ZIMBABWE POPULATION-BASED HIV IMPACT ASSESSMENT
ZIMPHIA 2015-2016

FINAL REPORT
AUGUST 2019

ZIMPHIA
ZIMBABWE POPULATION-BASED HIV IMPACT ASSESSMENT

ZIMBABWE POPULATION-BASED HIV IMPACT ASSESSMENT (ZIMPHIA) 2015-2016

ZIMPHIA 2015-2016 COLLABORATING INSTITUTIONS

Ministry of Health and Child Care (MoHCC), Zimbabwe
The U.S. President's Emergency Plan for AIDS Relief (PEPFAR)
The U.S. Centers for Disease Control and Prevention (CDC)
Zimbabwe National Statistics Agency (ZIMSTAT)
The Biomedical Research and Training Institute (BRTI)
Lancet Laboratories
Statistical Center for HIV/AIDS Research and Prevention (SCHARP)
Westat
ICAP at Columbia University

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GLOSSARY OF TERMS

90-90-90: An ambitious set of treatment targets to help end the AIDS epidemic. By 2020, 90% of all people living with HIV will know their HIV status; 90% of all people diagnosed with HIV will receive sustained antiretroviral therapy (ART); and 90% of all people receiving ART will have viral load (VL) suppression (VLS).

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

Adolescents: This report defines young adolescents as children aged 10-14 years of age, and older adolescents as young people aged 15-19 years.

Adults: Although ZIMPHIA included participants over the age of 64 years, unless otherwise noted, for the purposes of this report, adults are defined as the population aged 15-64 years.

Antiretroviral (ARV): A type of medication used in the treatment of HIV.

Antiretroviral Therapy (ART): Treatment with ARV drugs that inhibit the ability of HIV to multiply in the body, leading to improved health and survival among people living with HIV.

CD4 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.

Children: Defined in this survey as the population of individuals 0-14 years of age.

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

Enumeration Area (EA): A limited geographic area defined by the national statistical authority, and the primary sampling unit for 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 and older or is considered an emancipated minor (below 18 years of age 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 have eliminated.

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 in the blood, usually expressed as copies per milliliter (mL).

HIV Viral Load Suppression: 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. In order 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 to reduce a man's risk of acquiring HIV through heterosexual intercourse. Voluntary medical male circumcision (VMMC) is an important part of national HIV prevention programs in most HIV high burden countries.

Prevention of mother-to-child-transmission (PMTCT): Activities to prevent an HIV-positive woman passing HIV to her baby during pregnancy, labor and delivery, or breastfeeding. The World Health Organization (WHO) recommends a comprehensive four-fold approach for effective PMTCT that includes: (1) primary prevention to reduce HIV infections among women of childbearing age; (2) prevention of unintended pregnancies among women living with HIV; (3) prevention of HIV transmission of women living with HIV to their infants; and (4) provision of appropriate treatment, care, and support to mothers living with HIV and their children and families.

Sexually transmitted infections (STI): STIs are infections transmitted through person-to-person sexual contact. They are sometimes called sexually transmitted diseases.

Syphilis: Syphilis is a curable STI caused by a bacterium, *Treponema pallidum*. Syphilis can be transmitted to the fetus during pregnancy or to the infant during delivery.

Tuberculosis: Tuberculosis (TB) is a contagious bacterial disease that spreads through the air, and the leading cause of death among people living with HIV in Africa.

Young adults: Unless otherwise noted, this report defines young adults as individuals aged 20-24 years.

Young people: Defined in this survey as the population of individuals aged 15-24 years.

List of Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Therapy
ARV	Antiretroviral
CDC	U.S. Centers for Disease Control and Prevention
CD4	CD4+ T-cell
CI	Confidence Interval
DBS	Dried Blood Spot
DNA	Deoxyribonucleic Acid
DTS	Dried Tube Specimens
EA	Enumeration Area
EIA	Enzyme Immunoassay
EID	Early Infant Diagnosis
HBTC	Home-Based Testing and Counselling
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
IPV	Intimate Partner Violence
LAg	Limiting Antigen
mL	Milliliter
µL	Microliter
MDRI	Mean Duration of Recent Infection
MOHCC	Ministry of Health and Child Care
MOS	Measure of Size
MTCT	Mother-to-Child Transmission
NMRL	National Medical Research Laboratories
NNRTI	Non-Nucleoside Reverse Transcriptase Inhibitors
NRIT	Nucleoside Reverse Transcriptase Inhibitors
OD_N	(normalized) Optical Density
PCR	Polymerase Chain Reaction
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PFR	Proportion False Recent
PHIA	Population-based HIV Impact Assessment
PLHIV	People Living with HIV
PMTCT	Prevention of Mother-to-Child Transmission
POC	Point of Care
QA	Quality Assurance
QC	Quality Control
RNA	Ribonucleic acid
RR	Response Rate

SD	Standard Deviation
SMS	Short Message Service
STI	Sexually Transmitted Infection
T	Time cutoff
TB	Tuberculosis
TNA	Total Nucleic Acid
UNAIDS	Joint United Nations Programme on HIV and AIDS
U.S.	United States
VL	Viral Load
VLS	Viral Load Suppression
VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organization
ZIMPHIA	Zimbabwe Population-based HIV Impact Assessment

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SUMMARY OF KEY FINDINGS

Survey Household Characteristics

- In Zimbabwe, 24.3% of households had at least one HIV-positive household member.
- Among female-headed households, 21.4% had an HIV-positive head of household while 16.9% of male-headed households had an HIV-positive head of household.

Survey Respondent Characteristics

- Almost two-thirds (64.2%) of the population surveyed lived in rural areas.
- The distribution by province of young adolescents, defined as those aged 10-14 years, ranged from 3.6% in Bulawayo to 15.2% in Manicaland. Approximately 10% of the pediatric population were under the age of 18 months, while children aged 18-59 months, children aged 5-9 years, and young adolescents each represented approximately 30% of the pediatric population.

HIV Incidence

- Annual incidence of HIV among adults (defined as those aged 15-64 years) in Zimbabwe was 0.42%: 0.33% among men and 0.50% among women.

HIV Prevalence

- Prevalence of HIV among adults in Zimbabwe was 14.1%: 12.0% among men and 16.0% among women. This corresponds to approximately 1.2 million adults living with HIV in Zimbabwe.
- Geographically, HIV prevalence among adults varied from 11.0% in Manicaland to 21.7% in Matabeleland South.

HIV Testing

- Among adults, 73.7% had ever been tested and received their results, 65.7% among men and 80.9% among women. Of these adults, 35.7% were tested and received their results in the past 12 months, 30.6% among men and 40.2% among women.
- Among adults who tested HIV positive in the Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA), only 8.8% reported that they had never taken an HIV test and received the results.

HIV Diagnosis & Treatment

- Based on self-reported data, 27.0% of HIV-positive adults were unaware of their status at the time of the survey, 31.7% among men and 23.9% among women.
- Based on self-reported data, 63.4% of adults living with HIV were aware of their status and on antiretroviral (ARV) therapy (ART), 58.9% among men and 66.4% among women.
- Concordance between self-report of ART use and detection of ARVs in blood was high among adults, with 93.3% of those who reported current ART use having detectable ARVs in their blood. However, self-report of HIV status was less accurate, as 14.5% of those who reported no previous HIV diagnosis had ARVs detected in their blood .

Viral Load Suppression (VLS)

- In Zimbabwe, 59.6% of HIV-positive adults had VLS, 53.6% among men and 63.7% among women.
- The prevalence of VLS ranged from 53.7% in Mashonaland East to 65.3% in Matabeleland North.

90-90-90

- Based on self-report and ARV detection data, 76.8% of HIV-positive adults were aware of their status.
- Among adults living with HIV and aware of their status, based on self-report and ARV detection data, 88.4% were taking ART.
- Among adults living with HIV on ART, 85.3% had VLS.

Clinical Perspectives on People Living with HIV

- Among HIV-positive adults, 67.9% had CD4 cell counts less than 500 cells/microliter (µL).
- Among people living with HIV who were unaware of their status, 53.1% had a CD4 cell count less than 350 cells/µL; 22.0% had a CD4 count less than 200 cells/µL.
- Self-reported retention on ART among people living with HIV was 98.7% among those who started ART in the 12 months before the survey and 98.1% among those who started ART more than 12 months before the survey.

Prevention of Mother-to-Child Transmission (PMTCT)

- Among women aged 15-49 years who delivered in the three years preceding the survey, 95.5% had at least one antenatal care (ANC) visit during their most recent pregnancy.
- Among women aged 15 to 49 years who delivered within the 12 months preceding the survey, 98.2% knew their HIV status.
- Among HIV-positive women aged 15 to 49 years who delivered within the 12 months preceding the survey, 96.8% received ARVs to reduce the risk of mother-to-child transmission (MTCT), suggesting high coverage of PMTCT programs.
- Of infants last-born to HIV-positive mothers in the 36 months preceding the survey, 53.8% were reported to have been tested for HIV within two months of birth.
- Among infants born in the 17 months prior to the survey to HIV-positive women aged 15-49 years, 6.2% were confirmed HIV positive by virological testing conducted as part of ZIMPHIA.

Adolescents and Young Adults

- Among young people (ages 15-24 years), 3.9% reported having sex before the age of 15 years, 5.1% of older adolescent boys and young men and 2.7% of older adolescent girls and young women.
- Among young people, 43.4% answered all five questions about HIV transmission correctly.

Children

- HIV prevalence among children (ages 0-14 years) was 1.6%.
- Among children living with HIV, 68.1% had a parent or guardian who was aware of their status based on parental-report and/or laboratory ARV data.
- Among those children with an HIV-positive status known by their parent, 96.7% were on ART based on parental report and ARV detection data.
- Of the children on ART, 68.8% had achieved VLS.

HIV Risk Factors

- Among adults who reported intercourse before the age of 15 years, HIV prevalence was 16.3%.
- Among those aged 15-64 years who reported having sex in the 12 months before the survey, 39.7% of men and 18.6% of women reported having sex with a non-marital, non-cohabitating partner.
- Among men aged 15-64 years, 11.8% reported having been medically circumcised.

Intimate Partner Violence (IPV)

- Among ever-married or partnered women aged 15-64 years, 3.7% reported physical violence, 0.5% reported sexual violence, and 4.0% reported either physical or sexual violence from a male intimate partner in the 12 months before the survey.

Discriminatory Attitudes Towards People Living with HIV

- Among adults, 16.3% showed discriminatory attitudes towards people living with HIV.
- Over one-fourth (27.6%) of older adolescents (those aged 15-19 years) reported having discriminatory attitudes towards HIV-positive people.

