N
6	Y N	____ DK = -8 REFUSED = -9	Y N		Y N
7	Y N	____ DK = -8 REFUSED = -9	Y N		Y N
8	Y N	____ DK = -8 REFUSED = -9	Y N		Y N
9	Y N	____ DK = -8 REFUSED = -9	Y N		Y N
10	Y N	____ DK = -8 REFUSED = -9	Y N		Y N

HOUSEHOLD SCHEDULE

☐ **TICK HERE IF CONTINUATION SHEET USED**

Just to make sure I have a complete listing, are there any other persons such as small children or infants that we have not listed?   YES ☐ — NO ☐

Are there any other people such as domestic servants or friends who may not be members of your household who usually live here?   YES ☐ — NO ☐

Are there any guests or temporary visitors staying here, or anyone else who stayed here last night who we have not seen and listed?   YES ☐ — NO ☐

ADD TO SCHEDULE ◄

IF NO, INTERVIEWER SAYS: *"Thank you for confirming the Household Roster is complete."*

CODES FOR COLUMN 10: LAST TIME SLEPT IN HOUSEHOLD

01 = JANUARY	08 = AUGUST
02 = FEBRUARY	09 = SEPTEMBER
03 = MARCH	10 = OCTOBER
04 = APRIL	11 = NOVEMBER
05 = MAY	12 = DECEMBER
06 = JUNE	-8 = DON'T KNOW
07 = JULY	-9 = REFUSED MONTH

CODES FOR COLUMN 12: PROVINCE/COUNTRY PRESENTLY IN

01 = BULAWAYO	08 = MIDLANDS
02 = MANICALAND	09 = MASVINGO
03 = MASHONALAND CENTRAL	10 = HARARE
04 = MASHONALAND EAST	11 = BOTSWANA
05 = MASHONALAND WEST	12= SOUTH AFRICA
06 = MATABELELAND NORTH	13= ZAMBIA
07 = MATABELELAND SOUTH	-8 = DON'T KNOW
	-9 = REFUSED

		HOUSEHOLD SCHEDULE (for minors—skip if emancipated)					
LINE NO.	IF (NAME) IS **0-17 YEARS**						IF NAME IS 15-17 YEARS)
	SCHOOL	ORPHAN STATUS / PARENT OR GUARDIAN					WRITTEN PERMISSION TO PARTICIPATE
	Interviewer says: "The next step will be to answer some additional questions for the Household Members who are 0-17 years old." These questions are regarding (**NAME**). Is (**NAME**) currently enrolled in school?	Is (**NAME**)'s natural mother alive?	Does (**NAME**)'s natural mother usually live in this household or was a guest last night? IF YES: RECORD MOTHER'S LINE NUMBER. IF NO: RECORD **FEMALE** GUARDIAN'S LINE NUMBER OR '00' IF FEMALE PARENT OR GUARDIAN NOT PRESENT IN HH.	Is (**NAME**)'s natural father alive?	Does (**NAME**)'s natural father usually live in this household or was a guest last night? IF YES: RECORD FATHER'S LINE NUMBER. IF NO: RECORD **MALE** GUARDIAN'S LINE NUMBER OR '00' IF MALE PARENT OR GUARDIAN NOT PRESENT IN HH.	RECORD LINE NUMBER OF PARENT / GUARDIAN WHO CAN GIVE PERMISSION FOR (**NAME**) TO PARTICIPATE IN THE SURVEY.	You said that there is no adult or parent/ guardian in the household who can give permission for (**NAME**) to participate in the survey. Is this correct?
(1)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N
2	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N
3	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N
4	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N
5	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N
6	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N
7	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N
8	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N
9	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N
10	Y N	Y N—DK ↓ 17		Y N—DK ↓ 19			Y N

TOTAL ELIGIBLE MEN (ADULTS 15+ YEARS AND EMANCIPATED MINORS)

TOTAL ELIGIBLE WOMEN (ADULTS 15+ YEARS AND EMANCIPATED MINORS)

HOUSEHOLD SCHEDULE (for minors—skip if emancipated) (continued)						
LINE NO	SICKNESS AND RESIDENCE OF BIOLOGICAL PARENTS				MOTHER DEAD OR SICK	FATHER DEAD OR SICK
	CHECK COLUMN 15, IF COLUMN 15 = 'N' OR 'DK' →25 IF COLUMN 15 = 'Y': Has (**NAME**)'s natural mother been very sick for at least 3 months during the past 12 months, that is she was too sick to work or do normal activities?	IF MOTHER SICK: Does (**NAME**)'s natural mother have HIV/AIDS?	CHECK COLUMN 17, IF COLUMN 17 'N' OR 'DK' →26 IF COLUMN 17 'Y': Has (**NAME**)'s natural father been very sick for at least 3 months during the past 12 months, that is he was too sick to work or do normal activities?	IF FATHER SICK: Does (**NAME**)'s natural father have HIV/AIDS?*	IF CHILD'S NATURAL MOTHER HAS DIED (COLUMN 15 'N') OR BEEN SICK (COLUMN 21 'Y'), SELECT Y.	IF CHILD'S NATURAL FATHER HAS DIED (COLUMN 12'N') OR BEEN SICK (COLUMN 23 'Y'), SELECT Y.
(1)	(21)	(22)	(23)	(24)	(25)	(26)
1	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N
2	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N
3	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N
4	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N
5	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N
6	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N
7	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N
8	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N
9	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N
10	Y N—DK ▼23	Y N DK	Y N—DK ▼21	Y N DK	Y N	Y N

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES		SKIP
	SUPPORT FOR ORPHANS AND VULNERABLE CHILDREN			
101	DO NOT READ: CHECK COLUMN 7 IN THE HOUSEHOLD SCHEDULE. **ANY CHILD AGE 0-17 YEARS?** (SKIP IF EMANCIPATED)	NUMBER OF CHILDREN 0-17 YRS:		NONE➔114
102	DO NOT READ: CHECK COLUMN 25 IN THE HOUSEHOLD SCHEDULE. **ANY CHILD WHOSE MOTHER HAS DIED OR IS VERY SICK?**	YES..1 NO.. 2		YES➔104
103	DO NOT READ: CHECK COLUMN 26 IN THE HOUSEHOLD SCHEDULE. **ANY CHILD WHOSE FATHER HAS DIED OR IS VERY SICK?**	YES..1 NO.. 2		NO➔114
104	**Record names, line numbers, and ages of all children 0-17 who are identified in columns 25, and 26 as having a mother and/or father who has died or has been very sick.**			

	CHILD (1)	CHILD (2)	CHILD (3)
NAME	_____	_____	_____
LINE NUMBER (FROM COLUMN 1)			
AGE (FROM COLUMN 7)			

INTERVIEWER SAY: "I would like to ask you about any formal, organized help or support for children that your household may have received for which you did not have to pay. By formal, organized support, I mean help provided by someone working for a program. This program could be government, private, religious, charity, or community-based."

NO.	QUESTIONS AND INSTRUCTIONS			
105	Now I would like to ask you about the support your household received for (**NAME**). In the last 12 months, has your household received any medical support for (**NAME**), such as medical care, supplies, or medicine, for which you did not have to pay?	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9
106	In the last 12 months, has your household received any medical support for (NAME), such as medical care, supplies, or medicine, for which you did not have to pay?	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9
107	In the last 12 months, has your household received any emotional or psychological support for [HHRNAME*], such as companionship, counseling from a trained counselor, or spiritual support, which you received at home and for which you did not have to pay?	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9 NO, DK, R➔ 109	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9 NO, DK, R➔ 109	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9 NO, DK, R➔ 109
108	Did your household receive any of this emotional or psychological support for (**NAME**) in the past 3 months?	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9	YES................................1 NO.....................................2 DON'T KNOW ....-8 REFUSED............................-9

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES		SKIP
109	In the last 12 months, has your household received any material support for (**NAME**), such as clothing, food, or financial support, for which you did not have to pay?	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9 NO, DK➔ 111	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9 NO, DK➔ 111	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9 NO, DK➔ 111
110	Did your household receive any of this material support for (**NAME**) in the past 3 months?	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9
111	In the last 12 months, has your household received any social support for (**NAME**) such as help in household work, training for a caregiver, or legal services, for which you did not have to pay?	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9 NO, DK➔ 113	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9 NO, DK➔ 113	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9 NO, DK➔ 113
112	Did your household receive any of this social support for (**NAME**) in the past 3 months?	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9	YES...................................1 NO......................................2 DON'T KNOW ....-8 REFUSED...........................-9
113	In the last 12 months, has your household received any support for (**NAME**)'s schooling, such as allowance, free admission, books, or supplies, for which you did not have to pay?	YES ....1 NO, DID NOT RECEIVE SUPPORT ....2 NO, CHILD DOES NOT ATTEND SCHOOL..........3 DON'T KNOW ....-8 REFUSED...........................-9	YES ....1 NO, DID NOT RECEIVE SUPPORT ....2 NO, CHILD DOES NOT ATTEND SCHOOL..........3 DON'T KNOW ....-8 REFUSED...........................-9	YES ....1 NO, DID NOT RECEIVE SUPPORT ....2 NO, CHILD DOES NOT ATTEND SCHOOL..........3 DON'T KNOW ....-8 REFUSED...........................-9

CONTINUE TO NEXT CHILD IF OTHER CHILDREN WHOSE MOTHER AND/OR FATHER HAS DIED OR IS VERY SICK.

MATRIX END

INTERVIEWER SAYS: "Thank you for the information regarding (**NAME**)."

IF THERE IS ANOTHER CHILD 0-17 YEARS IN THE HOUSEHOLD WHO HAS BEEN IDENTIFIED IN COLUMN 17 AS HAVING A MOTHER/FATHER WHO HAS DIED OR IS VERY SICK BESIDES (NAME) → CONTINUE TO 106 AND ASK ABOUT THE NEXT CHILD.

INTERVIEWER SAYS: "Next, I would like to ask you about (**NAME**)".

TICK IF CONTINUATION SHEET REQUIRED.

IF NO OTHER CHILDREN, CONTINUE HOUSEHOLD INTERVIEW.

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES			SKIP
		HOUSEHOLD DEATHS			
114	Now I would like to ask you more questions about your household. Has any usual resident of your household died since January 1, 2017?	YES...1 NO.. 2 DON'T KNOW... -8 REFUSED ....-9			NO, DK, R → 201
115	How many usual household residents died since January 1, 2017?	NUMBER OF DEATHS			

ASK 116-119 AS APPROPRIATE FOR EACH PERSON WHO DIED. IF THERE WERE MORE THAN 3 DEATHS USE ADDITIONAL QUESTIONNAIRES.

NO.	QUESTIONS AND INSTRUCTIONS			
116	What was the name of the person who died (most recently/before him/her)?	NAME 1ST DEATH _____	NAME 2ND DEATH _____	NAME 3RD DEATH _____
117	When did (**NAME**) die? Please give your best guess.	DAY MONTH YEAR DON'T KNOW .... -8 REFUSED............................ -9	DAY MONTH YEAR DON'T KNOW .... -8 REFUSED............................ -9	DAY MONTH YEAR DON'T KNOW .... -8 REFUSED............................ -9
118	Was (**NAME**) male or female?	MALE ....1 FEMALE ....2 DON'T KNOW .... -8 REFUSED............................ -9	MALE ....1 FEMALE ....2 DON'T KNOW .... -8 REFUSED............................ -9	MALE ....1 FEMALE ....2 DON'T KNOW .... -8 REFUSED............................ -9
119	How old was (**NAME**) when (he/she) died? RECORD DAYS IF LESS THAN 1 MONTH, MONTHS IF LESS THAN 1 YEAR, AND COMPLETED YEARS IF 1 YEAR OR MORE.	DAYS MONTHS YEARS DON'T KNOW .... -8 REFUSED............................ -9	DAYS MONTHS YEARS DON'T KNOW .... -8 REFUSED............................ -9	DAYS MONTHS YEARS DON'T KNOW .... -8 REFUSED............................ -9

CONTINUE TO NEXT DEATH ACCORDING UP TO THE NUMBER REPORTED FROM 115.

TICK IF CONTINUATION SHEET REQUIRED.

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP

HOUSEHOLD CHARACTERISTICS

INTERVIEWER SAY: "Now I would like to ask you more questions about your household."