Tuberculosis, Syphilis, STI Symptoms, and Cervical Cancer Screening

- Among self-reported HIV-positive adults, 48.9% (53.7% of men and 46.1% of women) reported that they were screened for TB during their last HIV clinic visit.
- Among self-reported HIV-positive adults diagnosed with TB, 98.0% were treated.
- Active syphilis infection was higher among HIV-positive adults (2.9%) than among HIV-negative adults (0.4%).
- While 8.7% of men and 9.0% of women reported a genital ulcer, only 2.9% and 2.4%, respectively, reported that they had received a clinical diagnosis of a sexually-transmitted infection (STI) in the 12 months before the survey.
- Among HIV-positive women aged 30-49 years, 21.2% report having had a cervical cancer screening.

1 INTRODUCTION

1.1 Background

Population-based HIV Impact Assessment (PHIA) is a multicountry project funded by the United States (U.S.) 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 regional HIV-related parameters, including progress toward achievement of the Joint United Nations Programme on HIV and AIDS (UNAIDS) 90-90-90 targets (UNAIDS, 2014), and guide policy and funding priorities.

The Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA) was led by the government of Zimbabwe through the Ministry of Health and Child Care (MOHCC) and conducted with funding from PEPFAR and technical assistance through the U.S. Centers for Disease Control and Prevention (CDC). The survey was implemented by ICAP at Columbia University in collaboration with Westat and local partners, including the National AIDS Council, the Zimbabwe National Statistics Agency, the Biomedical Research and Training Institute, and Lancet Laboratories Zimbabwe.

1.2 Overview of ZIMPHIA 2015-2016

ZIMPHIA, a nationally representative household-based survey, was conducted from October 2015 to August 2016 to measure the status of Zimbabwe's national HIV response. The survey offered home-based HIV testing and counseling (HBTC) with same-day return of results, and collected information about uptake of HIV care and treatment services. It was the first in Zimbabwe to measure national HIV incidence, prevalence of viral load (VL) suppression (VLS), and pediatric HIV prevalence. The survey also collected information on selected behaviors associated with HIV acquisition and transmission, on common HIV comorbidities, and other health conditions.

Although HIV facility-based sentinel surveillance and previously conducted population-based studies provided useful knowledge regarding Zimbabwe's HIV epidemic and HIV-control efforts, there was a lack information critical to understand the current status of the epidemic and guide future interventions. While population-level outcomes and impact can be inferred and modeled from facility-level data, this requires a series of untested assumptions about trends in the unobserved segments of the population. In addition, the population-based data that were available for HIV focused largely on knowledge, attitudes, and self-reported risk behaviors.

With its focus on measuring key biological endpoints in a nationally representative sample of the population, ZIMPHIA provided 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 progress toward the achievement of the UNAIDS 90-90-90 targets.

1.3 Specific Objectives

The goal of the survey was to estimate HIV incidence and prevalence 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 (defined as those aged 15-64 years) and children (defined as those aged 0-14 years).

Objectives:

- To estimate national-level annual HIV incidence among adults.
- To estimate provincial-level prevalence of VLS (defined as HIV ribonucleic acid [RNA] less than 1,000 copies/milliliter [mL]) among HIV-positive adults.
- To estimate national-level prevalence of HIV among children.
- To estimate national and provincial-level prevalence of HIV among adults.
- To assess the CD4 count distribution among people living with HIV aged 0-64 years.
- To estimate the prevalence of detectable ARVs in blood among people living with HIV aged 0-64 years.
- To estimate the frequency of transmitted drug resistance among HIV-positive children aged 18 months to 14 years, and adults.
- To describe the prevalence of socio-economic and behavioral risk factors for HIV infection among individuals aged 0-64 years.
- To describe the knowledge, attitudes, and uptake of HIV-related services among persons aged 0-64 years.
- To estimate the prevalence of stunting and undernutrition among HIV-exposed and HIV-positive children under the age of 5 years.
- To estimate syphilis prevalence in a household-based, nationally representative sample of adults aged 15-64 years.

2 SURVEY DESIGN, METHODS, AND RESPONSE RATES

ZIMPHIA was a nationally representative, cross-sectional, population-based survey of households across Zimbabwe. Its target population corresponded to children aged 0-14 years and adults aged 15 years and older. The survey population excluded institutionalized children and adults.

2.1 Sample Frame and Design

The survey used a two-stage, stratified cluster sample design. The sampling frame was composed of all households in the country, based on the Zimbabwe Population Census 2012, which included 29,365 enumeration areas (EAs) with 3,059,016 households (ZIMSTAT, 2012). An EA is a defined geographical area with clearly defined boundaries for which information about location, number of households, and total population is available. In Zimbabwe, an EA contained an average of 104 households and 440 residents. Sampling clusters corresponded to EAs in the first stage (primary sampling units) and to households within selected EAs in the second sampling stage. The first stage selected 500 EAs using a probability proportional to size method. The 500 EAs were stratified by province and urban/rural location. The number of households selected per EA ranged from 15 to 60 with an average of 30 households (Table 2.1.A).

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 30%. It also reflected representative provincial estimates of VLS prevalence among HIV-positive adults aged 15-49 years with 95% confidence intervals (CIs) with ±7% bounds around the point estimates. Half of the households were randomly selected for inclusion of children, in order to provide a representative national estimate of pediatric HIV prevalence with a relative standard error less than or equal to 15%. The target sample size was 21,159 for persons aged 15 years and older, and 7,309 for children.

Table 2.1.A Distribution of sampled enumeration areas and households by province

	Enumeration areas			Households		
Province	Urban	Rural	Total	Urban	Rural	Total
Manicaland	8	46	54	214	1409	1623
Mashonaland Central	3	53	56	91	1592	1683
Mashonaland East	4	46	50	126	1373	1499
Mashonaland West	14	38	52	358	1203	1561
Matabeleland North	4	40	44	130	1192	1322
Matabeleland South	6	34	40	171	1030	1201
Midlands	15	36	51	474	1054	1528
Masvingo	5	48	53	156	1434	1590
Harare	54	3	57	1620	90	1710
Bulawayo	43	0	43	1292	0	1292
Total	156	344	500	4632	10377	15009

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

The eligible survey population included:

- Persons aged 16 years and older living in residential households and visitors who slept in the household the night before the survey who were willing and able to provide consent in one of the three survey languages (English, Shona, and Ndebele);
- Children and adolescents aged 7-15 years living in residential households and visitors aged 7-15 years who slept in the household the night before the survey whose parents or guardians provided written permission and who were willing and able to provide assent; and
- Children aged 0-6 years living in residential households and visitors aged 0-6 years who slept in the household the night before the survey whose parents or guardians were willing and able to provide consent.

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:

- Scientific objectives of the survey
- Survey design and methods
- Completion of survey forms
- Data collection
- Staff responsibilities
- Recruitment of participants
- Informed consent procedures, including human participants' protection, privacy, and confidentiality
- Blood collection for children and adults, including venipuncture and finger/heel stick
- Home-based HIV testing and counseling
- CD4 count measurement using the Pima point-of-care (POC) analyzer
- Syphilis testing and counseling
- Referral of participants to health and social services
- 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, early infant diagnosis (EID), HIV confirmatory testing, and HIV recency testing using a limiting antigen (LAg) avidity enzyme immunoassay (EIA).

Survey Staff

Fieldwork, conducted by 22 locally-hired field teams, started in October 2015 and concluded in August 2016. Survey personnel were selected based on their qualifications and areas of expertise. Each team was composed of a team leader, two interviewers, four nurses, and a driver. Field teams included both male and female staff and members who spoke the languages used in the areas to which they were

deployed. Interviewers had the primary responsibility for obtaining consent and administering the interview. Nurses conducted phlebotomy, provided HIV testing and counseling for adults and children, syphilis testing, and CD4 counts using a POC instrument. Nurses also obtained consent and administered interviews when needed. The field teams were supervised by 22 team leaders and managed by five provincial supervisors who guided and oversaw data-collection activities, performed quality checks, and provided technical support (Appendix D). National and international monitors and supervisors routinely provided direct observation of fieldwork and QA.

In addition, fifteen laboratory staff at satellite labs processed samples and performed confirmatory and quality control (QC) tests. Staff at Lancet Laboratories and the National Microbiology Reference Lab performed additional tests for HIV-1 VL and EID.

Community Sensitization and Mobilization

The MOHCC, ICAP, and CDC, in coordination with the National AIDS Council, the Zimbabwe National Statistics Agency, and the Biomedical Research and Training Institute, organized community mobilization to maximize community support and participation rates at the national and subnational levels. The mobilization began with a high-level national launch meeting, including key national and provincial leaders, mass media, and other stakeholders, before the survey fieldwork commenced. Community mobilization in each province involved a provincial launch that brought together provincial and local government authorities, chiefs, and religious and community leaders. District authorities and community 'gatekeepers' were also given information and the opportunity to discuss the survey. Provincial and district-level sensitization occurred at least two weeks before community mobilization teams moved to the EA.

An entertainment troupe performing the ZIMPHIA song for community mobilization in Harare.

Community mobilization teams visited each EA prior to initiation of data collection and partnered with community health workers to meet key gatekeepers in the communities (chiefs, local government officials, and religious and community leaders). The mobilization teams held community sensitization meetings, disseminated written informational materials such as brochures and posters, and held discussions with selected households and other community residents. They used road shows with drama and musical performances explaining the surveys to mobilize urban residents.

Supervision

Data-collection teams received continuous oversight from field-based provincial supervisors. They were also 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, verification of results by household revisits, and review of daily monitoring forms for household and individual outcome tracking for completeness. Field-based provincial supervisors also supported teams by organizing supplies and transport of blood samples, coordinated community-mobilization efforts, provided technological troubleshooting, and checked 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.

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 toward achievement of the target sample.

Questionnaire Data Collection

Questionnaire and field laboratory data were collected on mobile tablet devices using an application programmed in Open Data Kit, an open-source mobile data collection application. Through household interviews, ZIMPHIA field staff collected information on household residents, assets, economic support, recent deaths, and orphans and vulnerable children (see Appendix E). The adult interview was administered to participants aged 15 years and older and included modules on demographics, sexual and reproductive health, marriage, male circumcision, sexual activity, HIV/AIDS knowledge and attitudes, HIV testing and treatment history, tuberculosis (TB) and other health issues, alcohol use, and gender norms (see Appendix F). Participants who reported an HIV-positive status were asked questions about their HIV care experience. Parents also answered questions about their children's (ages 0-14 years) health and participation in HIV testing and care services as a part of the adult interview.

Young adolescents (those aged 10-14 years) also participated in an adolescent interview that included questions on demographic characteristics, HIV stigma, knowledge and risk perception, exposure to HIV prevention interventions, sexual behavior, social norms, HIV testing, alcohol and drugs, parental support, and violence (Appendix G).

In each household, one woman aged 15 years and older was also randomly selected to answer questions about her experiences with violence, and minors who reported being victims of sexual exploitation were provided with referrals to social services. Female participants were interviewed by female staff and male participants by male staff, whenever possible.

The questionnaire was administered in the three languages most commonly used in Zimbabwe. English, Shona, and Ndebele versions of the questionnaires were reviewed and tested thoroughly for acceptability, feasibility, and flow of questions.