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
201	What is the <u>main</u> source of drinking water for members of your household?	**PIPED WATER** PIPED INTO DWELLING .... 11 PIPED TO YARD/PLOT............................... 12 PUBLIC TAP/STANDPIPE .... 13 TUBE WELL OR BOREHOLE .... 21 **DUG WELL** PROTECTED WELL .... 31 UNPROTECTED WELL .... 32 **WATER FROM SPRING** PROTECTED SPRING................................... 41 UNPROTECTED SPRING............................ 42 RAINWATER .... 51 TANKER TRUCK .... 61 CART WITH SMALL TANK........................ 71 SURFACE WATER (RIVER/DAM/LAKE/POND / STREAM/CANAL).. 81 BOTTLED WATER .... 91 OTHER (SPECIFY)_____ 96 DON'T KNOW .... -8 REFUSED .... -9	

HOUSEHOLD CHARACTERISTICS (continued)

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
202	What kind of toilet facility do members of your household usually use?	FLUSH OR POUR FLUSH TOILET ....11 TRADITIONAL PIT LATRINE .... 21 VENTILATED IMPROVED PIT LATRINE (VIP) .... 22 NO FACILITY/BUSH/FIELD ....61 BUCKET .... 62 OTHER (SPECIFY) _____96 DON'T KNOW .... -8 REFUSED ....-9	IF NO FACILITY/ BUSH/ FIELD. DK, R →204
203	Do you share this toilet facility with other households?	YES ....1 NO .... 2 DON'T KNOW .... -8 REFUSED ....-9	
204	Does your household have:	Electricity ....A A working radio ....B A working television ....C A working telephone/mobile telephone .... D A working refrigerator .... E NONE OF THE ABOVE .... F DON'T KNOW .... Y REFUSED.. Z	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
		HOUSEHOLD CHARACTERISTICS (continued)	
205	What type of fuel does your household mainly use for cooking?	ELECTRICITY...1 LPG / NATURAL GAS..................................2 BIOGAS...3 PARAFFIN / KEROSENE...........................4 COAL, LIGNITE...5 CHARCOAL FROM WOOD......................6 FIREWOOD / STRAW.................................7 DUNG...8 NO FOOD COOKED IN HOUSEHOLD.........95 OTHER (SPECIFY) _____96 DON'T KNOW..-8 REFUSED...-9	
206	MAIN MATERIAL OF FLOOR RECORD OBSERVATION.	**NATURAL FLOOR** EARTH / SAND..11 DUNG..12 **RUDIMENTARY FLOOR** WOOD PLANKS...21 PALM / BAMBOO.......................................22 **FINISHED FLOOR** PARQUET OR POLISHED WOOD..........31 VINYL OR ASPHALT STRIP.....................32 CERAMIC TILES...33 CEMENT/TERAZO......................................34 CARPET..35 OTHER (SPECIFY) _____96	
207	MAIN MATERIAL OF THE ROOF RECORD OBSERVATION.	**NATURAL ROOFING** NO ROOF...11 THATCH/PALM LEAF (MAKUTI)............12 DUNG / MUD...13 **RUDIMENTARY ROOFING** CORRUGATED IRON (MABATI)..............21 TIN CANS..22 **FINISHED ROOFING** ASBESTOS SHEET....................................31 CONCRETE...32 TILES...33 OTHER (SPECIFY) _____96	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
		HOUSEHOLD CHARACTERISTICS (continued)	
208	MAIN MATERIAL OF THE EXTERIOR WALLS RECORD OBSERVATION.	**NATURAL WALLS** NO WALLS.............11 CANE/PALM/TRUNKS ....12 DUNG / MUD ....13 **RUDIMENTARY WALLS** BAMBOO WITH MUD ....21 STONE WITH MUD ....22 PLYWOOD/CARDBOARD ....23 CARTON.............24 REUSED WOOD ....25 **FINISHED WALLS** CEMENT ....31 STONE WITH LIME/CEMENT ....32 BRICKS ....33 CEMENT BLOCKS.............34 WOOD PLANKS/SHINGLES ....35 OTHER (SPECIFY)_____96	
209	How many rooms are used for sleeping?	NUMBER OF ROOMS: ☐☐	
210	Does any member of your household own:	A bicycle ....A A motorcycle or motor scooter ....B A car or truck ....C A boat with a motor ....D NONE OF THE ABOVE ....E DON'T KNOW ....Y REFUSED ....Z	
211	Altogether, how many COWS do members of your household own?	NUMBER OF COWS: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	
212	Altogether, how many GOATS/SHEEP do members of your household own?	NUMBER OF GOATS/SHEEP: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	
213	Altogether, how many POULTRY (e.g., DUCKS, CHICKENS) do members of your household own?	NUMBER OF POULTRY (E.G., DUCKS, CHICKENS: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
		HOUSEHOLD CHARACTERISTICS (continued)	
214	Altogether, how many DOGS do members of your household own?	NUMBER OF DOGS: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	
215	Altogether, how many WORK ANIMALS (CAMELS, HORSES, DONKEYS) do members of your household own?	NUMBER OF WORK ANIMALS: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
		ECONOMIC SUPPORT	
	Now I will ask you questions on economic support you have received.		
301	Has your household received any of the following forms of external economic support in the last 12 months? (INTERVIEWER: READ THE RESPONSES ALOUD. SELECT UP TO THREE RESPONSES FOR THE MOST IMPORTANT SOURCES OF OUTSIDE SUPPORT.)	NOTHING ....A Cash transfer .... B Social grants... C Contributory pension ....D Non-contributory pension .... E Assistance for school fees ....F Material support for education (e.g. uniforms, school books, education, tuition support, bursaries) ....G Income generation support in cash or kind (eg, agricultural inputs) ....H Food assistance provided at the household or external institution ....I Material or financial support for shelter .... J Social pension ....K Remittances ....L Wash inputs (e.g. cement for pit latrines) ....M Public works and food for work ....N Fee waivers (e.g. beam for tuition fees and uniforms) ....O School feeding program ....P Food and in-kind transfers (e.g. draught relief)..........Q Health assistance (e.g. maternal vouchers and assisted medical treatment order (AMTO)) ....R Other (SPECIFY) _____ X DON'T KNOW.. Y REFUSED...Z	NOTHING, DON'T KNOW →END OF SECTION

END OF HOUSEHOLD INTERVIEW

INTERVIEWER SAY: "This is the end of the household survey. Thank you very much for your time and for your responses. Do you have any questions for me at this time?"

END TIME

| END | RECORD THE END TIME.

USE 24 HOUR TIME.

IF START TIME IS 3:12 PM, RECORD 15 HOURS, 12 MINUTES, NOT 03 HOURS, 12 MINUTES. | HOUR: ☐☐ ☐☐

HOUR: ☐☐

MINUTES: ☐☐ |

INTERVIEWER OBSERVATIONS:

TO BE COMPLETED AFTER THE INTERVIEW:

COMMENTS ABOUT RESPONDENT:

COMMENTS ABOUT SPECIFIC QUESTIONS:

GENERAL QUESTIONS:

APPENDIX F ADULT QUESTIONNAIRE

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
LANGUAGE			
Interviewer says: "Thank you for agreeing to participate in this survey. The first set of questions is about your life in general. Afterwards, we will move on to other topics."			
L1	LANGUAGE OF QUESTIONNAIRE	ENGLISH=1 SHONA=2 NDEBELE=3	IF OTHER → L3
L2	LANGUAGE OF INTERVIEW	ENGLISH=1 SHONA=2 NDEBELE=3 OTHER =96 _____ (SPECIFY) SHONA=1 NDEBELE=2 ENGLISH=3 TONGA=4 KALANGA=5 CHEWA=6 CHIBARWE=7 NAMBYA=8 NDAU=9 TSWANA=10 VENDA=11 XHOSA=12 SHANGANI=13 SOTHO=14 KOISAN=15 SIGN LANGUAGE=16 OTHER=96	
L3	NATIVE LANGUAGE OF PARTICIPANT	ENGLISH=1 SHONA=2 NDEBELE=3 OTHER =96 (SPECIFY FROM BELOW): _____ SHONA=1 NDEBELE=2 ENGLISH=3 TONGA=4 KALANGA=5 CHEWA=6 CHIBARWE=7 NAMBYA=8 NDAU=9 TSWANA=10 VENDA=11 XHOSA=12 SHANGANI=13 SOTHO=14 KOISAN=15 SIGN LANGUAGE=16 OTHER=96	IF OTHER → L4
L4	TRANSLATION USED	YES=1 NO=2	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE ONE: RESPONDENT BACKGROUND			
Interviewer says: "Thank you for agreeing to participate in this survey. The first set of questions is about your life in general. Afterwards, we will move on to other topics."			
101	Have you ever attended school?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 104
102	Are you currently enrolled in school?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
103	What is your highest level you have completed?	LEVEL 0 (EARLY CHILDHOOD DEVELOPMENT A)=1 LEVEL 0 (EARLY CHILDHOOD DEVELOPMENT B)=2 LEVEL 1 (PRIMARY, YEAR 1)=3 LEVEL 1 (PRIMARY, YEAR 2)=4 LEVEL 1 (PRIMARY, YEAR 3)=5 LEVEL 1 (PRIMARY, YEAR 4)=6 LEVEL 1 (PRIMARY, YEAR 5)=7 LEVEL 1 (PRIMARY, YEAR 6)=8 LEVEL 1 (PRIMARY, YEAR 7)=9 LEVEL 2 (SECONDARY, FORM 1)=10 LEVEL 2 (SECONDARY, FORM 2)=11 LEVEL 2 (SECONDARY, FORM 3)=12 LEVEL 2 (SECONDARY, FORM 4)=13 LEVEL 2 (SECONDARY, FORM 5)=14 LEVEL 2 (SECONDARY, FORM 6)=15 LEVEL 3 (SHORT CYCLE TERTIARY)=16 LEVEL 3 (BACHELOR's PROGRAM)=17 LEVEL 3 (MASTER'S PROGRAM)=18 LEVEL 3 (DOCTORAL PROGRAM)=19 DON'T KNOW=-8 REFUSED=-9	
104	How long have you lived in the community?	MONTHS ____=2 YEARS ____=3 I HAVE ALWAYS LIVED HERE = 3 DON'T KNOW = -8 REFUSED = -9	IF YEARS OR HAVE ALWAYS LIVED HERE → 107
105	Just before you moved here, did you live in a city, in a town, or in a rural area?	CITY=1 TOWN=2 RURAL AREA=3 DON'T KNOW=-8 REFUSED=-9	
106	Before you moved here, which PROVINCE did you live in? If you lived outside of Zimbabwe, which country did you live in?	BULAWAYO=1 MANICALAND=2 MASHONALAND CENTRAL=3 MASHONALAND EAST=4 MASHONALAND WEST=5 MATABELELAND NORTH=6 MATABELELAND SOUTH=7 MIDLANDS=8 MASVINGO=9 HARARE=10 BOTSWANA=11 SOUTH AFRICA=12 ZAMBIA=13 OTHER (SPECIFY)=96 _____ DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE ONE: RESPONDENT BACKGROUND			
Interviewer says: "Thank you for agreeing to participate in this survey. The first set of questions is about your life in general. Afterwards, we will move on to other topics."			
107	Have you ever lived away from home for more than 1 month at a time?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 112
108	When was the last time you lived away from home for over a month?	MONTH_____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEAR_____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	IF > 1 YEAR BEFORE CURRENT DATE, OR DON'T KNOW OR REFUSED MONTH AND DON'T KNOW OR REFUSED YEAR → 110
109	How many times have you been away from home for one or more months IN THE PAST YEAR?	NUMBER OF TIMES _____ DON'T KNOW=-8 REFUSED=-9	
110	The last time you were away from home for one or more months IN THE PAST YEAR? Interviewer: If you were in more than one place while you were away, please give the place you spent the most time.	ANOTHER COMMUNITY IN THIS DISTRICT=1 ANOTHER DISTRICT IN THIS REGION=2 BULAWAYO=3 MANICALAND=4 MASHONALAND CENTRAL=5 MASHONALAND EAST=6 MASHONALAND WEST=7 MATABELELAND NORTH=8 MATABELELAND SOUTH=9 MIDLANDS=10 MASVINGO=11 HARARE=12 BOTSWANA=13 SOUTH AFRICA=14 ZAMBIA=15 OTHER(SPECIFY)=96 _____ DON'T KNOW=-8 REFUSED=-9	IF OTHER → 112
111	What was the main reason you went there?	WORK=1 SCHOOL/UNIVERSITY=2 FAMILY/MARRIAGE=3 ACCESS HEALTH OR OTHER SERVICES=4 CONFLICT OR NATURAL DISASTER (FLOODS, CYCLONE, DROUGHT)=5 OTHER (SPECIFY)=96 _____ DON'T KNOW=-8 REFUSED=-9	
112	Have you done any work in the last 12 months for which you received cash or goods as payment? This includes work on the family farm or business for which you may not have been paid directly.	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 201
113	Have you done any work in the last seven days for which you received cash or goods as payment? This includes work on the family farm or business for which you may not have been paid directly.	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 201

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE ONE: RESPONDENT BACKGROUND			
Interviewer says: "Thank you for agreeing to participate in this survey. The first set of questions is about your life in general. Afterwards, we will move on to other topics."			
114	What is your occupation? That is, what kind of work do you mainly do?	MINING=1 AGRICULTURE/FARMING=2 TRANSPORT=3 CONSTRUCTION=4 UNIFORMED PERSONNEL=5 INFORMAL TRADE=6 GARMENT INDUSTRIES=7 HOUSEKEEPER=8 SEX WORKER=9 STUDENT=10 OTHER (SPECIFY) _____ DON'T KNOW=-8 REFUSED=-9	
115	Where do you normally work? In your home community, elsewhere in region/country, or outside the country?	HOME COMMUNITY=1 SAME COUNTRY, DIFFERENT COMMUNITY=2 OUTSIDE THE COUNTRY=3 DON'T KNOW=-8 REFUSED=-9	
MODULE TWO: MARRIAGE			
Interviewer says: "Now I would like to ask you about your current and previous relationships and/or marriages."			
201	Have you ever been married or lived together with a [man/woman] as if married?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED SKIP TO NEXT MODULE (WOMAN → 301, MAN → 330)
202	How old were you the first time you married or started living with a [man/woman] as if married?	____YEARS OLD DON'T KNOW=-8 REFUSED=-9	
203	What is your marital status now: are you married, living together with someone as if married, widowed, divorced, or separated/single?	MARRIED=1 LIVING TOGETHER=2 WIDOWED=3 DIVORCED=4 SEPARATED/SINGLE=5 DON'T KNOW=-8 REFUSED=-9	IF WIDOWED, DIVORCED, SEPARATED/SINGLE, DON'T KNOW, REFUSED, SKIP TO NEXT MODULE: WOMAN → 301, MAN → 330
Interviewer says: "The next several questions are about your current husband, wife or partner(s)."			
MARRIAGE GROUP FOR MEN			
204	Altogether, how many wives or live-in partners do you have who live with you here in this household?	NUMBER OF WIVES OR PARTNERS LIVING IN HOUSEHOLD____ DON'T KNOW=-8 REFUSED=-9	
205	Please enter the name(s) of your wife/partner that lives with you in this household.	_____ (REPEAT AS NECESSARY) NOT LISTED IN HOUSEHOLD DON'T KNOW=-8 REFUSED=-9	
206	How many wives or live-in partners do you have who live elsewhere? This would include wives or partners that you stay with or support in other households.	NUMBER OF WIVES/LIVE-IN PARTNERS____ DON'T KNOW=-8 REFUSED=-9	IF NONE, DON'T KNOW, REFUSED → 330

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
207	You mentioned that you have wife/wives who live elsewhere. Where are they?	STAYING IN A DIFFERENT HOUSEHOLD, SAME COMMUNITY=1 STAYING IN A DIFFERENT COMMUNITY, SAME REGION/PROVINCE=2 STAYING IN A DIFFERENT REGION/PROVINCE=3 STAYING IN A DIFFERENT COUNTRY=4 DON'T KNOW=-8 REFUSED=-9	FOR ALL → 330

MARRIAGE GROUP FOR WOMEN

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
208	Is your husband or partner living with you now or is he staying elsewhere?	LIVING IN THE HOUSEHOLD=0 STAYING IN A DIFFERENT HOUSEHOLD, SAME COMMUNITY=1 STAYING IN A DIFFERENT COMMUNITY, SAME REGION/PROVINCE=2 STAYING IN A DIFFERENT REGION/PROVINCE=3 STAYING IN A DIFFERENT COUNTRY=4 DON'T KNOW=-8 REFUSED=-9	IF LIVING IN THE HOUSEHOLD → 211
209	Please select the husband/partner who lives with you (SEE LIST OF PERSONS ON HH ROSTER)	_____ NOT LISTED IN HOUSEHOLD=96 DON'T KNOW=-8 REFUSED=-9	IF NOT LISTED IN HOUSEHOLD → 211
210	Please enter the name of your husband/partner that lives with you.	_____ DON'T KNOW=-8 REFUSED=-9	
211	Does your husband or partner have other wives or does he live with other women as if married?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 301
212	Including yourself, in total, how many wives or live-in partners does your husband or partner have?	NUMBER OF WIVES/LIVE-IN PARTNERS___ DON'T KNOW=-8 REFUSED=-9	

MODULE THREE: REPRODUCTION

Interviewer says: "Now I would like to ask you questions about your pregnancies and your children."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
301	How many times have you had a pregnancy that resulted in a live birth? [A live birth is when the baby shows signs of life, such as breathing, beating of the heart or movement, even if the baby subsequently died.]	NUMBER OF LIVE BIRTHS ___ DON'T KNOW=-8 REFUSED=-9	IF 0, DON'T KNOW, REFUSED → 329 IF > 0 → 301
302	How many live births have you had since the 1st of January, 2016?	NUMBER OF LIVE BIRTHS ___ DON'T KNOW=-8 REFUSED=-9	If 0, NO, DON'T KNOW, REFUSED → 329 IF > 0 → 303

Interviewer says: "Now I would like to ask you some questions about the last pregnancy that resulted in a live birth since the 1st of January 2016."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
303	Did your last pregnancy result in birth to twins or more?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	If NO, DON'T KNOW, REFUSED → 305

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
304	What is the name of the [INSERT ORDER OF BIRTH] born child from your last pregnancy that resulted in a live birth?	NAME _____	IF YES, WILL BE REPEATED FOR EACH MULTIPLE BIRTH
	(If the child was not named before death, input birth and the birth order number.) Was there another multiple born alive?	YES=1 NO=2	IF NO → 306
305	What is the name of the child from your last pregnancy that resulted in a live birth? A live birth is when the baby shows signs of life, such as breathing, beating of the heart or movement, even if the baby subsequently died. (IF THE CHILD WAS NOT NAMED BEFORE DEATH, INPUT BIRTH AND THE BIRTH ORDER NUMBER)	NAME _____	
306	During your last pregnancy with [CHILD NAME], did you visit a health facility for antenatal care?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF DON'T KNOW, REFUSED → 314

Interviewer says: "I will now be asking you questions on HIV testing. Please remember that your responses will be kept confidential and will not be shared with anyone else."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
307	Have you ever tested for HIV before your pregnancy with [CHILD NAME]?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	If NO, DON'T KNOW, REFUSED → 310
308	Did you test positive for HIV before your pregnancy with [CHILD NAME]?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	If NO, DON'T KNOW, REFUSED → 310
309	At the time of your first antenatal care visit when you were last pregnant with [CHILD NAME], were you already taking ARVs, that is, antiretroviral mediations to treat HIV?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES → 316 IF NO, DON'T KNOW, REFUSED → 312
310	Were you tested for HIV anytime during pregnancy or delivery with [CHILD NAME]?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 314
311	What was the result of your last HIV test during your last pregnancy with [CHILD NAME]?	POSITIVE=1 NEGATIVE=2 UNKNOWN/INCONCLUSIVE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	IF NEGATIVE, UNKNOWN / INCONCLUSIVE, DID NOT RECEIVE RESULTS, DON'T KNOW, REFUSED → 314
312	Did you take ARVs at any time during your last pregnancy with [CHILD NAME] to prevent the child from getting HIV?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES, DON'T KNOW, REFUSED → 316

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
313	What was the main reason you did not take ARVs while you were pregnant with [CHILD NAME]?	WAS NOT PRESCRIBED=1 I FELT HEALTHY/NOT SICK=2 COST OF MEDICATIONS=3 COST OF TRANSPORT=4 RELIGIOUS REASONS=5 WAS TAKING TRADITIONAL MEDICATIONS=6 MEDICATIONS OUT OF STOCK=7 DID NOT WANT PEOPLE TO KNOW HIV STATUS=8 DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY=9 OTHER _____ (SPECIFY) DON'T KNOW=-8 REFUSED=-9	IF OTHER → 316
314	Were you tested for HIV at any time after delivery of your last pregnancy with [CHILD NAME]? For example, were you tested while you were breastfeeding or after your completed breastfeeding?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 316
315	What was the result of the HIV test that you received after delivery of your last pregnancy with [CHILD NAME]?	POSITIVE=1 NEGATIVE=2 UNKNOWN/INCONCLUSIVE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	
316	When did you give birth to [CHILD NAME]? Please give your best guess. Day Month Year	DAYS ___ DON'T KNOW DAY=-8 REFUSED DAY=-9 MONTHS___ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEARS___ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
317	Is [CHILD NAME] still alive?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES, DON'T KNOW, REFUSED → 320
318	How old was [CHILD NAME] in years when he/she died?	___ YEARS OLD DON'T KNOW=-8 REFUSED=-9	IF 0, DON'T KNOW, REFUSED → 320
319	How old was [CHILD NAME] in months when he/she died?	___ MONTHS OLD DON'T KNOW=-8 REFUSED=-9	
320	Did you ever breastfeed [CHILD NAME]?	YES=1 NO, NEVER BREASTFEED=2 NO, CHILD DIED BEFORE BREASTFEEDING=3 DON'T KNOW=-8 REFUSED=-9	IF NO, NEVER BREASTFEED; NO, CHILD DIED BEFORE BREASTFEEDING; DON'T KNOW; REFUSED → 322
321	Are you still breastfeeding [CHILD NAME]?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	DISPLAY ONLY IF 317 = YES, DON'T KNOW, REFUSED

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
322	After [CHILD NAME] was born, was he/she tested for HIV?	YES=1 NO, NOT TESTED FOR HIV=2 NO, CHILD DIED BEFORE TESTING=3 DON'T KNOW=-8 REFUSED=-9	IF NO, NOT TESTED FOR HIV; NO, CHILD DIED BEFORE TESTING; DON'T KNOW, REFUSED → 328
323	How old was [CHILD NAME] when he/she first tested for HIV? (ONLY ONE OPTION MAY BE ENTERED)	LESS THAN 1 WEEK=0 WEEKS ___ = 1 MONTHS ___ = 2 YEARS ___ = 3	
324	What was the result of [CHILD NAME]'s first HIV test?	POSITIVE; CHILD HAS HIV=1 NEGATIVE; CHILD DOES NOT HAVE HIV=2 UNKNOWN/INCONCLUSIVE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	
325	Was [CHILD NAME] tested for HIV after you stopped breastfeeding?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	SKIP IF 320 = NO, NEVER BREASTFEED; NO, CHILD DIED BEFORE BREASTFEED-ING; DON'T KNOW; REFUSED
326	How old was [CHILD NAME] when he/she last tested for HIV?	LESS THAN 1 WEEK=0 WEEKS ___ = 1 MONTHS ___ = 2 YEARS ___ = 3 CHILD ONLY TESTED ONCE FOR HIV (FIRST TEST IS THE SAME AS LAST TEST)=4 DON'T KNOW=-8 REFUSED=-9	IF CHILD ONLY TESTED ONCE FOR HIV (FIRST TEST IS THE SAME AS LAST TEST), DON'T KNOW, REFUSED → 328
327	What was the result of [CHILD NAME]'s most recent HIV test?	POSITIVE; CHILD HAS HIV=1 NEGATIVE; CHILD DOES NOT HAVE HIV=2 UNKNOWN/INCONCLUSIVE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	SKIP IF 324 = POSITIVE; CHILD HAS HIV
328	Interviewer says: "Thank you for the information regarding [CHILD NAME]."		IF 303 = YES, RETURN TO 317 FOR EACH VALUE OF 304
Interviewer says: "I will now ask about current pregnancies."			
329	Are you pregnant now?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES → END OF MODULE
Interviewer says: "I will now ask you about family planning."			
330	Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → END OF MODULE

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
331	Which method are you or your partner using?	FEMALE STERILIZATION=A MALE STERILIZATION=B PILL=C IUD/"COIL"=D INJECTIONS=E IMPLANT=F CONDOM=G FEMALE CONDOM=H RHYTHM/NATURAL METHODS/ CYCLE=I BEADS/STANDARD DAYS/ WITHDRAWL=J NOT HAVING SEX=K OTHER=X _____ (SPECIFY) DON'T KNOW=Y REFUSED=Z	IF OTHER → END OF MODULE

MODULE FOUR: MALE CIRCUMCISION (SKIP IF FEMALE)

Interviewer says: "I will be asking a few questions about circumcision. Circumcision is the complete removal of the foreskin from the penis. If you feel comfortable, I can show you a picture of an uncircumcised penis, a partially circumcised penis and a completely circumcised penis."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
401	Some men are uncomfortable talking about circumcision, but it is important for us to have this information. Some men are circumcised. Are you circumcised?	YES, FULLY CIRCUMCISED=1 YES, PARTIALLY CIRCUMCISED =2 NOT CIRCUMCISED=3 DON'T KNOW=-8 REFUSED=-9	IF YES, FULLY CIRCUMCISED, YES, PARTIALLY CIRCUMCISED →403 IF DON'T KNOW, REFUSED → END OF MODULE
402	Are you planning to get circumcised within the next 6 months?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES, NO, DON'T KNOW, REFUSED → END OF MODULE

Interviewer says: "Some men are circumcised by a medical provider such as a doctor, clinical officer, nurse, or midwife. Some men are circumcised by a traditional practitioner. Some men are circumcised by both a medical provider and a traditional practitioner."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
403	Were you circumcised by a traditional practitioner or circumciser?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
404	Were you circumcised by a medical provider? By medical provider, I mean a doctor, clinical officer, nurse or midwife.	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → END OF MODULE
405	How old were you when you were circumcised? Please give your best guess.	_____ YEARS OLD DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE FIVE: SEXUAL ACTIVITY			

Interviewer says: "In this part of the interview, I will be asking about your sexual relationships and practices. These questions will help us better understand how they may affect your life and risk for HIV. Sex is when a penis enters a vagina or the anus."

"Remember that your answers are completely confidential and will not be shared with anyone. If there are questions that you do not want to answer, we can go to the next question."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
501	How old were you when you had sex for the very first time? If they are unsure, confirm if they have had vaginal sex. If they said an age less than 12 years: Confirm age at first sex. Are you sure this is what the participant said?	AGE AT FIRST SEX____ NEVER HAD SEX=-96 DON'T KNOW=-8 REFUSED=-9	IF NEVER HAD SEX, GO TO NEXT MODULE
502	People often have sex with different people over their lifetime. In total, with how many different people have you had sex in your lifetime? Please give your best guess.	NUMBER OF PEOPLE ___ _____ DON'T KNOW=-8 REFUSED=-9	IF 0, GO TO NEXT MODULE
503	How many different people have you had sex with in the last 12 months? (If none, code 'O'. If number of partners is greater than 100, enter '100.')	NUMBER OF PEOPLE___ _____ DON'T KNOW=-8 REFUSED=-9	IF 0, DON'T KNOW, REFUSED → GO TO NEXT MODULE

Interviewer says: "Now I would like to ask you some questions about the people you have had sex with in the last 12 months. Let me assure you again that your answers are completely confidential and will not be told to anyone. I will first ask you about the most recent person you had sex with."
(Ask only about the last 3 persons the participant has had sex with).