2.4 Field-Based Biomarker Testing

Blood Collection

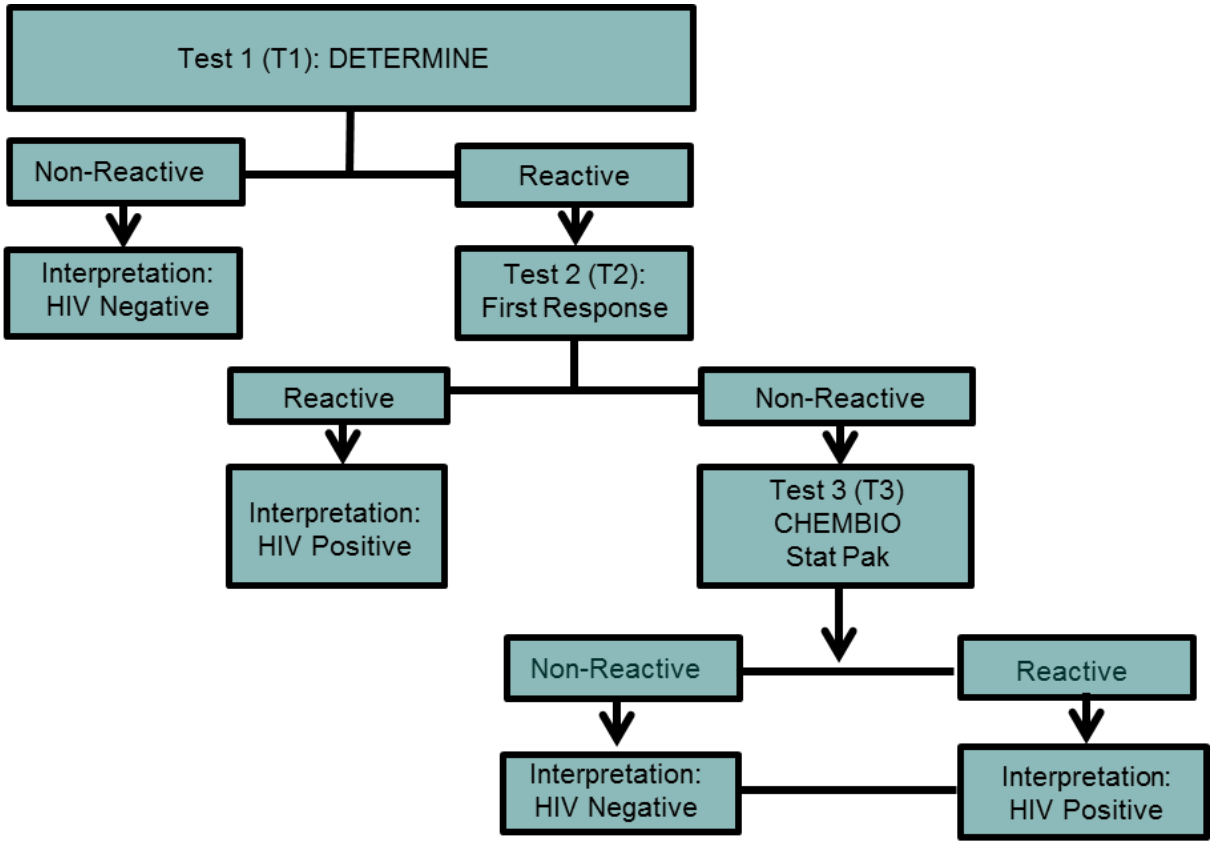
Blood was collected by qualified survey staff from consenting participants: 14 mL of venous blood from persons aged 15 years and older; 6 mL from persons aged 2-14 years; and 1 mL of capillary blood from children aged 0-2 years using finger-stick for children aged 6-24 months and heel-stick for children younger than 6 months of age.

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.

HIV Home-Based Testing and Counseling

HIV HBTC was conducted in each household using the national HIV rapid-test algorithm (Figure 2.4.A). 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) as a screening test, First Response® HIV 1-2.O Card Test (Premier Medical Corporation Ltd., Nani Daman, India) as a confirmatory test and HIV 1/2 Stat-Pak™ (Chembio Diagnostic Systems, Medford, New York, United States) as a tiebreaker test. Individuals with a nonreactive result on the screening test were reported as HIV negative. Individuals with a reactive screening test underwent confirmatory testing. Those with reactive results on both the screening and confirmatory tests were classified as HIV positive. Individuals with a reactive screening test result, followed by a nonreactive confirmatory test result, underwent a tiebreaker test. Individuals with a reactive tiebreaker test were classified as HIV positive. Those with a nonreactive tiebreaker test were classified as HIV negative.

Figure 2.4.A Household-based HIV testing algorithm in those aged 18 months and older, ZIMPHIA 2015-2016



HIV-seropositive participants were referred to HIV care and treatment services at a health facility of their choice. For minors aged 15 years and younger, results were provided to a parent or guardian.

For children under the age of 18 months, only the screening test (Determine) was performed in the field. If the test was reactive, HIV total nucleic acid (TNA) polymerase chain reaction (PCR) for virologic testing of HIV infection was performed in the reference laboratory, as described below (Section 2.5).

For participants who reported an HIV-positive status, but tested HIV-negative at the time of the survey, additional laboratory-based testing was conducted using HIV TNA PCR to confirm the status. In conjunction with the MOHCC, survey staff revisited these participants and health providers 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 each 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.

CD4 T-Cell Count Measurement

All participants who tested HIV positive during HBTC, and a random sample of 5% of those who tested HIV negative, received a CD4 count measurement in the field, by qualified survey staff. The measurement was performed using the Pima™ CD4 Analyzer (Abbott Molecular Inc., Chicago, IL, USA, formerly Alere).

Syphilis Testing

Syphilis testing was conducted in each household among adults aged 15 years and older using the Chembio DPP Syphilis Screen & Confirm Assay for the simultaneous detection of antibodies against nontreponemal and *Treponema pallidum* antigens. The test distinguished between active syphilis infection (positive for both Treponemal and nontreponemal antibodies) and previous infection (positive for Treponemal antibodies only). QC, using a panel of syphilis-positive and negative DTS, was performed on a weekly basis by field staff performing the testing.

Anthropometric Assessment

Height and weight measurements were obtained for all children under the age of five years who tested HIV positive during HBTC. For the purpose of comparison, 5.0% of HIV-negative children younger than the five years of age also underwent this assessment. Weight was measured with a flat, electronic SECA 874 Mother and Baby scale (SECA North America, Chino, California, United States). To weigh a very young child, an adult was weighed first separately and again holding the child. Height was measured with a Shorr Board® (Shorr Productions LLC, Olney, Maryland, United States) measuring board. Children younger than 24 months of age were measured lying down on the board (recumbent position), while standing height was measured for older children.

Children's height/length, weight, and age data were used to calculate two indices: height-for-age and weight-for-age. Standard deviations (SDs) and *z* scores were based on the World Health Organization (WHO) child growth standards (http://www.who.int/childgrowth/standards/en/). These provide reference medians and SDs for height and weight by age in days. After converting ages from months into days and correcting heights for the measurement position (standing or recumbent), *z* scores were calculated using this reference data.

2.5 Laboratory-Based Biomarker Testing

Satellite and Central Laboratories

Satellite laboratories for the survey were established in existing MOHCC laboratories. Central referral laboratories in Zimbabwe were chosen for more specialized tests. At each satellite laboratory, trained technicians performed processing of whole blood into plasma aliquots and DBS samples for storage at -20°C, testing for QA, and HIV confirmatory testing. For QA of the HIV rapid testing conducted in the field, the first 50 samples tested by each field tester, and, subsequently, all indeterminate samples, as well as a random sample of 5.0% of specimens that tested HIV negative 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 or indeterminate 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. Central laboratory procedures included HIV VL testing; HIV TNA PCR for infant virologic testing; and confirmation of status of those who self-reported an HIV-positive status, but tested negative in HBTC; HIV recency testing; and long-term storage of samples at -80°C.

Viral Load Testing

HIV-1 VL (viral copies per mL) of HIV-positive participants was measured using the Abbott m2000 System (Abbott Molecular Inc., Chicago, Illinois, United States). The Abbott m2000 System consists of two separate instruments, the m2000sp (which carries out automated extraction, purification, and preparation of HIV-1 RNA), and the m2000rt (which amplifies, detects, and measures the HIV-1 RNA load). The NucliSENS easyQ® platform (bioMerieux, Marcy l'Etoile, France) was used to measure VL from DBS samples from children and from adults with insufficient volume of plasma.

Viral load results were returned within 10 weeks to the health facility chosen by each HIV-positive participant. Participants were provided with a referral form during HBTC for subsequent retrieval of their results. Survey staff also contacted each participant via text message (SMS), informing them that their VL results were available at the chosen facility and further advising them to seek care and treatment.

Infant HIV Virological Testing

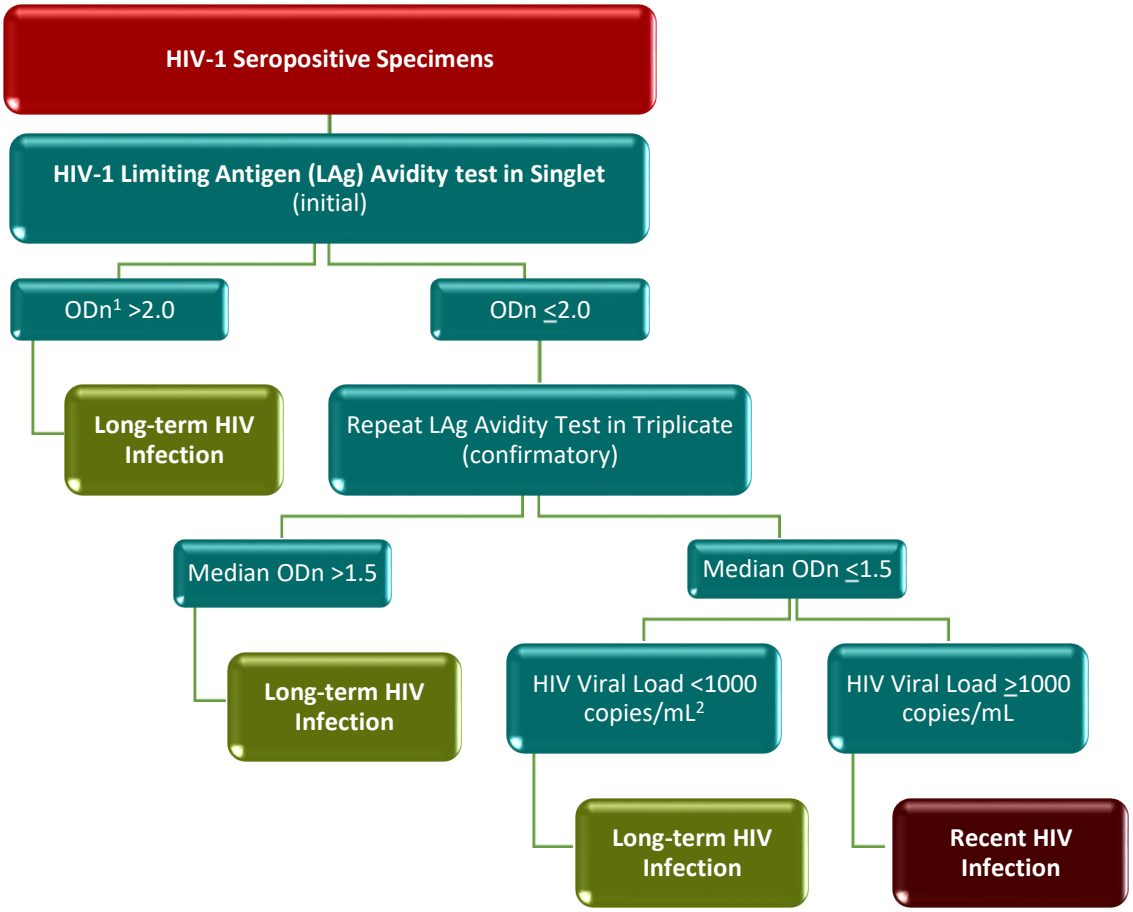
For infants under the age of 18 months, HIV virological testing was conducted only for those who screened reactive for exposure to HIV by rapid test during HBTC, via HIV TNA PCR using the COBAS® AMPLICOR HIV-1 MONITOR Test v1.5 (Roche Molecular Systems, Inc., Branchburg, New Jersey, United States) (Note: The limitations of using rapid tests to identify all HIV-exposed infants are described in Appendix B). Results were returned to a health facility selected by the child's parent or guardian within six to eight weeks. Survey staff also contacted parents or guardians to inform them when their children's results were available at the facility. In cases where the PCR test was positive, indicating imminent risk to the child, survey staff returned to the household to provide active linkage to care.