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
504	Is the person that you had sex with a spouse or a partner who lives in this household?	YES=1 NO=2	IF NO → 506
505	Please select the name below from the household membership list. Please identify the person you had sex with.	HOUSEHOLD QUESTIONNAIRE LINE NO. ____ NOT LISTED IN HOUSEHOLD=96	
506	I would like to ask you for the initials of this person so I can keep track [INITIALS]. They do not have to be the actual initials of this person. Is [INITIALS] the most recent person you had sex with?	[INITIALS] _____ YES=1 NO=1	IF [FIRST REPORTED PARTNER] → 507 LIST IF 505 = [FIRST REPORTED PARTNER]
507	What is your relationship with [INITIALS]?	HUSBAND/WIFE=1 LIVE-IN PARTNER=2 PARTNER, NOT LIVE-IN=3 EX-SPOUSE/EX-PARTNER=4 FRIEND/ACQUAINTANCE=5 SEX WORKER=6 SEX WORKER CLIENT=7 STRANGER=8 OTHER=96 _____ (SPECIFY) DON'T KNOW=-8 REFUSED=-9	
508	Is [INITIALS] male or female?	MALE=1 FEMALE=2 DON'T KNOW=-8 REFUSED=-9	
509	How old is [INITIALS]? Please give your best guess.	____YEARS OLD DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
510	The last time you had sex with [INITIALS], was a condom used?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
511	The last time you had sex with [INITIALS], did either of you drink alcohol beforehand?	ONLY I WAS DRINKING=1 ONLY PARTNER WAS DRINKING=2 BOTH WERE DRINKING=3 NEITHER=4 DON'T KNOW=-8 REFUSED=-9	
512	Does [INITIALS] know your HIV status? HIV status could mean you are HIV negative or HIV positive.	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
513	What is the HIV status of [INITIALS]? (Read responses aloud).	He/she is positive (did not test together)=1 He/she is positive, tested together=2 He/she is negative (did not test together)=3 He/she is negative, tested together=4 DON'T KNOW STATUS=-8 REFUSED=-9	
514	Interviewer says: "I will now ask you about the person you have had sex with previous to [INITIALS]."		SKIP IF 503 <= 1 IF 503 > 1 → 504

MODULE SIX: HIV TESTING

Interviewer says: "I would like to ask you some questions about HIV testing."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
601	Have you seen a doctor, healthcare worker or nurse in a health facility in the last 12 months?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 603
602	During any of your visits to the health facility in the last 12 months, did a doctor, healthcare worker or nurse offer you an HIV test?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
603	Have you ever tested for HIV?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES → 605 IF DON'T KNOW, REFUSED 608
604	Why have you never been tested for HIV? (Select all that apply. Prompt for any more reasons.)	DON'T KNOW WHERE TO TEST=A TEST COSTS TOO MUCH=B TRANSPORT COSTS TOO MUCH=C TOO FAR AWAY=D AFRAID OTHERS WILL KNOW ABOUT TEST RESULTS=E DON'T NEED TEST/LOW RISK=F DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY=G AFRAID SPOUSE/PARTNER/FAMILY WILL KNOW RESULTS=H DON'T WANT TO KNOW I HAVE HIV=I CANNOT GET TREATMENT FOR HIV=J TEST KITS NOT AVAILABLE=K RELIGIOUS REASONS=L OTHER=X _____(SPECIFY)	IF OTHER → 608

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
605	When was your last HIV test? Please give month and year if you can. Month Year	MONTHS ___ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEARS ___ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
606	Where was your last HIV test done?	HTS FACILITY=1 MOBILE HTS=2 AT HOME=3 HEALTH CLINIC/FACILITY=4 HOSPITAL OUTPATIENT CLINIC=5 TB CLINIC=6 STI CLINIC=7 HOSPITAL INPATIENT WARDS=8 BLOOD DONATING CENTER=9 ANC CLINIC=10 VMMC CLINIC=11 OTHER=96 _____(SPECIFY) DON'T KNOW=-8 REFUSED=-9	
607	When you last tested for HIV, what was the main reason you tested?	WAS OFFERED TEST BY HEALTH CARE OR OUTREACH WORKER=1 WANTED TO KNOW MY HIV STATUS=2 FELT AT RISK=3 FELT SICK=4 NEW PARTNER=5 PREGNANCY=6 MY PARTNER TESTED POSITIVE=7 OTHER=96 _____(SPECIFY) DON'T KNOW=-8 REFUSED=-9	IF OTHER → 608
608	What was the result of your last HIV test?	POSITIVE=1 NEGATIVE=2 UNKNOWN/INCONCLUSIVE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	IF NEGATIVE, UNKNOWN/ INACONCLUSIVE, DID NOT RECEIVE RESULTS, DON'T KNOW, REFUSED → 611
609	When was your first positive HIV test? Please give month and year. This will be the very first HIV-positive test result that you have received. This will be the first time a health care provider told you that you had HIV. (Probe to verify date. Suggest that they can look at treatment card if available.) Month Year	MONTH____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEAR____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
610	When was your last negative HIV test? This would be your last negative before you tested positive. Please give month and year. (Swipe forward if no previous HIV test.) Month Year	 MONTH ____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEAR____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9 NO PREVIOUS HIV NEGATIVE TEST BEFORE THE POSITIVE TEST=3	ASK ONLY TO THOSE WHO SELF-REPORTED HIV POSITIVE (IF 608=YES OR 308=YES OR 311=POSITIVE OR 315=POSITIVE)
611	Has a healthcare provider ever told you that you have HIV?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	ASK IF NEVER TESTED OR NEVER TESTED POSITIVE (IF 307 <> 1 AND 310 <> 1 AND 314 <> 1 AND 603 <> 1 **AND** 307 <> 1 AND 310 <> 1 AND 315 <> 1 AND 608 <> 1) IF NO, DON'T KNOW, REFUSED → 613
612	When did a healthcare provider first tell you that you have HIV? Month Year	 MONTH ____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEAR____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	DISPLAY IF 611=YES

Interviewer says: "There are now HIV tests that you can do yourself at home. Some of these self-test kits allow you to test yourself for HIV by swabbing your mouth or pricking your finger and testing the fluid for HIV."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
613	Have you ever tested yourself for HIV using a self-test kit?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
614	Of the following people, who have you told that you are HIV positive? (Read the list out loud. Select all that apply.)	No one=A Spouse/Sex partner=B Doctor=C Friend=D Family Member=E OTHER =X _____(SPECIFY) DON'T KNOW=Y REFUSED=Z	SHOW SCREEN IF INDIVIDUAL HAS SAID TESTED POSITIVE (IF 307=YES or 311=POSITIVE or 315=POSITIVE or 611=YES)

Interviewer says: "'PrEP' or pre-exposure prophylaxis, involves taking a daily pill to reduce of getting HIV."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
615	Have you ever heard of PrEP before now?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 618
616	Have you ever taken PrEP?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 618

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
617	Are you currently taking PrEP?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	APPLY IF NEVER TESTED OR SELF-REPORTED NEGATIVE: (IF 308 <> 1 AND 311 <> 1 AND 315 <> 1 AND 608 <> 1 AND 611 <> 1)

MODULE SEVEN: HIV STATUS, CARE AND TREATMENT			
Interviewer says: "Now I am going to ask you more about your experience with HIV care and treatment."			
701	After learning you had HIV, have you ever received care or treatment for HIV from a doctor, clinical officer or nurse?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES → 703 IF DON'T KNOW, REFUSED → 709
702	What is the main reason why you have never received care or treatment for HIV from a doctor, clinical officer, or nurse?	FACULTY IS TOO FAR AWAY=1 I DON'T KNOW WHERE TO GET HIV MEDICAL CARE=2 COST OF CARE=3 COST OF TRANSPORT=4 I DO NOT NEED IT/FEEL HEALTHY/NOT SICK=5 I FEAR PEOPLE WILL KNOW THAT I HAVE HIV IF I GO TO A CLINIC=6 RELIGIOUS REASONS=7 I'M TAKING TRADITIONAL MEDICINE=8 DO NOT TRUST THE STAFF/QUALITY OF CARE=9 OTHER=96 _____(SPECIFY) DON'T KNOW=-8 REFUSED=-9	IF OTHER → 709
703	Are you currently receiving HIV care from a health facility?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 707
704	At which facility are you currently receiving HIV care? (Select province.)	[LIST OF FACILITY GEOVAR1] _____ GEOVAR NOT ON LIST=99	
	(Select district.)	[LIST OF FACILITY GEOVAR2] GEOVAR NOT ON LIST=99	
	(Select facility.) (If facility information is available, please key. Otherwise swipe forward to continue.)	[LIST OF FACILITIES] FACILITY NOT ON LIST=99 _____	
705	In the past year, did you change the clinic where you receive HIV care?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
706	At your last HIV care visit, approximately how long did it take you to travel from your home (or workplace) one-way?	LESS THAN HALF HOUR=1 HALF HOUR TO ONE HOUR=2 ONE TO TWO HOURS=3 MORE THAN TWO HOURS=4 DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
707	Does travel time to health facility make it difficult for you to access care?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
708	When did you last see a doctor, clinical officer, pharmacist or nurse for HIV treatment or care?		
	Month	MONTH_____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	
	Year	YEAR_____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
709	Have you ever taken ARVs, that is, antiretroviral medications to treat HIV infection?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES → 711 IF DON'T KNOW, REFUSED AND 701 <> DON'T KNOW, REFUSED → 720 IF DON'T KNOW, REFUSED AND 701 = DON'T KNOW, REFUSED →801
710	What is the main reason you have never taken ARVs?	NOT ELIGIBLE FOR TREATMENT=1 HEALTH CARE PROVIDER DID NOT PRESCRIBE=2 HIV MEDICINES ARE NOT AVAILIBLE=3 I FEEL HEALTHY/NOT SICK=4 COST OF CARE=5 RELIGIOUS REASONS=6 TAKING TRADITIONAL MEDICATIONS=7 NOT ATTENDING HIV CLINIC=8 CLINIC IS TOO FAR=9 OTHER=96 _____(SPECIFY) DON'T KNOW=-8 REFUSED=-9	
711	What month and year did you first start taking ARVs? (Probe to verify date.)		
	Month	MONTH_____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	
	Year	YEAR_____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
712	Are you currently taking ARVs, that is, antiretroviral medications? By currently, I mean that you may have missed some doses but you are still taking ARVs.	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES → 714 IF DON'T KNOW, REFUSED → 720

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
713	Can you tell me the main reason you stopped taking ARVs?	I HAD TROUBLE TAKING A TABLET EVERYDAY=1 I HAD SIDE EFFECTS=2 FACILITY TOO FAR AWAY FOR ME TO GET MEDICINE REGULARLY=3 COST OF CARE=4 I FEEL HEALTHY/SICK=5 FACILITY OUT OF STOCK=6 RELIGIOUS REASONS=7 TAKING TRADITIONAL MEDICATIONS=8 OTHER=96 _____(SPECIFY) DON'T KNOW=-8 REFUSED=-9	ALL → 720
714	How do you normally receive your ARVs? (Read each response. Select the most common method of collection.)	PICK UP AT THE LOCAL CLINIC=1 PICK UP AT THE HOSPITAL=2 FROM THE COMMUNITY SUPPORT GROUP/ADHERENCE CLUB=3 THEY ARE DELIVERED TO MY HOME=4 A FAMILY MEMBER/FRIEND COLLECTS THEM=5 DON'T KNOW=-8 REFUSED=-9	
715	The last time you picked up or received your ARVs, how much supply were you given? You should include both your prescription and any extra you were given. (Use weeks if less than one month. Swipe forward to enter DON'T KNOW or REFUSED.) Number of Weeks or Months of Supply Units	_____WEEKS=1 _____MONTHS=2 DON'T KNOW=-8 REFUSED=-9	
716	Have your ARVs ever been changed or modified?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 718
717	Why were your ARVs changed?	I WAS NOT RESPONDING TO MY FIRST TREATMET=1 MY VIRAL LOAD WASN'T SUPPRESSED=2 I WANTED TO GET PREGNANT OR WAS PREGNANT=3 I WAS HAVING/WORRIED ABOUT SERIOUS SIDE EFFECTS=4 OTHER=96 _____(SPECIFY) DON'T KNOW=-8 REFUSED=-9	IF OTHER → 718
718	You said before that you had been away from home during the past year. At any point in the past year were you away from home, was there any period when you interrupted your ARV treatment? How did you get your ARVs when you are away from home for more than a month?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9 I OBTAIN THEM BEFORE I LEAVE=1 SOMEBODY PICKED THEM UP FOR ME=2 I GET THEM FROM A LOCAL CLINIC AT MY TEMPORARY RESIDENCE=3 I WILL STOP TAKING MY ARVs DURING THAT TIME=4 OTHER=96 _____(SPECIFY) DON'T KNOW=-8 REFUSED=-9	ONLY ASK IF 109 >= 1
719	People sometimes forget to take all of their ARVs every day. In the last 30 days, how many days have you missed taking any of your ARV pills? (ENTER '0' if NONE.)	Number of days_____ DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
720	Did you ever have a viral load test? This is a test that measure how much HIV is in your blood.	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 723
721	When did you last have a viral load test?		
	Month	MONTH_____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	
	Year	YEAR_____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
722	Did you receive the results of your last viral load test?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
723	At your last HIV medical care visit, were you asked if you had any of the following tuberculosis or TB symptoms: (Read all responses aloud. Select all that apply.)	PERSISTENT COUGH?=A FEVER?=B NIGHT SWEATS?=C WEIGHT LOSS?=D NONE OF THE ABOVE=E DON'T KNOW=Y REFUSED=Z	
724	Have you ever taken medicine or a pill to prevent you from coming down with TB? This is sometimes known as TB Preventative Therapy or TPT. An example of TPT is Isoniazid, IPT or INH, which is medication that prevents TB. It is given to people with HIV or people who are in contact with someone with TB. It is not treatment for TB.	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 801
725	Are you currently taking TPT? By currently, I mean that you may have missed some doses but you are still taking TPT.	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 801
726	How many months have you taken TPT?	MONTHS_____ DON'T KNOW=-8 REFUSED=-9	

MODULE EIGHT: TUBERCULOSIS AND OTHER HEALTH ISSUES

Interviewer says: "Now we will ask you about tuberculosis or TB."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
801	In the last 12 months, did you visit a clinic for TB diagnosis or treatment?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED AND MALE → 812 IF NO, DON'T KNOW, REFUSED AND FEMALE=2 → 807
802	When you visited a TB clinic in the last 12 months, were you tested for HIV?	YES=1 NO, WAS NOT TESTED FOR HIV=2 NO, ALREADY KNOW I AM HIV POSITIVE=3 DON'T KNOW=-8 REFUSED=-9	
803	In the last 12 months, were you told by a doctor, clinical officer or nurse that you had TB?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED AND MALE → 812 IF NO, DON'T KNOW, REFUSED AND FEMALE=2 → 807

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
804	In the last 12 months, were you treated for TB?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED AND MALE → 812 IF NO, DON'T KNOW, REFUSED AND FEMALE=2 → 807
805	Are you currently on treatment for TB?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED AND MALE → 812 IF NO, DON'T KNOW, REFUSED AND FEMALE=2 → 807
806	The last time you were treated for TB, did you complete at least 6 months of treatment?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF MALE → 812
	Interviewer says: "Now I am going to ask you about tests a health care provider can do to check for cervical cancer. The cervix connects the uterus to the vagina. The tests a healthcare provider can do to check for cervical cancer are called a Pap smear, HIV test and VIA test." For a Pap smear and HPV test, a health care provider puts a small stick inside the vagina to wipe the cervix and sends the sample to the laboratory. For a VIA test, a healthcare worker puts vinegar on the cervix and looks to see if the cervix changes color.		SKIP IF MALE
807	Have you ever been tested for cervical cancer?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 812
808	What month and year was your last test for cervical cancer? Month Year	MONTH_____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEAR_____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
809	What was the result of your last test for cervical cancer?	NORMAL/NEGATIVE=1 ABNORMAL/POSITIVE=2 SUSPECT CANCER=3 UNCLEAR/INCONCLUSIVE=4 DID NOT RECEIVE RESULTS=5 DON'T KNOW=-8 REFUSED=-9	IF NORMAL/ NEGATIVE, DON'T KNOW, REFUSED → 811
810	Did you receive treatment after your last test for cervical cancer? Did you receive treatment on the same day or on a different day?	YES, I WAS TREATED ON THE SAME DAY=1 YES, I RECEIVED TREATMENT ON A DIFFERENT DAY=2 NO=3 DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
811	Have you ever been vaccinated to prevent cervical cancer? This would be the HPV vaccine.	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	

Interviewer says: "I am now going to ask you about other aspects of health."

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
812	Over the past two weeks, how often have you been bothered by having little interest in doing things?	NOT AT ALL=1 1-7 DAYS=2 8-11 DAYS=-3 12-14 DAYS=-4 DON'T KNOW=-8 REFUSED=-9	
813	Over the past two weeks, how often have you felt down, depressed or hopeless?	NOT AT ALL=1 1-7 DAYS=2 8-11 DAYS=-3 12-14 DAYS=-4 DON'T KNOW=-8 REFUSED=-9	
814	Over the past two weeks, how often have you felt nervous, anxious or on edge?	NOT AT ALL=1 1-7 DAYS=2 8-11 DAYS=-3 12-14 DAYS=-4 DON'T KNOW=-8 REFUSED=-9	
815	Over the past two weeks, how often have you not been able to stop or control worrying?	NOT AT ALL=1 1-7 DAYS=2 8-11 DAYS=-3 12-14 DAYS=-4 DON'T KNOW=-8 REFUSED=-9	
816	Have you ever been told by a doctor or health worker that you have any of the following chronic health conditions? (Select all that apply.)	HIGH BLOOD SUGAR OR DIABETES=A HIGH BLOOD PRESSURE OR HYPERTENSION=B HEART DISEASE OR CHRONIC HEART CONDITION=C KIDNEY DISEASE=D CANCER OR TUMOR=E LUNG DISEASE OR CHRONIC LUNG DISEASE=F DEPRESSION OR MENTAL HEALTH CONDITION=G NONE OF THE ABOVE=I OTHER=96 _____(SPECIFY) DON'T KNOW=Y REFUSED=Z	IF NONE OF THE ABOVE, DON'T KNOW, REFUSED → 901
817	Are you currently taking medication for any of the following chronic health conditions? (If any of the conditions in the previous question are selected, respondent should be asked about treatment for that condition.)	HIGH BLOOD SUGAR OR DIABETES=A HIGH BLOOD PRESSURE OR HYPERTENSION=B HEART DISEASE OR CHRONIC HEART CONDITION=C KIDNEY DISEASE=D CANCER OR TUMOR=E LUNG DISEASE OR CHRONIC LUNG DISEASE=F DEPRESSION OR MENTAL HEALTH CONDITION=G NONE OF THE ABOVE=I OTHER=96 _____(SPECIFY) DON'T KNOW=Y REFUSED=Z	IF OTHER → 817

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE NINE: ALCOHOL USE			
Interviewer says: "The next few questions will be on your use of alcohol. Remember, all of the answers you provide will be kept confidential."			
901	How often do you have a drink containing alcohol?	NEVER=0 MONTHLY OR LESS=1 2-4 TIMES A MONTH=2 2-3 TIMES A WEEK=3 4 OR MORE TIMES A WEEK=4 DON'T KNOW=-8 REFUSED=-9	IF NEVER, DON'T KNOW, REFUSED → 1001
902	How many drinks containing alcohol do you have on a typical day?	1 OR 2=0 3 OR 4=1 5 OR 6=2 7 TO 9=3 10 OR MORE=4 DON'T KNOW=-8 REFUSED=-9	
903	How often do you have six or more drinks on one occasion?	NEVER=0 LESS THAN MONTHLY=1 MONTHLY=2 WEEKLY=3 DAILY OR ALMOST DAILY=4 DON'T KNOW=-8 REFUSED=-9	
MODULE TEN: EXPOSURE TO PREVENTION INTERVENTION AMONG 15-24 YEARS			
Interviewer says: "We will now ask you about your experience with HIV prevention program."			
1001	Where can you get condoms? (Select all that apply.)	CLINIC/HOSPITAL=A KIOSK/SHOP=B PHARMACY=C LOCAL FREE DISPENSER=D FRIENDS/PEER=E SEXUAL PARTNER(S)=F OTHER=X _____(SPECIFY) DON'T KNOW=-8 REFUSED=-9	
1002	If you wanted a condom, would it be easy for you to get one?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF YES, DON'T KNOW, REFUSED → 1004
1003	Why is it not easy for you to get a condom?	CONDOMS NOT AVAILABLE/TOO FAR=A NOT CONVENIENT=B COSTS TOO MUCH=C EMBARRASED TO GET CONDOMS=D DO NOT WANT OTHERS TO KNOW=E DO NOT KNOW WHERE TO GET CONDOMS=F OTHER=X _____(SPECIFY) DON'T KNOW=Y REFUSED=Z	
1004	Have you ever talked with a parent or guardian about sex?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
1005	Have you ever discussed HIV with your parents or guardians?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
1006	Have you taken part in any of the following HIV prevention programs?	VOLUNTARY MEDICAL MALE CIRCUMCISION (VMMC)=A PRE-EXPOSURE PROPHYLAXIS (PrEP)=B POST-EXPOSURE PROPHYLAXIS (PEP)=C HIV TESTING AND COUNSELING (HTS)=D PREVENTION OF MOTHER-TO-CHILD TRANSMISSION (PMTCT)=E OTHER=X _____(SPECIFY) DON'T KNOW=Y REFUSED=Z	IF OTHER → 1007
1007	In the past 12 months, how many times have you participated in a school meeting or class period where they talked about HIV/AIDS? If you are not certain, give your best guess.	NONE=0 1-4 TIMES=1 5-9 TIMES=2 10 OR MORE TIMES=3 DON'T KNOW=-8 REFUSED=-9	
	Interviewer says: "Thank you for taking the time to participate in this survey. Your responses will be very helpful to the Ministry of Health to better understand how to improve health programs in the country." (Provide participant with list of organizations, if not already given.)		

APPENDIX G SURVEY CONSENT FORMS

CONSENT FOR HOUSEHOLD INTERVIEW (18 + YEARS AND EMANCIPATED MINORS AGED 15-17 YEARS)

What language do you prefer for our discussion today?
___ English   ___Shona   ___Ndebele

Title of Study: This study is called **the Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA 2020)**

Interviewer reads:
Hello. My name is_____. I would like to invite you to take part in this study about HIV in Zimbabwe. The Ministry of Health and Child Care is leading this study and is conducting it with the United States Centers for Disease Control and Prevention (CDC), ICAP at Columbia University, and WESTAT.

Purpose of study

HIV is a virus that causes an illness called AIDS. HIV and AIDS can be treated by taking medicines regularly.

This study will help us know how many people in Zimbabwe have HIV and need health services. We expect about 20,000 men, women, and children 15 years of age or older from about 12,000 households throughout Zimbabwe to take part in the study. If you take part, your taking part will help the Ministry of Health and Child Care improve HIV services in the country.

This form might have some words in it that are not familiar to you. Please ask me to explain anything that you do not understand.

Study procedures

- If you join this study, we will ask you questions and your answers will be kept between us. In the household interview, we would like to ask you some questions about the people who live here. We will also ask you about support you receive and some of the things you have or own.   After the household interview, we will invite you and others living in your household to take part in individual interviews. The questions will be about your age, the work you do, your health and experience with health services, and social and sexual behavior. The interview may take about 20 to 30 minutes.

- The information is collected on this tablet. The information is stored securely and can only be accessed by selected study staff. The interview will take place in private, here in your house, or a nearby private area of your choosing.

- We will ask each person to give permission to take part before joining the study. Study procedures also include a blood draw, HIV testing, and storage of that blood for future testing if you agree to this. The testing and counseling will take about 45 minutes. If a household member does not take part in the study, he/she will be not tested for HIV testing, but we can refer him/her to a health facility where these services are provided.

Alternatives to taking part

You can decide not to take part in this study. If you choose to take part in the study, you may change your mind at any time and stop taking part. If you decide not to take part, it will not affect your healthcare in any way. If you decide to leave the study, no more information will be collected from you. However, you will not be able to take back the information that has already been collected and shared.

Costs for being in the study

There is no cost to you for being in the study, apart from your time.

Benefits

The main benefit for you to be in the study is the chance to learn more about your health today. Additionally, the information you provide to us will be used to improve healthcare services in Zimbabwe.

Risks

The risks of taking part in the household interview are small. You may feel uncomfortable about some of the questions we will ask. You can refuse to answer any specific question. We will do everything we can to keep your information confidential. As with all studies, there is a chance that someone could find out you took part in the study. We are doing everything possible to ensure confidentiality and minimize this risk.

Confidentiality and access to your health information

We will do everything we can to keep your answers confidential. The information we collect from you will be identified by a number and not by your name. Your name will not appear when we share study findings and study data. The data from this study will be released to the public without any identifiers, and this will not require another consent from you. Your name and contact information will not be released outside of the study groups listed unless there is an issue of safety.

The following individuals and/or agencies will be able to look at your interview records to help oversee the conduct of this study:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]
· Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this study to ensure that we are protecting your rights as a person taking part in a study, including:

  - The Medical Research Council of Zimbabwe (MRCZ) and Research Council of Zimbabwe (RCZ)

  - The Centers for Disease Control and Prevention (CDC; Atlanta, GA, USA)

  - Columbia University Medical Center (New York, NY, USA)

  - Westat (a statistical study research organization) (Rockville, MD, USA)

· The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person taking part in this study
· Selected study staff and study monitors.

[INTERVIEWER: READ FROM HERE]
This study has received approval from the Medical Research Council of Zimbabwe (MRCZ) and Research Council of Zimbabwe (RCZ) and the Institutional Review Boards of the U.S. Centers for Disease Control and Prevention, Columbia University Medical Center, and Westat.

Who should you contact if you have questions?

If you would like to have more information about the study, you may contact:
[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Dr. Gibson Mhlanga
Email: mhlanga.gibson@gmail.com
Phone: 0712 862 600

Dr. Owen Mugurungi
Email: atp.director@ymail.com; mugurungi@gmail.com
Phone: 0772 765 746

[INTERVIEWER: READ FROM HERE]

If you have issues related to injuries or other harms, or for questions about the process of agreeing to take part in this study, or for more information about your rights as someone taking part in this study, you may contact:

 [INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Medical Research Council of Zimbabwe
Cnr Josiah Tongogara and Mazowe Street
P.O. Box CY 573 Causeway
Harare, Zimbabwe
Email: mrcz@mrcz.org.zw
Phone: 0784 956 128

[INTERVIEWER: READ FROM HERE]

Do you want to ask me anything about the study?

Consent Statement

By answering the question below, you confirm that any questions you had have been answered satisfactorily and you have been offered a copy of this consent form.