HIV Recency Testing

To distinguish recent from long-term HIV infections, in order to estimate incidence, the survey used two different laboratory-based testing algorithms. Each algorithm employed a combination of assays: 1) HIV-1 LAg-Avidity EIA (Sedia Biosciences Corporation, Portland, Oregon, United States) and VL (Figure 2.5.A) and 2) HIV-1 LAg-Avidity EIA, VL, and ARV detection (Figure 2.5.B), as described in Appendix B.

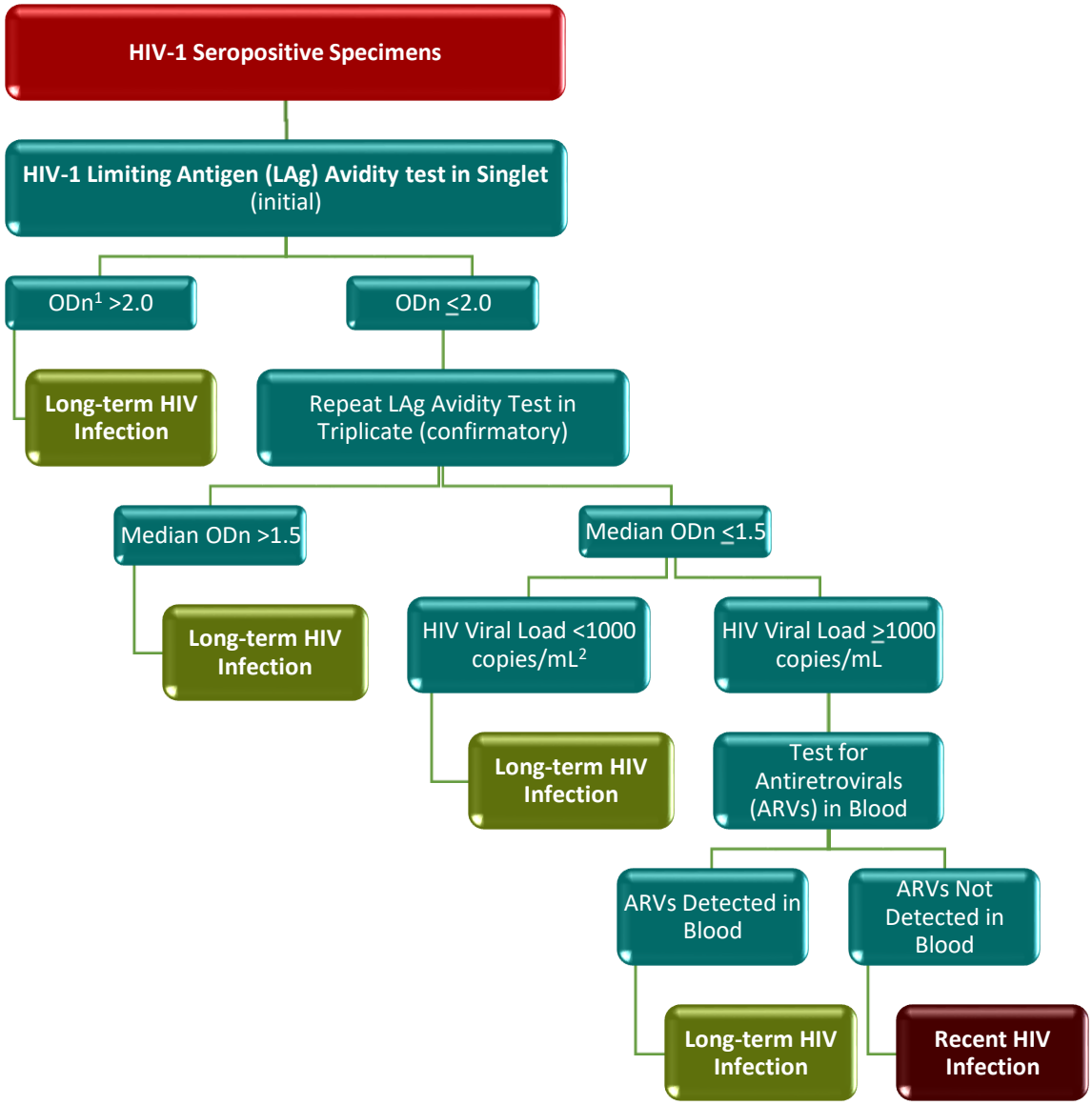
Specimens with median normalized optical density (ODn) ≤ 1.5 were classified as potential recent infections, and their VL results were assessed. Specimens with VL < 1,000 copies/mL were classified as long-term infections, while those with VL ≥ 1,000 copies/mL were classified as recent infections (Figure 2.5.A). In the ARV-adjusted algorithm, specimens with VL ≥ 1,000 copies/mL and with detectable ARVs were classified as long-term infections. Specimens with VL ≥ 1,000 copies/mL and without detectable ARVs were classified as recent infections.

Figure 2.5.A HIV-1 recent infection testing algorithm (limiting antigen/viral load algorithm), ZIMPHIA 2015-2016



[1]ODn: normalized optical density; [2]mL: milliliter

Figure 2.5.B HIV-1 recent infection testing algorithm (limiting antigen/viral load/antiretroviral detection algorithm), ZIMPHIA 2015-2016



[1]ODn: normalized optical density; [2]mL: milliliter

Detection of Antiretroviral Drug Resistance

HIV resistance to ARVs was assessed for all those HIV-positive participants aged 18 months and older classified as recent HIV infections and a small subset of confirmed long-term infections. In addition, all infants under the age of 18 months, with confirmed infection, were evaluated to determine vertical transmission of ARV-resistant HIV. Mutations in the HIV protease and reverse transcriptase genes that confer ARV drug resistance (according to the Stanford drug resistance database) were detected simultaneously by use of the CDC in-house multiplex allele-specific drug resistance assay.

Detection of Antiretrovirals

Qualitative screening, for detectable concentrations of ARVs, was conducted on DBS specimens from all HIV-positive adults and children 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, three ARVs were selected as markers for the most commonly prescribed first- and second-line regimens: efavirenz, nevirapine, and lopinavir. These ARVs were also selected based on their relatively long half-lives, allowing for a longer period of detection following intake.

Detection of ARVs is considered indicative of participant use of a given drug at the time of blood collection. Results below the limit of detection among individuals who reported taking ART indicated that there was no recent exposure to the regimen and that adherence to a prescribed regimen was sub-optimal, but could not 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 in 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 are adjusted for nonresponse and noncoverage. Nonresponse adjusted weights were calculated for households, individual interviews, and individual blood draws in a hierarchical form. Adjustment for nonresponse for initial individual and blood-level weights was based on the development of weighting adjustment cells defined by a combination of variables that are potential predictors of response and HIV status. The nonresponse adjustment cells were constructed using the chi-square automatic interaction detection 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. The 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 five-year age groups.

Descriptive analyses of RRs, characteristics of respondents, HIV prevalence, CD4 count distribution, HIV testing, self-reported HIV status, self-reported ART use, VLS, 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 algorithm as well as the HIV-1 LAg avidity plus VL plus ARV detection algorithm, and obtained using the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays, 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.

2.7 Response Rates

Household RRs 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). 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 for those aged 10-64 years were calculated as the number of individuals who provided blood divided by the number of individuals who were interviewed. Blood draw RRs for children aged 0-10 years were calculated as the number of individuals who provided blood divided by the number of children eligible to participate in the survey.

Of the 15,009 selected households, 13,828 and 11,717 were occupied and interviewed, respectively. The overall household RR was 83.9%: 77.9% in urban areas and 86.9% in rural areas (Table 2.7.A).

Table 2.7.A Household response rates

Number of households selected, occupied, and interviewed and household response rates (unweighted and weighted), by residence, ZIMPHIA 2015-2016

	Residence		
Result	Urban	Rural	Total
Household interviews			
Households selected	4,632	10,377	15,009
Households occupied	4,419	9,409	13,828
Households interviewed	3,481	8,236	11,717
Household response rate[1] (unweighted)	78.1	86.7	83.9
Household response rate[1] (weighted)	77.9	86.9	83.9

[1]Household response rate was calculated using the American Association for Public Opinion Research (AAPOR) Response Rate 4 (RR4) method: http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf.

A total of 11,098 men and 14,033 women aged 15-64 years were eligible to participate in ZIMPHIA. Weighted interview RRs were 82.3% for men and 93.9% for women aged 15-64 years. For men and women in this age bracket, nine out of 10 (90.2% and 91.8%, respectively) persons who were interviewed also had their blood drawn (Table 2.7.B).

For young adolescents, weighted RRs were similar between boys (78.0%) and girls (79.6%) for interviews as well as blood draws (94.3% and 94.5%, respectively). About three-quarters of eligible children aged 0-9 years (72.2% for boys and 71.9% for girls) had their blood drawn (Table 2.7.B).