1. Do you agree to do the household interview? 'YES' means that you agree to do the household interview. 'NO' means that you will NOT do the household interview.
   ___Yes _____No

[Tablet summary statement]

To confirm, you have agreed to [INSERT ALL OPTIONS MARKED YES: HOUSEHOLD INTERVIEW]. Is this correct?
_____Yes   _____No

HH ID number _____
Printed Name of Household Head_____

<u>COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT ANSWERED 'YES' TO CONSENT STATEMENT</u>

Head of household signature or mark_____   Date: __/__/__

IF PARTICIPANT IS ILLITERATE OR VISUALLY IMPAIRED:
Printed name of witness_____
Signature or mark of witness_____   Date: __/__/__

Printed name of person obtaining consent_____
Signature of person obtaining consent_____   Date: __/__/__
Study staff ZIMPHIA 2020 ID number _____

INDIVIDUAL CONSENT FOR ADULTS 18+ YEARS AND EMANCIPATED MINORS 15–17 YEARS: INTERVIEW, CONTACT FOR FUTURE RESEARCH, BLOOD TESTING, BLOOD STORAGE AND CONSENT TO SHARE CONTACT INFORMATION

<u>(SKIP IF PARTICIPANT ALREADY COMPLETED HOUSEHOLD CONSENT)</u>

What language do you prefer for our discussion today?
__ English   __Shona   __Ndebele

Title of Study: This study is called **the Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA 2020)**

Interviewer reads:
Hello. My name is_____. I would like to invite you to take part in this study about HIV in Zimbabwe. The Ministry of Health and Child Care is leading this study and is conducting it with the United States Centers for Disease Control and Prevention (CDC), ICAP at Columbia University and Westat.

Purpose of study

HIV is a virus that causes an illness called AIDS. HIV and AIDS can be treated by taking medicines regularly. This study will help us know how many people in Zimbabwe have HIV and need health services. This study involves an interview, a blood draw and HIV testing. We expect about 20,000 men, women, and children 15 years of age or older from about 12,000 households throughout Zimbabwe to take part in the study. If you take part, your taking part will help the Ministry of Health and Child Care improve HIV services in the country.

This form might have some words in it that are not familiar to you. Please ask me to explain anything that you do not understand.

Study Procedures

The information is collected on this tablet. The information is stored securely and can only be accessed by selected study staff. The interview will take place in private, here in your house, or an acceptable nearby private area of your choosing.

(READ FROM HERE IF PARTICIPANT ALREADY COMPLETED THE HOUSEHOLD CONSENT)

- If you join this study, we will ask you questions and your answers will be kept between us. The questions will be about your age, the work you do, your health and experience with health services, and your social and sexual behavior. The interview will take about 20 to 30 minutes. The interview will take place in a private area in or around your home.

- Study procedures also include a blood draw, HIV testing, and storage of that blood for future testing if you agree to this. The testing and counseling will take about 45 minutes.

  - If you agree to the HIV testing, a study staff member who has been trained to draw blood will take about 14 milliliters (about a tablespoonful) of blood from your arm into two tubes. If it is not possible to take blood from your arm, then we will try to take a few drops of blood from your finger. The blood test will take place here in or around your household. We will give you the results of your HIV test and provide counseling on the same day.

  - If you have a positive HIV test result, we will give you a referral form and information so you can consult with a doctor or nurse to learn more about the test results.

  - If you test positive for HIV, we will send your blood to a laboratory to measure your viral load and CD4 count. Viral load is the amount of HIV in your blood. CD4 cells are the part of the immune system that fights HIV infection and other diseases. These results will be sent to a health facility of your choosing in about 8 to 12 weeks. You will be able to talk to a nurse or doctor at that facility about your results. Some of your blood will be sent to a laboratory out of the country for additional tests related to HIV. If we have test results that might help guide your treatment, we will return them to a clinic. If you have given us your contact information, we will contact you to tell you how you and your doctor or nurse may get these results.

  - We would also like to ask you to allow us to store your leftover blood for future research tests. These tests may be related to HIV or other health issues important to people living in Zimbabwe. This sample will be stored for an indefinite amount of time, but your name will be on the sample for only three years. We will attempt to tell you about any test results during the three year period that are important to your health. After the three year period, the sample will not have your name on it, so we will not be able to tell you the results of these future research tests. Your leftover blood will not be sold or used for commercial purposes but may be shared with outside investigators after removal of all identifiers, without asking for your consent again. If you do not agree to long-term storage of your blood samples, you can still take part in the study and we will destroy your blood samples after this study-related testing is complete. If you agree today to store your blood but change your mind later in the next three years, you can call the number provided at the end of this consent form and have your stored specimen destroyed. If you change your mind after three years, once your name is removed from the sample, we will not be able to destroy your sample. Any future studies conducted using your blood sample will be approved by the appropriate institutions overseeing those studies.

- Additionally, you may be eligible to take part in future studies related to health in Zimbabwe. We are asking for your permission to contact you in the next three years if such an opportunity occurs. To do this, approved researchers will be able to request access to your contact information. If they contact you, they will give you details about the new study and invite you to join the study. You may decide at that time that you do not want to take part in that study. If you do not wish to be contacted about future studies, it does not affect your taking part in this study.

(SKIP IF PARTICIPANT ALREADY WENT THROUGH THE HOUSEHOLD CONSENT)

Alternatives to taking part

You can decide not to take part in this study. If you choose to take part in the study, you may change your mind at any time and stop taking part. If you decide not to take part, it will not affect your healthcare in any way. If you decide to leave the study, no more information will be collected from you. However, you will not be able to take back the information that has already been collected and shared.

Costs for being in the study

There is no cost to you for being in the study, apart from your time.

(READ FROM HERE IF PARTICIPANT ALREADY COMPLETED THE HOUSEHOLD CONSENT)

Benefits

The main benefit for you to be in the study is the chance to learn more about your health today. Some people who take part will test HIV positive. If you test HIV positive for the first time, you will learn your HIV-positive status and where to go for HIV services. HIV care and treatment provided by the Ministry of Health and Child Care is free and you will be offered assistance in enrolling in care. If you already know you have HIV and are not on treatment, you will get information to help your doctor or nurse determine if you are ready to start treatment. If you are HIV positive and on HIV treatment, the viral load tests can help your nurse or doctor judge how well your treatment is working. If you test HIV negative, you will learn about what you can do to stay HIV negative.

Your taking part in this study could help us learn more about HIV in Zimbabwe. It can help us learn about how HIV prevention and treatment programs are working in the country.

Risks

The risks involved with taking part in the study are small. You may feel uncomfortable about some of the questions we will ask. You can refuse to answer any question. The risks to you from having your blood drawn are also minor. They include brief pain from the needle stick, bruising, lightheadedness, bleeding and, rarely, infection where the needle enters the skin. The study staff member who will perform the blood draw has received training on how to draw blood. If you experience any discomfort or any of the symptoms mentioned above, please let us know, especially if there is any bleeding or swelling.

Learning you have HIV may cause some emotional distress. If you test HIV positive, you will receive counseling on how to cope with learning that you have HIV. We will explain options for care and help you identify where to go for treatment. Care and treatment is available at government facilities free of charge.

As with all studies, there is a chance that someone could find out you took part in the study. We are doing everything possible to ensure confidentiality and minimize this risk.

(SKIP IF PARTICIPANT ALREADY WENT THROUGH HOUSEHOLD CONSENT)

Confidentiality and access to your health information
We will do everything we can to keep your answers confidential. The information we collect from you will be identified by a number and not by your name. Your name will not appear when we share study findings and study data. The data from this study will be released to the public without any identifiers, and this will not require another consent from you. Your name and contact information will not be released outside of the study groups listed unless there is an issue of safety.

The following individuals and/or agencies will be able to look at your interview records to help oversee the conduct of this study:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this study to ensure that we are protecting your rights as a person taking part in a study, including:
  - The Medical Research Council of Zimbabwe (MRCZ) and Research Council of Zimbabwe (RCZ)
  - The U.S. Centers for Disease Control and Prevention (CDC; Atlanta, USA)
  - Columbia University Medical Center (New York, NY, USA)
  - Westat (a statistical study research organization) (Rockville, MD, USA)
- The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person in a study.
- Selected study staff and study monitors.

[INTERVIEWER: READ FROM HERE]

This study has received approval from the Medical Research Council of Zimbabwe (MRCZ) and Research Council of Zimbabwe (RCZ), and the Institutional Review Boards of the U.S. Centers for Disease Control and Prevention, Columbia University Medical Center, and Westat.

Who should you contact if you have questions?

If you would like to have more information about the study, you may contact:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Dr. Gibson Mhlanga
Email: mhlanga.gibson@gmail.com
Phone: 0712 862 600
Dr. Owen Mugurungi
Email: atp.director@ymail.com; mugurungi@gmail.com
Phone: 0772 765 746

[INTERVIEWER: READ FROM HERE]

If you have issues related to injuries or other harms, or for questions about the process of agreeing to take part in this study, or for more information about your rights as someone taking part in this study, you may contact:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Medical Research Council of Zimbabwe
Cnr Josiah Tongogara and Mazowe Street
P.O. Box CY 573 Causeway
Harare, Zimbabwe
Email: mrcz@mrcz.org.zw
Phone: 0784 956 128

(READ FROM HERE IF PARTICIPANT ALREADY COMPLETED HOUSEHOLD CONSENT)

Do you want to ask me anything about the study?

Consent Statement

By answering the questions below, you confirm that any questions you had have been answered satisfactorily and you have been offered a copy of this consent form.

1. Do you agree to take part in the individual interview? 'YES' means that you agree to take part in the individual interview. 'NO' means that you will not take part in individual interview.
    ___Yes   ___No

(IF PARTICIPANT DOES **NOT** AGREE, THEN STOP)

2. Do you agree to give blood for HIV testing and related testing? 'YES' means that you agree to give blood for HIV testing and related testing. "NO" means that you refuse to give blood for HIV testing and related testing.
    ___Yes   ___No

 (IF PARTICIPANT DOES **NOT** AGREE, THEN SKIP TO STATEMENT 4)

3. Do you agree to have your leftover blood stored for future research? "YES" means you agree to have your leftover blood stored for future research. "NO" means you will not have your leftover blood stored for future research.
    ___Yes   ___No

4. Do you agree to be contacted for future research? "YES" means you agree to be contacted for future research. "NO" means you do not wish to be contacted for future research.
    ___Yes   ___No

[Tablet summary statement]

To confirm, you have agreed to <INSERT ALL OPTIONS MARKED YES: INTERVIEW, FUTURE RESEARCH, BLOOD TESTING, BLOOD STORAGE>. Is this correct?
　　　　_____Yes　　　_____No

COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT ANSWERED 'YES' TO AT LEAST ONE CONSENT STATEMENT

Printed name of participant _____
Participant's signature or mark_____　　　　Date: __/__/__

IF PARTICIPANT IS ILLITERATE OR VISUALLY IMPAIRED:
Printed name of witness_____
Witness's signature or mark _____　　　　Date: __/__/__

Printed name of person obtaining consent_____
Signature of person obtaining consent_____　　　　Date: __/__/__

Study staff ZIMPHIA 2020 ID number _____

PARENTAL OR GUARDIAN PERMISSION FOR PARTICIPANTS 15-17 YEARS: INTERVIEW, BLOOD TESTING, BLOOD STORAGE, ALLOW CONTACT FOR FUTURE RESEARCH, AND SHARE CONTACT INFORMATION FOR LINKAGE TO CARE

What language do you prefer for our discussion today?

___ English　　___Shona　　___Ndebele

Title of Study: This study is called the **Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA 2020)**
Interviewer reads:

Hello. My name is_____. I would like to invite your child to take part in this study about HIV in Zimbabwe. The Ministry of Health and Child Care is leading this study and is conducting it with the United States Centers for Disease Control and Prevention, ICAP at Columbia University, and Westat.

(SKIP IF PARTICIPANT ALREADY COMPLETED THE HOUSEHOLD OR INTERVIEW CONSENT)

Purpose of study

HIV is a virus that causes an illness called AIDS. HIV and AIDS can be treated by taking medicines regularly. This study will help us know how many people in Zimbabwe have HIV and need health services. This study involves an interview, a blood draw and HIV testing. We expect about 20,000 men, women, and children 15 years of age or older from about 12,000 households throughout Zimbabwe to take part in the study.

If your child takes part, he or she will help the Ministry of Health and Child Care improve HIV services in the country.

This form might have some words in it that are not familiar to you. Please ask me to explain anything that you do not understand.

Study procedures

The information is collected on this tablet. The information is stored securely and can only be accessed by selected study staff. The interview will take place in private, here in your house, or at an acceptable nearby private area of your child's choosing.

(READ FROM HERE IF PARTICIPANT ALREADY COMPLETED THE HOUSEHOLD OR INTERVIEW CONSENT)

- If both you and your child agree for him or her to join the study, we will ask your child some questions. The interview questions will be the same as the ones that we ask adults who agree to take part in the study. The questions will be about what kind of work he or she does, whether he or she has had any experience with health services, and his or her social and sexual behaviors. Your child's answers will not be shared with you. The interview will take about 20 to 30 minutes. The interview will be conducted in private with only the child and a study staff member.

- Study procedures also include blood draw, HIV testing, and storage of that blood for future testing if you and your child agree to this. The testing and counseling will take about 45 minutes.

  - A study staff member, who has been trained to draw blood, will take about 14 milliliters (about a tablespoonful) of blood from your child's arm into two tubes. If it is not possible to take blood from your child's arm, then we will try to take a few drops of blood from your child's finger and then perform the tests for HIV in your home.

[READ ONLY IF PARTICIPANT IS 15 YEARS OLD]: We will give you and your child the results of these tests and provide counseling about the results on the same day of the test.

[READ ONLY IF PARTICIPANT IS 16-17 YEARS OLD]: We will give your child the results of these tests and provide counseling about the results on the same day as the test.

  - **[READ ONLY IF PARTICIPANT IS 15 YEARS OLD]**: For all children who test positive for HIV, we will also send his or her blood to a laboratory to measure his or her viral load and CD4 count. Viral load is the amount of HIV in the blood. CD4 cells are the part of the immune system that fights HIV infection and other diseases. If you provide us with the name of a health facility, we can send his or her viral load and CD4 results there in about 8 to 12 weeks from now. Some of your child's blood will be sent to a laboratory out of the country for some additional tests related to HIV. If we have test results that might guide your child's care or treatment, we will return them to a clinic. If you provide us with contact information, we will contact you about how a doctor or nurse at your preferred health facility may get these results.