Table 2.7.B 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 2015-2016

	Residence					
	Urban		Rural		Total	
Result	Male	Female	Male	Female	Male	Female
Eligible individuals, age 0-9 years						
Number of eligible individuals	795	841	2,455	2,508	3,250	3,349
Blood draw response rate (unweighted)	69.7	65.9	73.6	74.6	72.7	72.4
Blood draw response rate (weighted)	68.2	64.4	73.8	74.8	72.2	71.9
Eligible individuals, age 10-14 years						
Number of eligible individuals	283	308	1,211	1,198	1,494	1,506
Interview response rate (unweighted)	74.6	76.3	79.7	80.5	78.7	79.6
Interview response rate (weighted)	72.5	75.9	79.6	80.7	78.0	79.6
Blood draw response rate (unweighted)	91.5	92.8	95.3	94.9	94.6	94.5
Blood draw response rate (weighted)	91.5	92.6	95.1	95.0	94.3	94.5
Eligible individuals, age 15-24 years						
Number of eligible individuals	1,112	1,603	3,041	2,987	4,153	4,590
Interview response rate (unweighted)	81.9	93.4	84.6	92.4	83.9	92.7
Interview response rate (weighted)	81.0	92.8	85.1	92.5	83.8	92.6
Blood draw response rate (unweighted)	89.6	91.9	91.5	92.6	91.0	92.3
Blood draw response rate (weighted)	89.3	91.8	91.4	92.4	90.7	92.2
Eligible individuals, age 15-49 years						
Number of eligible individuals	2,955	4,129	6,747	7,677	9,702	11,806
Interview response rate (unweighted)	72.9	92.7	86.9	94.6	82.7	93.9
Interview response rate (weighted)	71.1	92.1	87.0	94.6	81.5	93.6
Blood draw response rate (unweighted)	89.0	91.4	90.8	92.6	90.3	92.2
Blood draw response rate (weighted)	88.9	91.2	90.6	92.4	90.0	91.9
Eligible individuals, age 15-64 years						
Number of eligible individuals	3,294	4,638	7,804	9,395	11,098	14,033
Interview response rate (unweighted)	73.3	92.9	87.9	94.8	83.5	94.2
Interview response rate (weighted)	71.5	92.2	87.8	94.9	82.3	93.9
Blood draw response rate (unweighted)	89.0	91.0	91.1	92.7	90.6	92.2
Blood draw response rate (weighted)	88.7	90.6	90.9	92.5	90.2	91.8

[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.

2.8 References

1. Zimbabwe National Statistics Agency and ICF International. *Zimbabwe Demographic and Health Survey 2015: Final Report.* Rockville, Maryland, USA: Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International, 2016.

2. Koal T, Burhenne H, Römling R, Svoboda M, Resch K, Kaever V. Quantification of antiretroviral drugs in dried blood spot samples by means of liquid chromatography/tandem mass spectrometry. *Rapid Commun Mass Spectrom*. 2005;19(21):2995-3001.

3. The American Association for Public Opinion Research (AAPOR). *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys.* 9th edition. AAPOR; 2016. http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf. Accessed October 3, 2018.

3 SURVEY HOUSEHOLD CHARACTERISTICS

3.1 Key Findings

- In Zimbabwe, 24.3% of households had at least one HIV-positive household member.
- Among female and male-headed households, 21.4% and 16.9%, respectively, had an HIV-positive head of household.

3.2 Background

This chapter describes the characteristics of households surveyed in ZIMPHIA. 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 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 member.

3.3 Household Composition

Overall, 52.2% of households in Zimbabwe were male-headed. In urban areas, 56.5% of the households were female-headed, while in rural areas, 56.5% of households were male-headed. The median household size was four members, and the median number of minors younger than 18 years of age was two (Table 3.3.A).

Table 3.3.A Household composition

Percent distribution of households by sex of head of household; median size of household and median (Q1, Q3) number of children under the age of 18 years, by residence, ZIMPHIA 2015-2016

	Residence					
	Urban		Rural		Total	
Characteristic	Percent	Number	Percent	Number	Percent	Number
Household headship						
Male	43.5	1,458	56.5	4,619	52.2	6,077
Female	56.5	2,023	43.5	3,617	47.8	5,640
Total	100.0	3,481	100.0	8,236	100.0	11,717

	Residence					
	Urban		Rural		Total	
Characteristic	Median	Q1, Q3	Median	Q1, Q3	Median	Q1, Q3
Size of households	3	(2, 5)	4	(3, 6)	4	(2, 5)
Number of children under 18 years of age	1	(0, 2)	2	(1, 3)	2	(0, 3)

The age and sex distribution of the de facto household population is illustrated by a population pyramid (Figure 3.3.A). Children (ages 0-14 years) made up 40.3% (20.0% boys and 20.3% girls) of the population. Adolescents aged 10-19 years made up 23.0% (11.5% boys and 11.6% girls) of the total population. Those aged 15-49 years represented 47.2% of the population (21.4% men and 25.8% women). Adults aged 50 years and older were 12.5% of the population (5.1% men and 7.5% women). More than half (51.0%) of the population were aged 0-19 years (25.4% boys and 25.7% girls) (Table 3.3.B).

Figure 3.3.A Distribution of the de facto population by age and sex, ZIMPHIA 2015-2016

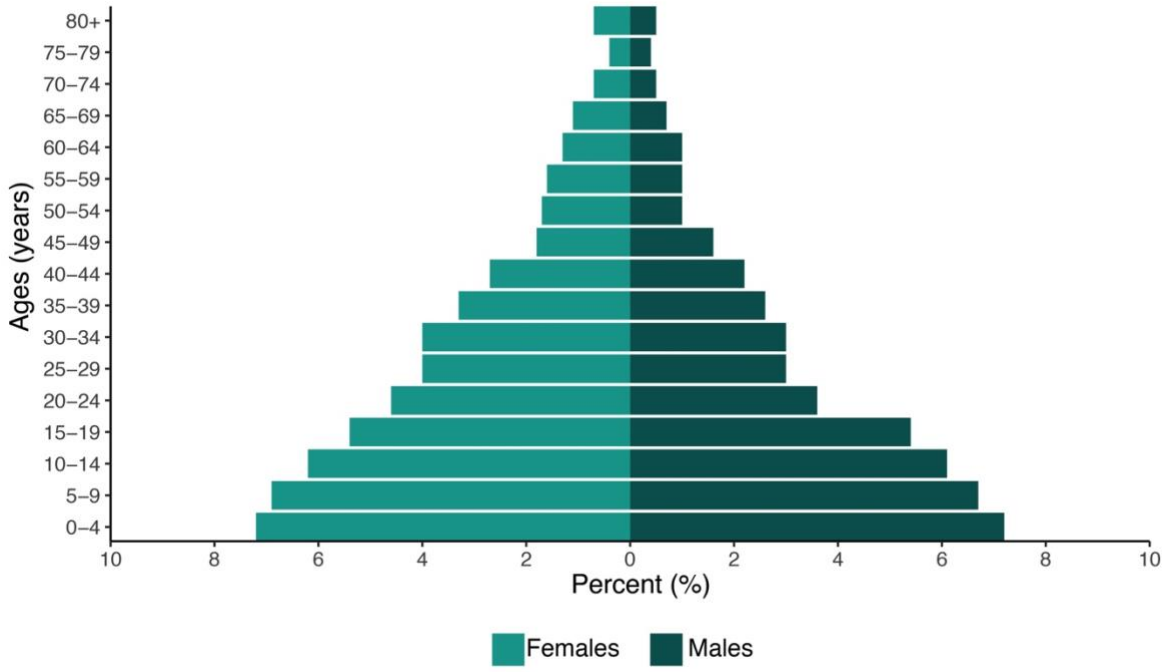


Table 3.3.B Distribution of de facto household population

Percent distribution of the de facto household population, by five-year age groups and sex, ZIMPHIA 2015-2016

	Male		Female		Total	
Age	Percent	Number	Percent	Number	Percent	Number
0-4	7.2	3,360	7.2	3,383	14.4	6,743
5-9	6.7	3,179	6.9	3,285	13.6	6,464
10-14	6.1	2,927	6.2	2,979	12.3	5,906
15-19	5.4	2,554	5.4	2,499	10.7	5,053
20-24	3.6	1,630	4.6	2,111	8.2	3,741
25-29	3.0	1,365	4.0	1,835	7.1	3,200
30-34	3.0	1,348	4.0	1,794	7.0	3,142
35-39	2.6	1,160	3.3	1,526	5.9	2,686
40-44	2.2	999	2.7	1,215	4.9	2,214
45-49	1.6	713	1.8	858	3.4	1,571
50-54	1.0	465	1.7	798	2.6	1,263
55-59	1.0	473	1.6	788	2.6	1,261
60-64	1.0	468	1.3	642	2.3	1,110
65-69	0.7	363	1.1	516	1.8	879
70-74	0.5	243	0.7	334	1.2	577
75-79	0.4	192	0.4	212	0.8	404
≥80	0.5	239	0.7	333	1.2	572
Total	46.5	21,678	53.5	25,108	100.0	46,786

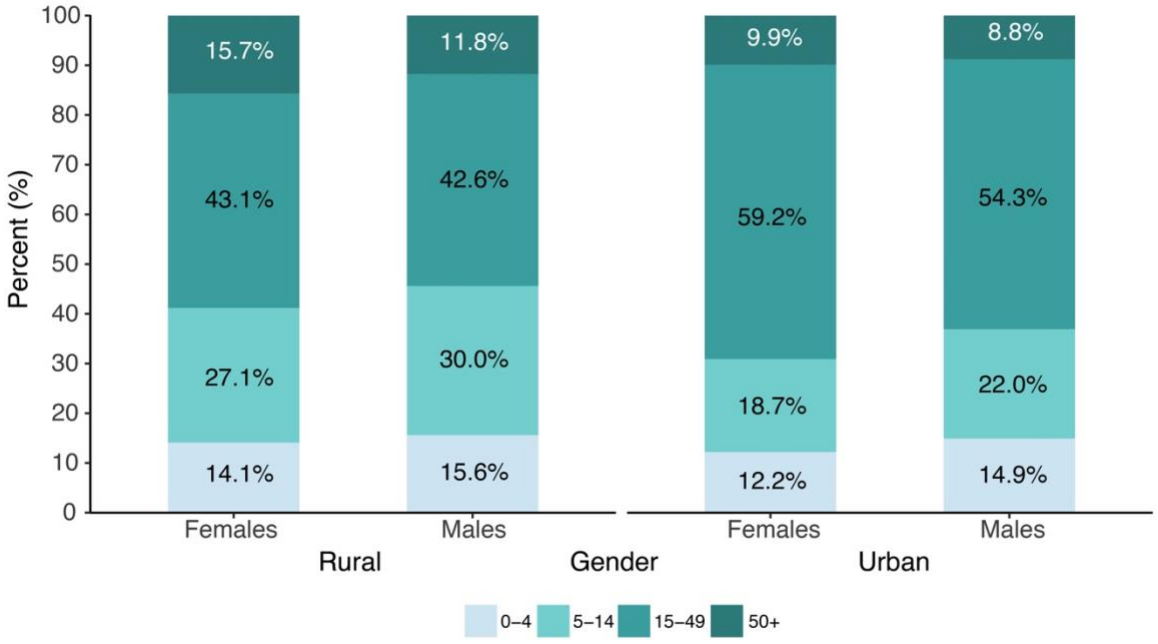
Table 3.3.C describes the de facto household population and shows the age- and sex-specific percent distributions (weighted) of persons residing in urban and rural households. The percentage of children aged 0-4 years was relatively similar in urban and rural households (13.4% and 14.8%, respectively). The percentage of children aged 5-14-years was 20.2% in urban households and 28.5% in rural households. In contrast, the percentage of persons aged 15-49-years was 57.0% in urban households and 42.8% in rural households. The percentage of adults aged 50 years and older was 9.4% in urban households and 13.9% in rural households. Age-specific distributions of males and females within urban and rural households were relatively similar to overall age-specific distributions (Table 3.3.C; Figure 3.3.B).