We would like your consent to help your child access the health care that he or she needs. If you agree, and your child tests HIV positive, we will provide your contact information and your child's HIV results to health care workers or counselors from a trained social service organization. Specifically, if you agree, we will provide your child's name, and your phone number and address (if provided to us) to the health care workers or counselors. These counselors and health care workers will contact you, to talk about HIV, and help you and your child go for HIV care. Anyone who is provided with your contact details will be experienced in providing support to people living with HIV and will be trained in maintaining confidentiality.

  - **[READ ONLY IF PARTICIPANT IS 16-17 YEARS OLD]:** For all children who test positive for HIV, we will also send his or her blood to a laboratory to measure his or her viral load and CD4 count. Viral load is the amount of HIV in the blood. CD4 cells are the part of the immune system that fights HIV infection and other diseases. If your child provides us with the name of a health facility, we can send his or her viral load and CD4 results there in about 8 to 12 weeks from now. Some of your child's blood will be sent to a laboratory out of the country for some additional tests related to HIV. If we have test results that might guide your child's care or treatment, we will return them to a clinic. If your child provides us with contact information, we will contact him or her about how a doctor or nurse at the preferred health facility may get these results.

We would like to help your child access the healthcare that he or she needs. If your child agrees, and he or she tests HIV positive, we will provide your child's contact information and HIV results to healthcare workers or counselors from a trained social service organization. Specifically, we will provide your child's name, and phone number and address (if provided to us) to the healthcare workers or counselors. These counselors and healthcare workers will contact your child, talk to him or her about HIV, and help your child go for HIV care. Anyone who is provided with your child's details will be experienced in providing support to people living with HIV and will be trained in maintaining confidentiality.

  - **[READ FOR ALL ADOLESCENT PARTICIPANTS (15-17 YEARS OLD)]:** Additionally, we would like to ask your permission to store your child's leftover blood for future research tests. These tests may be about HIV, or other health issues important for the health of people living in Zimbabwe. This sample will be stored for an indefinite amount of time, but the name of your child will be on the sample for only three years. We will attempt to tell you or your child about any test results during the three-year period that are important to his or her health. After the three year period, the sample will not have your child's name on it and so we will not be able to tell you or your child the results of the future research tests. Your child's leftover blood samples will not be sold or used for commercial purposes, but may be shared with outside investigators after removal of all identifiers, without asking for your permission again. If you do not agree to long term storage of your child's blood samples, your child can still take part in the study, and we will destroy your child's blood samples after study-related testing is complete. If you agree today to storage of your child's blood but change your mind later in the next three years, you can call the number provided at the end of this consent form and have your child's stored specimen destroyed. If you change your mind after three years, once your child's name is removed from the sample, we will not be able to destroy his or her sample. Any future studies conducted using your child's blood sample will be approved by the appropriate institutions overseeing those studies.

  - **[READ ONLY IF PARTICIPANT IS 15 YEARS OLD]:** Finally, your child may be eligible to take part in future studies related to health in Zimbabwe. We are asking for your permission to contact you in the next three years if such an opportunity occurs. If you and your child agree, approved researchers will be able to request access to your contact information. If they contact you, they will give you details about the new study and invite your child to join the study. Your child may decide at that time

that he or she does not want to take part in that study. If you do not want to be contacted about future studies on behalf of your child, it does not affect him or her taking part in this study.

[READ ONLY IF PARTICIPANT IS 16-17 YEARS OLD]: Finally, your child may be eligible to take part in future studies related to health in Zimbabwe. We are asking for your permission to contact your child in the next three years if such an opportunity occurs. If you and your child agree, approved researchers will be able to request access to his or her contact information. If they contact him or her, they will give your child details about the new study and invite him or her to join the study. Your child may decide at that time that he or she does not want to take part in that study. If he or she does not wish to be contacted about future studies, it does not affect him or her taking part in this study.

Alternatives to taking part

Your child can decide not to take part in this study. If your child chooses to take part in the study, he or she may change his or her mind at any time and stop taking part. If he or she decides not to take part, it will not affect his or her healthcare in any way. If he or she decides to leave the study, no more information will be collected from him or her. However, your child will not be able to take back the information that has already been collected and shared.

Costs for being in the study

There is no cost to you or your child for being in the study, apart from his or her time.

Benefits

The main benefit for your child to be in the study is the chance to learn more about his or her health today. If your child tests HIV positive, the benefit is that you or your child will learn where to go for HIV services. HIV care and treatment provided by the Ministry of Health and Child Care is free. If you or your child already know he or she has HIV and is not on treatment, you or your child will get information to help his or her doctor or nurse determine if your child is ready to start treatment. If you or your child already knows he or she is HIV positive and on HIV treatment, the viral load tests can help your child's nurse or doctor judge how well the treatment is working. If your child tests HIV negative, you or your child will learn about how he or she can stay HIV negative.

Your child's taking part in this study could help us learn more about HIV in Zimbabwe. It can help us learn about how HIV prevention and treatment programs are working in the country.

Risks

The risks involved with taking part in the study are small. Your child may feel uncomfortable answering some of the questions. Your child does not have to answer questions he or she feels are too personal or that make him or her feel uncomfortable.

The risks to your child from having his or her blood drawn are also minor. They include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. The study staff member who will perform the blood draw has received training on how to draw blood. If he or she has any discomfort or any of the symptoms mentioned above, please let us know, especially if there is any bleeding or swelling.

Your child may learn that he or she is HIV positive. Learning that he or she has HIV may cause some emotional distress. If he or she tests positive for HIV, he or she will receive counseling on how to cope with learning that he or she has HIV. We will help your child identify where to go and explain the options available for care and treatment. Care and treatment are available at government facilities free of charge.

As with all studies, there is a chance that someone could find out your child took part in the study. We are doing everything possible to ensure confidentiality and minimize this risk.

Confidentiality and access to your health information

We will do everything we can to keep your child's taking part in the study and his or her answers confidential. The information we collect from your child will be identified by a number and not by his or her name. His or her name will not appear when we share study results and study data. The data from this study will be released to the public without any identifiers, and this will not require another permission from you. Your child's name and contact information will not be released outside of the study groups listed unless there is an issue of safety.

(SKIP IF PARTICIPANT ALREADY COMPLETED THE HOUSEHOLD OR INTERVIEW CONSENT)

The following individuals and/or agencies will be able to look at your child's interview records to help oversee the conduct of this study:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

· Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this study to ensure that we are protecting your child's rights as a person taking part in a study, including:

  - The Medical Research Council of Zimbabwe (MRCZ) and Research Council of Zimbabwe (RCZ)

  - The U.S. Centers for Disease Control and Prevention (CDC; Atlanta, GA, USA)

  - Columbia University Medical Center (New York, NY, USA)

  - Westat (a statistical study research organization) (Rockville, MD, USA)

· The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your child's rights as a person taking part in this study.

· Selected study staff and study monitors.

[INTERVIEWER: READ FROM HERE]

This study has received approval from the Medical Research Council of Zimbabwe (MRCZ) and Research Council of Zimbabwe (RCZ) and the Institutional Review Boards of the U.S. Centers for Disease Control and Prevention, Columbia University Medical Center, and Westat.

Who should you contact if you have questions?

If you would like to have more information about the study, you may contact:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Dr. Gibson Mhlanga
Email: mhlanga.gibson@gmail.com
Phone: 0712 862 600

Dr. Owen Mugurungi
Email: atp.director@ymail.com; mugurungi@gmail.com
Phone: 0772 765 746

[INTERVIEWER: READ FROM HERE]

If you have issues related to injuries or other harms, or for questions about the process of agreeing to take part in this study, or for more information about your rights as someone taking part in this study, you may contact:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Medical Research Council of Zimbabwe
Cnr Josiah Tongogara and Mazowe Street
P.O. Box CY 573 Causeway
Harare, Zimbabwe
Email: mrcz@mrcz.org.zw
Phone: 0784 956 128

(READ FROM HERE IF PARTICIPANT ALREADY COMPLETED THE HOUSEHOLD OR INTERVIEW CONSENT)

Do you want to ask me anything about the study?

- The interview?

- Drawing blood for HIV testing?

- Testing in the laboratory?

- Storage of blood for future research testing?

Permission Statement

By answering the questions below you confirm that any questions you had have been answered satisfactorily and you have been offered a copy of this permission form.

1. Do you agree that we can ask this child to do the interview? "YES" means that you agree for us to ask this child to do the interview. "NO" means that you do not wish for the study team to ask this child to take part in the interview.
   _Yes   _No

(IF PARTICIPANT DOES **NOT** AGREE, THEN STOP)

2. Do you agree that we can approach this child to give blood for HIV testing and related testing?

"YES" means you agree for us to ask this child to give blood for HIV testing and related testing. "NO" means you do not wish for us to ask this child to give blood for HIV testing and related testing.
   ___Yes   ___No

(IF PARTICIPANT DOES **NOT** AGREE, THEN SKIP TO STATEMENT 4)

3. Do you agree to allow us to ask this child to have his or her leftover blood stored for future research? "YES" means that you agree for us to ask this child to have his or her leftover blood stored for future research. "NO" means we will not ask this child to have his or her leftover blood stored for future research.
   _Yes   _No

4. Do you agree for us to ask this child to be contacted for future research? "YES" means you agree for us to ask this child for us to be contacted for future research. "NO" means that we will not ask this child to be contacted for future research.
   _Yes   _No

[Tablet summary statement]

To confirm, you have agreed to <INSERT ALL OPTIONS MARKED YES: APPROACH CHILD FOR INTERVIEW, APPROACH CHILD FOR FUTURE RESEARCH, APPROACH CHILD FOR BLOOD TESTING, AND APPROACH CHILD FOR BLOOD STORAGE>, is this correct? _____Yes   _____No

COMPLETE REMAINDER OF FORM ONLY IF PARENT/GUARDIAN ANSWERED 'YES' TO AT LEAST ONE PERMISSION STATEMENT

Printed name of parent or guardian_____
Parent's or guardian's signature or mark_____   Date: __/__/__

IF PARENT/GUARDIAN IS ILLITERATE OR VISUALLY IMPAIRED:

Printed name of witness_____
Witness' signature or mark _____   Date: __/__/__

Printed name of person obtaining permission_____
Signature of person obtaining permission_____   Date: __/__/__
Study staff ID number _____
Child's name (print) _____

INDIVIDUAL ASSENT FOR PARTICIPANTS 15-17 YEARS: INTERVIEW, CONTACT FOR FUTURE RESEARCH, BLOOD DRAW, AND BLOOD STORAGE

What language do you prefer for our discussion today?

___English   ___Shona   ___Ndebele

Title of Study: This study is called the **Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA 2020)**

Interviewer reads:

Hello. My name is_____. I would like to invite you to take part in a study. As a part of this study, we are asking people questions about themselves and also giving people a chance to learn if they have HIV. We are also asking people if we can keep some of their blood for future testing.

This form talks about our study and the choice that you have to take part in it. You can ask questions any time.

Why are we doing this study?

HIV is a virus. Being infected with HIV can lead to an illness often called AIDS. HIV and AIDS can be treated by taking medicines regularly. This study will help us know how many people in Zimbabwe have HIV and need health services. This study involves an interview, a blood draw, and HIV testing.

Your parent/guardian said it was okay for us to ask you to join.

This form might have some words that you may not have heard before. Please ask me to explain anything that you do not understand.

What would happen if you join this study?

If you decide to join the study, here is what would happen:
- If you join this study, we will ask you questions, and your answers will be kept between us. We will ask you questions about your age, the work you do, your health and experience with health services, and your social and sexual behavior.

- The interview will take about 20 to 30 minutes

- The interview will take place in private here in your house or a nearby area around your house.

- After we ask you the questions, if you agree, we will take some of your blood to test for HIV.

- We will use a needle to take about 14 milliliters (about a tablespoonful) of blood from your arm into two tubes. If it is not possible to take blood from your arm, then we will try to take a few drops of blood from your finger.

- It will take about 45 minutes to do the test and to talk to you about the results. If you are 15 years of age, we will talk to you and your parent or guardian about the results. If you are 16 or 17 years of age, we will talk to only you about the results, unless you would like us to also talk to your parent or guardian about the results.

- If you test positive for HIV:

  - We will send your blood to a laboratory to measure your viral load and CD4 count. Viral load is the amount of HIV in your blood. CD4 cells are the part of the immune system that fights HIV infection and other diseases.

  - We will send your viral load and CD4 test results to a health facility of your choice in about 8 to 12 weeks. At the health facility you will be able to talk to a nurse or doctor about your results.

  - Some of your blood will be sent to a laboratory out of the country for additional tests related to HIV. If we have test results that might help guide your treatment, we will return them to a clinic. If you are 15 years old and your parent or guardian gives us his or her contact information, we will contact your parent or guardian to tell him or her how your doctor or nurse may get these results. If you are 16 or 17 years old and give us your contact information, we will contact you to tell you how you and your doctor or nurse may get these results.

- You may be eligible to take part in future studies related to health in Zimbabwe. We are asking for your permission to contact you in the next three years if such an opportunity occurs. If you are 15 and both you and your parent agree, researchers will be able to request access to your parent's contact information. If they contact your parent, they will give your parent details about the new study and invite you to join the study. If you are 16 or 17 years old, and both you and your parent agree, researchers will be able to request access to your contact information. If they contact you, they will give you details about the new study and

invite you to join the study. You may decide at that time that you do not want to take part in that study. If you do not wish to be contacted about future studies, it does not affect your taking part in this study.