Table 3.3.C De facto household population by age, sex, and residence

Percent distribution of the household population, by sex, age, and residence, ZIMPHIA 2015-2016

	Urban					
	Male		Female		Total	
Age	Percent	Number	Percent	Number	Percent	Number
0-4	14.9	840	12.2	860	13.4	1,700
5-14	22.0	1,246	18.7	1,348	20.2	2,594
15-49	54.3	2,968	59.2	4,136	57.0	7,104
≥50	8.8	503	9.9	724	9.4	1,227
Total	100.0	5,557	100.0	7,068	100.0	12,625
	Rural					
	Male		Female		Total	
Age	Percent	Number	Percent	Number	Percent	Number
0-4	15.6	2,520	14.1	2,523	14.8	5,043
5-14	30.0	4,860	27.1	4,916	28.5	9,776
15-49	42.6	6,801	43.1	7,702	42.8	14,503
≥50	11.8	1,940	15.7	2,899	13.9	4,839
Total	100.0	16,121	100.0	18,040	100.0	34,161

Figure 3.3.B Household population by age, sex, and residence, ZIMPHIA 2015-2016



3.4 Prevalence of HIV-Affected Households

Nationwide, approximately one in four households (24.3%) had at least one HIV-positive household member. The proportion of households affected by HIV was similar across areas of residence with 23.8% of rural households and 25.3% of urban households having at least one HIV-positive household member (Table 3.4.A, Figure 3.4.A). About three-quarters (74.1%) of households affected by HIV had only one HIV-positive member while a quarter (25.7%) had two or more members who were HIV positive. Nearly one quarter (22.7%) of households affected by HIV had two HIV-positive household members while only a small fraction (3.0%) had three or more HIV-positive members (Table 3.4.B).

Among all households in Zimbabwe, 19.2% had an HIV-positive head of household. Just over one in five (21.4%) female-headed households had an HIV-positive head of household, while 16.9% of male-headed households had an HIV-positive head of household (Table 3.4.C, Figure 3.4.C).

Table 3.4.A Prevalence of HIV-affected households

Percentage of households with at least one HIV-positive household member, by residence, ZIMPHIA 2015-2016

Residence	Percent	Number
Urban	25.3	3,217
Rural	23.8	7,680
Total	24.3	10,897

Figure 3.4.A Prevalence of HIV-affected households by residence, ZIMPHIA 2015-2016

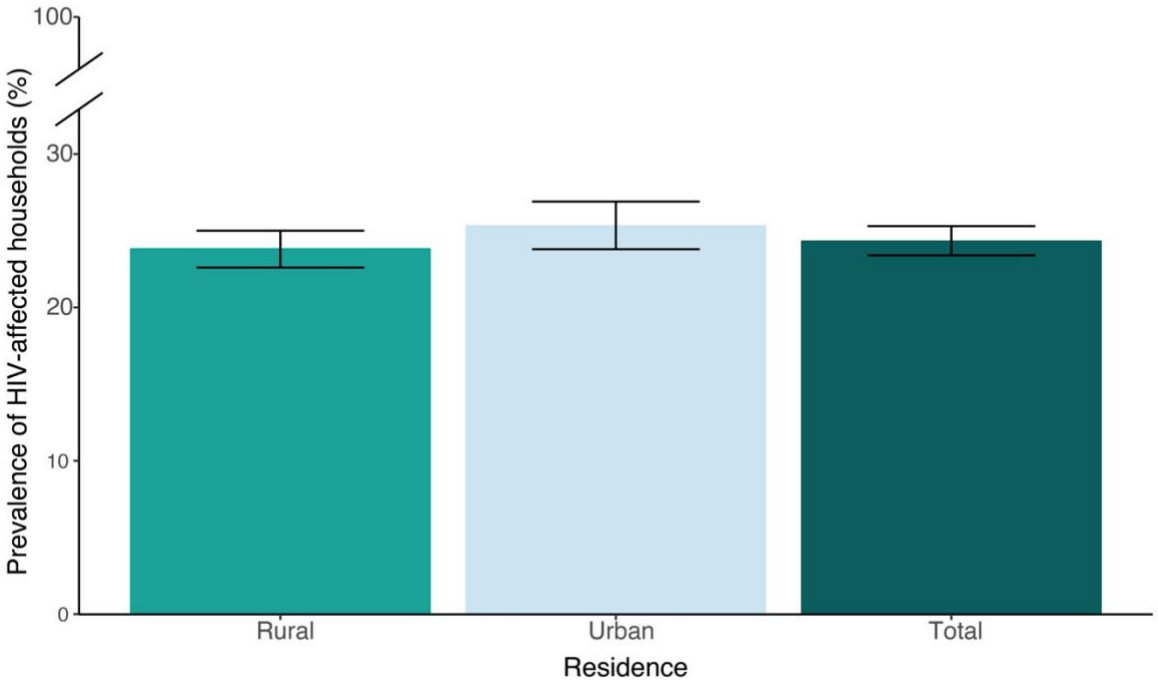


Table 3.4.B HIV-affected households by number of HIV-positive members

Among households with at least one HIV-positive household member, percent distribution of households by number of HIV-positive household members, by residence, ZIMPHIA 2015-2016

	Residence					
	Urban		Rural		Total	
Number of HIV-positive household members	Percent	Number	Percent	Number	Percent	Number
1	77.6	675	72.2	1,378	74.1	2,053
2	19.0	170	24.6	477	22.7	647
3	*	19	3	65	3.0	84
4	*	6	*	1	*	7
5	*	0	*	0	*	0
≥6	*	0	*	0	*	0
Total	100.0	870	100.0	1,921	100.0	2,791

Figure 3.4.B HIV-affected households by number of HIV-positive members and residence, ZIMPHIA 2015-2016

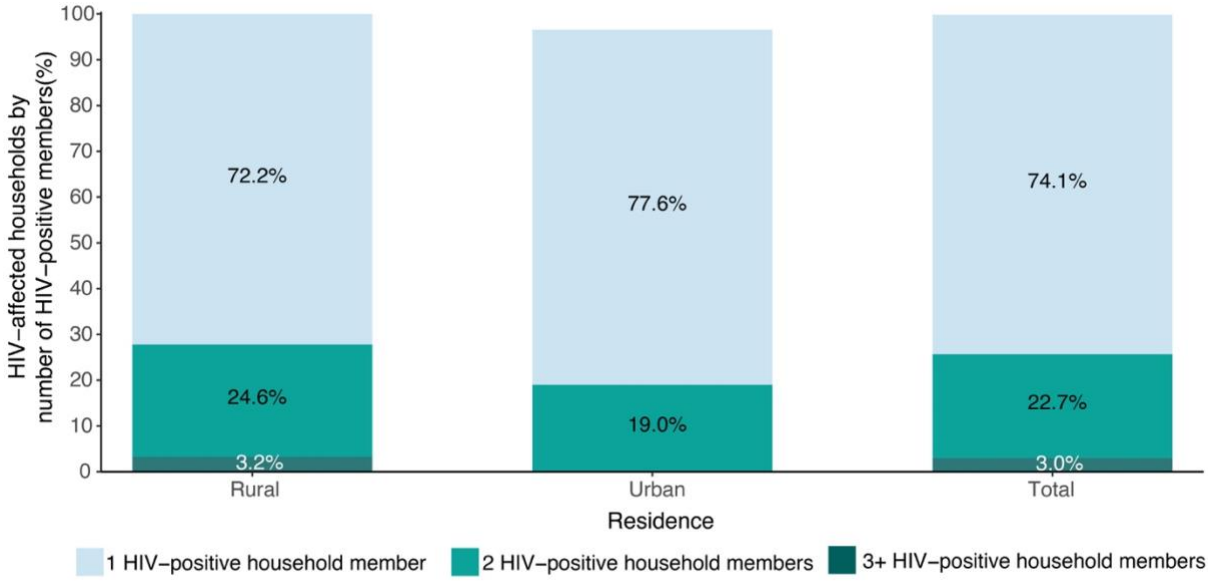
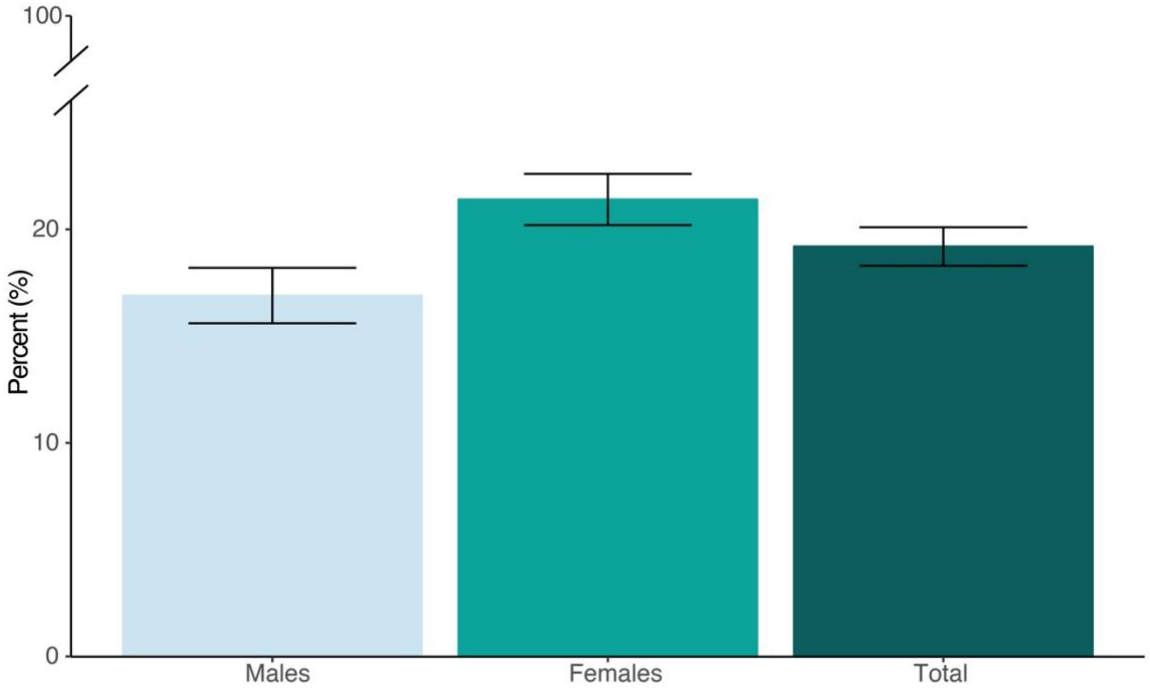


Table 3.4.C Prevalence of households with an HIV-positive head of household

Percentage of households with an HIV-positive head of household, by sex of head of household, ZIMPHIA 2015-2016

Sex of head of household	Percent	Number
Male	16.9	4,832
Female	21.4	4,949
Total	19.2	9,781

Figure 3.4.C Prevalence of households with an HIV-positive head of household by sex, ZIMPHIA 2015-2016



4 SURVEY RESPONDENT CHARACTERISTICS

4.1 Key Findings

- Almost two-thirds (64.2%) of the population surveyed lived in rural areas.
- The distribution by province of young adolescents, those aged 10-14 years, ranged from 3.6% in Bulawayo to 15.2% in Manicaland. Approximately 10% of the pediatric population were infants under the age of 18 months, while children aged 18-59 months, children aged 5-9 years, and young adolescents each represented approximately 30% of the pediatric population.