- We will ask you if we can store some of your blood for future testing. These tests will help us learn about the health of people in Zimbabwe. This sample will be stored forever, but your name will be on the sample only for three years. We will try to tell you and your parent/guardian about any test results during the next three years that are important for your health. After the three years, the sample will not have your name on it, and we will not be able to tell you or your parent or guardian the results of any future tests. Your leftover blood will not be used for anything other than these tests. Your blood will not be sold. After removing your personal information, the results of these tests may be shared with people outside the study, without asking for your permission again. If you do not agree to future storage and testing of your blood, we will destroy your blood after study-related testing has finished and you can still receive your test results and conduct the study interview. If you agree today to store your blood but change your mind later in the next three years, you or your parent or guardian can call the number provided at the end of this consent form to have your stored specimen destroyed. If you change your mind after three years, once your name is removed from the sample, we will not be able to destroy your sample. Any future tests done with your blood sample will be approved by the appropriate institutions overseeing those studies.

Alternatives to taking part

You can leave the study at any time for any reason. If you decide to leave the study, no more information will be collected from you. However, you will not be able to take back the information that has already been collected and shared.

Costs for being in the study

There is no cost to you for being in the study, apart from your time.

Could the study help me?

Being in the study may help you by learning whether or not you have HIV. We will give you the results of your HIV test and provide counseling to you. If you are 15 years old, we will also share the results with your parent or guardian. If you test positive for HIV, you will learn about it and where to go for care and treatment of HIV. Care and treatment provided by the Government of Zimbabwe is free. Your taking part in this study will help us learn more about HIV in Zimbabwe.

Could bad things happen if you join this study?

You may feel uncomfortable answering some of the questions we will ask. You can refuse to answer any question at any time, and you can stop the interview at any time.

The needle may hurt when it is put into your arm. This pain will go away quickly. Sometimes the needle can leave a bruise on the skin. You might bleed a little or feel a little dizzy. Rarely, an infection might occur where the needle enters the skin. We will do our best to make it as painless as possible.

You may learn that you have HIV. Learning that you have HIV may cause you to feel worried. We will talk to you to help you find a clinic where you can receive treatment.

We will not tell anyone else what we talk about, but there is a small chance other people might find out. We will do everything we can to minimize this risk.

What else should you know about this study?

If you don't want to be in the study, you don't have to be. Nobody will get upset with you if you do not want to join the study. It is also OK to say 'Yes' and change your mind later. You can stop being in the study at any time. If you want to stop, please tell us.

Confidentiality and access to your health information

We will do everything we can to keep your test results confidential. The blood we collect from you will be identified by a number, not by your name. Besides you and your parent/guardian, no one else will know your personal test results except the people working on the study and people you may decide to tell. The data from this study will be released to the public without your name, and this will not require another permission from you.

Your name and contact information will not be released outside of the study groups listed unless there is an issue of safety. The following individuals and/or agencies will be able to look at your interview records to help oversee the conduct of this study:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this study to ensure that we are protecting your rights as a person taking part in a study, including:

  - The Medical Research Council of Zimbabwe (MRCZ) and Research Council of Zimbabwe (RCZ)

  - The U.S. Centers for Disease Control and Prevention (CDC; Atlanta, USA)

  - Columbia University Medical Center (New York, NY, USA)

  - Westat (a statistical study research organization) (Rockville, MD, USA)

- The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person taking part in this study.

- Selected study staff and study monitors.

[INTERVIEWER: READ FROM HERE]

This study has received approval from the Medical Research Council of Zimbabwe (MRCZ) and Research Council of Zimbabwe (RCZ), and the Institutional Review Boards of the U.S. Centers for Disease Control and Prevention, Columbia University Medical Center, and Westat.

Who should you contact if you have questions?

If you would like to have more information about the study, you may contact:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Dr. Gibson Mhlanga
Email: mhlanga.gibson@gmail.com
Phone: 0712 862 600

Dr. Owen Mugurungi
Email: atp.director@ymail.com; mugurungi@gmail.com
Phone: 0772 765 746

[INTERVIEWER: READ FROM HERE]

If you have issues related to injuries or other harms, or for questions about the process of agreeing to take part in this study, or for more information about your rights as someone taking part in this study, you may contact:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Medical Research Council of Zimbabwe
Cnr Josiah Tongogara and Mazowe Street
P.O. Box CY 573 Causeway
Harare, Zimbabwe
Email: mrcz@mrcz.org.zw
Phone: 0784 956 128

[INTERVIEWER: READ FROM HERE]

Do you want to ask me anything about:
- The interview?

- Drawing blood for HIV testing?

- Testing in the laboratory?

- Storage of blood for future research testing?

Assent Statement

By answering the questions below, you confirm that any questions you had have been answered satisfactorily and you have been offered a copy of this assent form.

1. Do you agree to take part in the individual interview? 'YES' means that you agree to take part in the individual interview. 'NO' means that you will not take part in individual interview.
   ___Yes ___No

(IF PARTICIPANT DOES **NOT** AGREE, THEN STOP)

2. Do you agree to give blood for HIV testing and related testing? 'YES' means that you agree to give blood for HIV testing and related testing. "NO" means that you refuse to give blood for HIV testing and related testing.
   ___Yes ___No

 (IF PARTICIPANT DOES **NOT** AGREE, THEN SKIP TO STATEMENT 4)

3. Do you agree to have your leftover blood stored for future research? "YES" means you agree to have your leftover blood stored for future research. "NO" means you will not have your leftover blood stored for future research.
   ___Yes ___No

4. Do you agree to be contacted for future research? "YES" means you agree to be contacted for future research. "NO" means you do not wish to be contacted for future research.
   ___Yes ___No

 [Tablet summary statement]

To confirm, you have agreed to <INSERT ALL OPTIONS MARKED YES: INTERVIEW, FUTURE RESEARCH, BLOOD TESTING, BLOOD STORAGE>. Is this correct?
               _____Yes   _____No

COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT ANSWERED 'YES' TO AT LEAST ONE ASSENT STATEMENT

Printed name of parent or guardian_____
Printed name of Child _____
Child's signature or mark_____   Date: __/__/__

IF PARTICIPANT IS ILLITERATE OR VISUALLY IMPAIRED:

Printed name of witness_____
Witness's signature or mark _____   Date: __/__/__

Printed name of person obtaining assent_____
Signature of person obtaining assent_____   Date: __/__/__

Study staff ZIMPHIA 2020 ID number _____

CONSENT TO SHARE CONTACT INFORMATION FOR ACTIVE LINKAGE TO CARE OF ZIMPHIA2020 PARTICIPANTS 16+ YEARS OR PARENT/GUARDIAN OF PARTICIPANTS AGED 15 YEARS

What language do you prefer for our discussion today?

 ___English ___Shona   ___Ndebele

Title of Study: This study is called **the Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA 2020)**

Interviewer reads:

Purpose of consent

- [READ ONLY IF PARTICIPANT IS 16+ YEARS ONLY] You had a positive HIV test today. We have provided you with counseling regarding the results. We have also provided a referral form to bring to a health clinic and seek HIV treatment and care. As we mentioned earlier, your viral load and CD4 results will be returned to a clinic of your choice. If you agree, we will include your name and age when we share those results with your preferred health facility. We would like to help you in accessing the healthcare that you need. If you agree, we may be able to provide your contact information and HIV test results to healthcare workers or counselors from a relevant social service organization. This counselor may contact you to talk to you about HIV and help you go for HIV care. Anyone who is provided with your details will be experienced in providing support to people living with HIV and will be trained in maintaining confidentiality.

- [READ TO PARENT/GUARDIAN IF PARTICIPANT IS 15 YEARS OF AGE] Your child had a positive HIV test today. We have provided you and your child with counseling regarding the results. We have also provided a referral form to bring to a health clinic and seek HIV treatment and care for your child. As we mentioned earlier, your child's viral load and CD4 results will be returned to a clinic of your choice. If you agree, we will include your child's name and age when we share those results with your preferred health facility. We would like to help your child in accessing the healthcare that he or she needs. If you agree, we may provide your contact information and your child's HIV test results to healthcare workers or counselors from a relevant social service organization. This counselor may contact you to talk about HIV and help your child go for HIV care. Anyone who is provided with your contact details will be experienced in providing support to people living with HIV and will be trained in maintaining confidentiality.

What do you have to do if you agree to take part?

If you agree for your information to be shared and to be contacted, we will share your name, and phone number and address (if you provided it to us) to those providers and organizations to provide HIV support. The provider of care may contact you by SMS, phone, WhatsApp, or in person.

What about confidentiality?

[READ IF PARTICIPANT IS 16+ YEARS OF AGE] Your HIV test results, and your contact information will not be shared with any other parties aside from those specified in this and the other consent forms, and with this support organization. They will also do their utmost to maintain your confidentiality. However, we cannot guarantee complete confidentiality.

[READ TO PARENT/GUARDIAN IF PARTICIPANT IS 15 YEARS OF AGE] Your child's HIV test results, and your contact information will not be shared with any other parties aside from those specified in this and the other consent forms, and with this support organization. They will also do their utmost to maintain your confidentiality. However, we cannot guarantee complete confidentiality.

What are the potential risks?

As with all studies, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

[READ IF PARTICIPANT IS 16+ YEARS OF AGE] A healthcare worker or counselor will assist you in accessing the healthcare that you need.

[READ TO PARENT/GUARDIAN IF PARTICIPANT IS 15 YEARS OF AGE] A healthcare worker or counselor will assist you and your child in accessing the healthcare that your child needs.

Who should you contact if you have questions?

If you would like to have more information about the study, you may contact:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Dr. Gibson Mhlanga
Email: mhlanga.gibson@gmail.com
Phone: 0712 862 600

Dr. Owen Mugurungi
Email: atp.director@ymail.com; mugurungi@gmail.com
Phone: 0772 765 746

[INTERVIEWER: READ FROM HERE]

If you have issues related to injuries or other harms, or for questions about the process of agreeing to take part in this study, or for more information about your rights as someone taking part in this study, you may contact:

[INTERVIEWER: INDICATE THE FOLLOWING INFORMATION TO THE PARTICIPANT- DO NOT READ ALOUD]

Medical Research Council of Zimbabwe
Cnr Josiah Tongogara and Mazowe Street
P.O. Box CY 573 Causeway
Harare, Zimbabwe
Email: mrcz@mrcz.org.zw
Phone: 0784 956 128

[INTERVIEWER: READ FROM HERE]

Do you want to ask me anything about the study?

Consent Statement

By answering the questions below you confirm that any questions you had have been answered satisfactorily and you have been offered a copy of this consent/assent form.

1. [READ ONLY IF PARTICIPANT IS 16+ YEARS OF AGE] Returning these results with your name and age will make it easier for the clinic to return the results to you. Do you agree for the results of your CD4 and viral load testing to be returned to the clinic accompanied by your name and age? If you do not agree the results will be returned to the clinic with your participant ID, a random unique survey number linking you to your results. "YES" means you agree to allow the study team to include your name and age when returning your CD4 and viral load testing results to the health facility. "NO" means you do not want your name and age included when returning CD4 and viral load results to the health facility.
   ___Yes   ___No

[READ TO PARENT/GUARDIAN ONLY IF PARTICIPANT IS 15 YEARS OF AGE] Returning these results with your child's name and age will make it easier for the clinic to return the results to you and your child. Do you agree for the results of your child's CD4 and viral load testing to be returned to the clinic accompanied by his or her name and age? If you do not agree the results will be returned to the clinic with your child's participant ID, a random unique survey number linking your child to his or her results. "YES" means you agree to allow the study team to include your child's name and age when returning his or her CD4 and viral load testing results. "NO" means you do not want your child's name and age included when returning his or her CD4 and viral load results.
   ___Yes   ___No

2. [READ TO PARTICIPANT IF 16+ YEARS OF AGE; READ TO PARENT/GUARDIAN IF PARTICIPANT IS 15 YEARS OF AGE] Do you agree to allow the study team to share your contact information with trained healthcare workers or counselors? "YES" means you agree to allow the study team to share your contact information with trained healthcare workers or counselors. "NO" means we will not share your contact information with trained healthcare workers or counselors.
   ___Yes   ___No

 (IF PARTICIPANT DOES **NOT** AGREE, THEN STOP)

3. Do you agree to be contacted by:

SMS?   _____Yes   _____No
WhatsApp? _____Yes   _____No
Phone call? _____Yes   _____No
In person?   _____Yes   _____No

[Tablet summary statement]

To confirm, you have agreed to <INSERT ALL OPTIONS MARKED YES: RETURN RESULTS WITH NAME AND AGE, SHARE, SMS, WHATSAPP, PHONE, IN-PERSON>. Is this correct?
_____Yes   _____No

COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT (16+ YEARS) OR PARENT/GUARDIAN (OF PARTICIPANTS AGED 15 YEARS) ANSWERED 'YES' TO AT LEAST ONE CONSENT STATEMENT

COMPLETE IF PARTICIPANT IS 16+ YEARS OF AGE:

Printed name of participant_____

Participant's signature or mark_____   Date: __/__/__

COMPLETE IF PARTICIPANT IS 15 YEARS OF AGE:

Printed name of participant_____

Printed name of Parent or Guardian of the Participant _____

Parent or Guardian's signature or mark_____   Date: __/__/__

IF PARTICIPANT [OR PARTICIPANT'S PARENT/GUARDIAN FOR 15 YEAR OLDS] IS ILLITERATE OR VISUALLY IMPAIRED:

Printed name of witness_____
Witness's signature or mark _____   Date: __/__/__

Printed name of person obtaining consent_____
Signature of person obtaining consent_____   Date: __/__/__

Study staff ZIMPHIA 2020 ID number _____

Zimbabwe Population-based HIV Impact Assessment 2020
(ZIMPHIA 2020)

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