4.2 Background

The ZIMPHIA survey assessed key HIV-related indicators and outcomes for children (ages 0-14 years), young adolescents (ages 10-14 years), and adults (defined as the population aged 15-64 years). To provide context for these outcomes, this chapter summarizes the basic demographic and socioeconomic characteristics of survey respondents. In this report, most key indicators are stratified according to these characteristics.

4.3 Demographic Characteristics of the Adult Population

Almost two-thirds (64.2%) of the adult population lived in rural areas. The largest proportion (63.4%) of participants had secondary education, while the smallest proportion (2.3%) had no education. The proportion of women with no education (3.4%) was three times greater than that of men (1.1%). The Apostolic Sect was the largest religious group, constituting nearly a third (31.7%) of the population (Table 4.3.A).

Table 4.3.A Demographic characteristics of the adult population

Percent distribution of the population aged 15-64 years, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percent	Number	Percent	Number	Percent	Number
Residence						
Urban	34.0	2,415	37.3	4,308	35.8	6,723
Rural	66.0	6,856	62.7	8,911	64.2	15,767
Province						
Bulawayo	5.6	737	6.5	1,360	6.1	2,097
Manicaland	12.1	1,006	12.4	1,397	12.3	2,403
Mashonaland Central	9.9	1,089	8.4	1,285	9.1	2,374
Mashonaland East	11.6	997	9.7	1,128	10.6	2,125
Mashonaland West	14.2	1,241	11.8	1,445	12.9	2,686
Matabeleland North	4.9	858	5.3	1,274	5.1	2,132
Matabeleland South	4.7	691	5.1	1,040	4.9	1,731
Midlands	10.2	859	11.6	1,379	10.9	2,238
Masvingo	9.6	950	10.7	1,446	10.2	2,396
Harare	17.3	843	18.6	1,465	18.0	2,308
Marital status						
Never married	41.2	3,744	23.6	2,892	31.9	6,636
Married or living together	53.4	4,989	59.5	7,901	56.6	12,890
Divorced or separated	4.3	395	8.7	1,131	6.6	1,526
Widowed	1.1	129	8.3	1,276	4.9	1,405

Table 4.3.A Demographic characteristics of the adult population (continued)

Percent distribution of the population aged 15-64 years, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percent	Number	Percent	Number	Percent	Number
Education						
No education	1.1	133	3.4	551	2.3	684
Primary	23.8	2,584	28.4	4,196	26.2	6,780
Secondary	65.0	5,783	62.0	7,757	63.4	13,540
More than secondary	10.2	762	6.3	707	8.1	1,469
Wealth quintile						
Lowest	19.4	2,214	19.4	3,045	19.4	5,259
Second	20.1	2,043	19.3	2,716	19.7	4,759
Middle	20.6	1,978	18.1	2,394	19.3	4,372
Fourth	19.2	1,481	19.7	2,260	19.5	3,741
Highest	20.7	1,555	23.5	2,804	22.1	4,359
Religion						
Traditional	2.8	303	0.8	127	1.8	430
Roman Catholic	9.0	801	7.4	973	8.2	1,774
Protestant	14.6	1,335	17.3	2,272	16.0	3,607
Pentecostal	16.9	1,416	23.8	2,960	20.6	4,376
Apostolic Sect	27.7	2,614	35.4	4,739	31.7	7,353
Other Christian	7.6	716	8.9	1,273	8.3	1,989
Muslim	(0.5)	42	0.4	54	0.5	96
Other	0.8	76	0.6	99	0.7	175
None	20.0	1,956	5.3	719	12.3	2,675
Age						
15-19	21.2	2,112	19.2	2,275	20.1	4,387
20-24	16.8	1,373	16.0	1,982	16.4	3,355
25-29	13.4	1,077	14.9	1,728	14.2	2,805
30-34	12.9	1,076	13.6	1,697	13.3	2,773
35-39	10.8	943	10.4	1,444	10.6	2,387
40-44	8.7	831	8.0	1,145	8.3	1,976
45-49	6.1	608	5.4	819	5.7	1,427
50-54	3.7	414	4.3	759	4.0	1,173
55-59	3.3	414	4.6	756	4.0	1,170
60-64	3.2	423	3.5	614	3.4	1,037
Total 15-24	38.0	3,485	35.2	4,257	36.5	7,742
Total 15-49	89.8	8,020	87.6	11,090	88.6	19,110
Total 15-64	100.0	9,271	100.0	13,219	100.0	22,490

Note: Education categories refer to the highest level of education attended, whether or not that level was completed. Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

4.4 Demographic Characteristics of the Young Adolescent Population

More than three-quarters (78.2%) of young adolescents resided in rural areas. Among the young adolescent population, 5.1% were not currently attending school (Table 4.4.A). The distribution of young adolescents by province ranged from 3.6% in Bulawayo to 15.2% in Manicaland.

Table 4.4.A Demographic characteristics of the young adolescent population

Percent distribution of the population aged 10-14 years, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Male		Female		Total	
Characteristic	Percent	Number	Percent	Number	Percent	Number
Residence						
Urban	20.7	211	22.8	235	21.8	446
Rural	79.3	965	77.2	964	78.2	1,929
Province						
Bulawayo	3.4	68	3.7	77	3.6	145
Manicaland	15.1	161	15.2	165	15.2	326
Mashonaland Central	10.7	127	10.8	125	10.8	252
Mashonaland East	13.0	134	12.3	133	12.6	267
Mashonaland West	14.9	159	10.4	122	12.6	281
Matabeleland North	5.6	119	6.6	138	6.1	257
Matabeleland South	6.2	106	5.5	99	5.9	205

Table 4.4.A Demographic characteristics of the young adolescent population (continued)

Percent distribution of the population aged 10-14 years, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Male		Female		Total	
	Percent	Number	Percent	Number	Percent	Number
Province (cont.)						
Matabeleland South	6.2	106	5.5	99	5.9	205
Midlands	9.0	85	10.7	96	9.9	181
Masvingo	11.9	148	12.1	156	12.0	304
Harare	10.2	69	12.6	88	11.4	157
Education						
Currently attending	94.2	1,109	95.6	1,143	94.9	2,252
Not currently attending school	5.8	67	4.4	56	5.1	123
Total 10-14	100.0	1,176	100.0	1,199	100.0	2,375

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

4.5 Demographic Characteristics of the Pediatric Population

Table 4.5.A describes the demographic distribution of children in Zimbabwe. Nearly 10% of the pediatric population were aged 0-17 months, while children aged 18-59 months, children aged 5-9 years, and young adolescents aged 10-14 years each represented approximately 30% of the pediatric population. Nearly three-fourths (73.8%) of the children lived in rural areas, while only one-fourth (26.2%) lived in urban areas. Bulawayo (4.5%) had the smallest proportion of children, while Manicaland (14.5%) had the largest. Children living in the poorest households (27.1%) accounted for the largest proportion of the pediatric population, while those living in the wealthiest households (13.8%) represented the smallest proportion. Demographic distributions were relatively similar for boys and girls.

Table 4.5.A Demographic characteristics of the pediatric population

Percent distribution of the population aged 0-14 years, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Male		Female		Total	
	Percent	Number	Percent	Number	Percent	Number
Age						
0-17 months	9.9	411	9.9	409	9.9	820
18-59 months	28.6	1,155	28.7	1,185	28.7	2,340
5-9 years	32.5	1,444	32.5	1,517	32.5	2,961
10-14 years	29.0	1,176	28.9	1,199	28.9	2,375
Residence						
Urban	25.9	947	26.5	1,012	26.2	1,959
Rural	74.1	3,239	73.5	3,298	73.8	6,537
Province						
Bulawayo	4.2	284	4.9	340	4.5	624
Manicaland	14.5	516	14.4	527	14.5	1,043
Mashonaland Central	9.9	465	10.8	493	10.4	958
Mashonaland East	11.5	419	10.5	403	11.0	822
Mashonaland West	14.0	535	11.9	482	12.9	1,017
Province (cont.)						
Matabeleland North	6.2	445	6.2	465	6.2	910
Matabeleland South	5.9	365	5.4	344	5.7	709
Midlands	9.9	357	11.0	395	10.5	752
Masvingo	10.5	454	11.5	513	11.0	967
Harare	13.4	346	13.3	348	13.4	694
Wealth quintile						
Lowest	27.2	1,318	27.0	1,321	27.1	2,639
Second	23.2	960	23.0	1,014	23.1	1,974
Middle	19.7	795	18.9	774	19.3	1,569
Fourth	17.2	613	16.2	604	16.7	1,217
Highest	12.7	500	14.9	597	13.8	1,097
Total 0-4	38.5	1,566	38.7	1,594	38.6	3,160
Total 0-14	100.0	4,186	100.0	4,310	100.0	8,496

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

5 HIV INCIDENCE

5.1 Key Findings

- Annual incidence of HIV among adults (ages 15-64 years) in Zimbabwe was 0.42%: 0.33% among men and 0.50% among women.

5.2 Background

HIV prevalence is a measure of the relative burden of disease in a population, but is not optimal for measuring acute changes in an HIV epidemic, including changes in HIV transmission. HIV incidence is the measure of the rate of new HIV infections in a population over time. It can provide important information on the status of the HIV epidemic and can be used for effective, targeted HIV prevention planning for 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 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. It is important to note that ZIMPHIA was not powered to estimate incidence at the provincial level or across different sub-groups.

Two laboratory-based incidence-testing algorithms (HIV-1 LAg avidity plus VL and HIV-1 LAg avidity plus VL and ARV detection) were used to distinguish recent from long-term infections. Incidence estimates were 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 an MDRI = 130 days (95% CI: 118, 142), with T = 1.0 year and residual PFR = 0.00. Survey weights were utilized for all estimates. All HIV-positive participants aged 18 months and older were tested for recent infection using HIV-1 LAg avidity assay.

Incidence estimation was based on recent/long-term classification using algorithms with LAg avidity.[1,2,3] The original algorithm incorporated VL results to mitigate misclassification from persons who may be elite controllers[1] or on ART—both groups characterized by low VL. As ART coverage has increased, it has become apparent that some individuals on treatment for long-periods of time have the potential to be misclassified by the LAg plus VL algorithm as a recent infection. Although they may have had VLS for years, drug resistance or lack of adherence may result in VL ≥ 1000 copies/mL. Based in part on data from multiple PHIA surveys, the updated incidence algorithm includes ARV detection as a second exclusion criterion. The addition of ARV detection is expected to produce more accurate estimates of both HIV incidence and transmitted HIV drug resistance.

5.3 HIV Incidence Among Adults

HIV incidence estimates using LAg avidity and HIV viral load

Using the LAg avidity assay and VL algorithm, annual HIV incidence among adults in Zimbabwe was 0.47% (0.33% among men and 0.60% among women). This corresponds to 47 new infections per 10,000

[1] Elite controllers are a small subset of individuals living with HIV whose immune systems are able to maintain VLS without treatment.

adults per year, which represents approximately 33,000 new cases of HIV per year (Table 5.3.A). The difference by sex in the incidence estimates was not statistically significantly different; ZIMPHIA was not designed to compare incidence estimates across demographic sub-groups (Table 5.3.A).

HIV incidence estimates using LAg avidity, HIV viral load, and ARV detection

Using the LAg avidity assay and VL algorithm, annual HIV incidence among adults in Zimbabwe was 0.42% (0.33% among men and 0.50% among women). This corresponds to 42 new infections per 10,000 persons per year, which represents approximately 29,000 new cases of HIV per year (Table 5.3.B). The difference by sex in the incidence estimates was not statistically significantly different; ZIMPHIA was not designed to compare incidence estimates across demographic sub-groups (Table 5.3.B).

Table 5.3.A Annual HIV incidence using LAg/VL testing algorithm

Annual incidence of HIV among persons aged 15-49 years and aged 15-64 years, by sex and age, using the limiting antigen (LAg)/viral load (VL) algorithm, ZIMPHIA 2015-2016

	Men		Women		Total	
Age	Percentage annual incidence[1]	95% CI	Percentage annual incidence[1]	95% CI	Percentage annual incidence[1]	95% CI
15-24	0.14	(0.00, 0.37)	0.53	(0.14, 0.92)	0.34	(0.11, 0.57)
25-34	0.48	(0.00, 1.05)	1.11	(0.42, 1.80)	0.81	(0.35, 1.26)
35-49	0.38	(0.00, 0.91)	0.42	(0.00, 0.92)	0.40	(0.03, 0.77)
15-49	0.30	(0.07, 0.53)	0.69	(0.38, 1.00)	0.50	(0.30, 0.69)
15-64	0.33	(0.10, 0.55)	0.60	(0.33, 0.88)	0.47	(0.29, 0.65)

[1]Relates to Global AIDS Monitoring Indicator 3.1: HIV incidence.
CI= confidence interval

Table 5.3.B Annual HIV incidence using LAg/VL/ARV testing algorithm

Annual incidence of HIV among persons aged 15-49 years and aged 15-64 years, by sex and age, using limiting antigen (LAg)/viral load (VL)/antiretrovirals (ARVs) algorithm, ZIMPHIA 2015-2016

	Men		Women		Total	
Age	Percentage annual incidence[1]	95% CI	Percentage annual incidence[1]	95% CI	Percentage annual incidence[1]	95% CI
15-24	0.14	(0.00, 0.37)	0.46	(0.09, 0.82)	0.30	(0.08, 0.52)
25-34	0.48	(0.00, 1.05)	0.95	(0.30, 1.61)	0.72	(0.28, 1.16)
35-49	0.38	(0.00, 0.91)	0.27	(0.00, 0.68)	0.32	(0.00, 0.66)
15-49	0.30	(0.07, 0.53)	0.57	(0.29, 0.85)	0.44	(0.25, 0.62)
15-64	0.33	(0.10, 0.55)	0.50	(0.25, 0.75)	0.42	(0.25, 0.59)

[1]Relates to Global AIDS Monitoring Indicator 3.1: HIV incidence.
CI= confidence interval

5.4 Gaps and Unmet Needs

- While not a statistically significant difference, point estimates suggest that HIV incidence may be higher among women than among men.

5.5 References

1. Duong YT, Kassanjee R, Welte A, et al. Recalibration of the limiting antigen avidity EIA to determine mean duration of recent infection in divergent HIV-1 subtypes. *PLoS One.* 2015 Feb 24;10(2):e0114947. doi: 10.1371/journal.pone.0114947.

2. Kassanjee R, McWalter TA, Bärnighausen T, Welte A. A new general biomarker-based incidence estimator. *Epidemiology.* 2012 Sep;23(5):721-8. doi: 10.1097/EDE.0b013e3182576c07.

3. Duong YT, Qiu M, De AK, et al. Detection of recent HIV-1 infection using a new limiting-antigen avidity assay: potential for HIV-1 incidence estimates and avidity maturation studies. *PLoS One*. 2012;7(3):e33328. doi: 10.1371/journal.pone.0033328. Epub 2012 Mar 27.

6 HIV PREVALENCE

6.1 Key Findings

- Prevalence of HIV among adults (ages 15-64 years) in Zimbabwe was 14.1%: 12.0% among men and 16.0% among women.
- This corresponds to approximately 1.2 million adults living with HIV in Zimbabwe.
- Geographically, HIV prevalence among adults varied from 11.0% in Manicaland to 21.7% in Matabeleland South.

6.2 Background

This chapter presents representative estimates of the prevalence of HIV infection among adults at the national and provincial level by selected demographic and behavioral characteristics. It also presents estimates of the number of HIV-positive persons living in Zimbabwe. HIV 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 A describes the sample design; Appendix B describes the PHIA HIV testing methodology; and Appendix C provides estimates of sampling errors.

6.3 Adult HIV Prevalence by Demographic Characteristics and Marital Status

Prevalence of HIV among adults in Zimbabwe was 14.1%: 12.0% among men and 16.0% among women. Prevalence among adults was similar in rural (13.8%) and urban (14.5%) areas. Those with less than secondary education had a higher HIV prevalence (17.5% among those with no education and 18.3% among those with primary education) compared to those with secondary education (13.0%) or more (7.9%) (Table 6.3.A; Table 6.3.B; Figure 6.3.A).

Table 6.3.A HIV prevalence by demographic characteristics: Ages 15-49 years

Prevalence of HIV among persons aged 15-49 years, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Residence						
Urban	10.9	1,917	16.0	3,500	13.6	5,417
Rural	10.6	5,324	15.8	6,721	13.2	12,045
Province						
Bulawayo	13.8	576	18.6	1,079	16.5	1,655
Manicaland	8.2	813	12.0	1,074	10.2	1,887
Mashonaland Central	10.2	834	16.0	946	12.9	1,780
Mashonaland East	11.4	782	14.5	883	12.9	1,665
Mashonaland West	9.9	1,020	14.2	1,132	11.9	2,152
Matabeleland North	14.1	660	22.9	959	18.8	1,619
Matabeleland South	15.9	510	24.2	761	20.4	1,271
Midlands	10.3	654	14.6	1,047	12.7	1,701
Masvingo	10.6	712	16.1	1,136	13.7	1,848
Harare	10.0	680	15.7	1,204	13.0	1,884
Marital status						
Never married	3.3	3,348	6.4	2,604	4.5	5,952
Married or living together	15.6	3,515	14.8	6,215	15.2	9,730
Divorced or separated	23.4	307	29.5	871	27.6	1,178

Table 6.3.A HIV prevalence by demographic characteristics: Ages 15-49 years (continued)

Prevalence of HIV among persons aged 15-49 years, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Marital status (cont.)						
Widowed	55.4	61	57.8	517	57.5	578
Education						
No education	19.7	52	19.6	150	19.7	202
Primary	13.3	1,780	22.3	2,691	18.2	4,471
Secondary	10.5	4,826	14.2	6,806	12.4	11,632
More than secondary	6.2	580	8.7	570	7.2	1,150
Wealth quintile						
Lowest	11.4	1,711	17.3	2,290	14.4	4,001
Second	9.9	1,588	14.5	2,008	12.2	3,596
Middle	11.1	1,560	16.0	1,799	13.4	3,359
Fourth	12.1	1,187	18.0	1,877	15.2	3,064
Highest	9.0	1,195	13.9	2,247	11.7	3,442
Religion						
Traditional	12.8	204	9.5	85	12.0	289
Roman catholic	11.0	581	13.2	683	12.0	1,264
Protestant	9.0	1,037	15.3	1,671	12.4	2,708
Pentecostal	8.2	1,191	15.1	2,455	12.4	3,646
Apostolic sect	10.6	2,076	16.5	3,696	14.0	5,772
Other Christian	6.7	541	16.2	972	12.1	1,513
Muslim	(20.4)	33	(19.6)	38	20.1	71
Other	8.8	59	16.3	72	12.3	131
None	15.1	1,511	20.6	546	16.3	2,057
Pregnancy status						
Currently pregnant	NA	NA	10.5	608	NA	NA
Not currently pregnant	NA	NA	16.2	9,419	NA	NA
Total 15-49	10.7	7,241	15.9	10,221	13.4	17,462

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 6.3.B HIV prevalence by demographic characteristics: Ages 15-64 years

Prevalence of HIV among persons aged 15-64 years, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Residence						
Urban	12.3	2,150	16.4	3,920	14.5	6,070
Rural	11.8	6,245	15.8	8,262	13.8	14,507
Province						
Bulawayo	16.1	674	19.3	1,263	17.9	1,937
Manicaland	9.2	942	12.6	1,296	11.0	2,238
Mashonaland Central	10.6	958	15.7	1,143	13.0	2,101
Mashonaland East	12.1	902	14.9	1,045	13.5	1,947
Mashonaland West	11.0	1,137	13.9	1,328	12.3	2,465
Matabeleland North	15.7	784	22.5	1,190	19.5	1,974
Matabeleland South	19.4	631	23.5	968	21.7	1,599
Midlands	11.7	767	14.9	1,258	13.5	2,025
Masvingo	12.3	850	16.3	1,353	14.5	2,203
Harare	11.1	750	15.8	1,338	13.7	2,088
Marital status						
Never married	3.5	3,386	6.6	2,681	4.7	6,067
Married or living together	16.7	4,530	14.0	7,278	15.2	11,808
Divorced or separated	24.7	348	28.4	1,040	27.3	1,388
Widowed	50.6	120	44.3	1,167	45.0	1,287
Education						
No education	17.1	122	17.6	510	17.5	632
Primary	15.2	2,381	20.7	3,888	18.3	6,269
Secondary	11.5	5,250	14.4	7,165	13.0	12,415

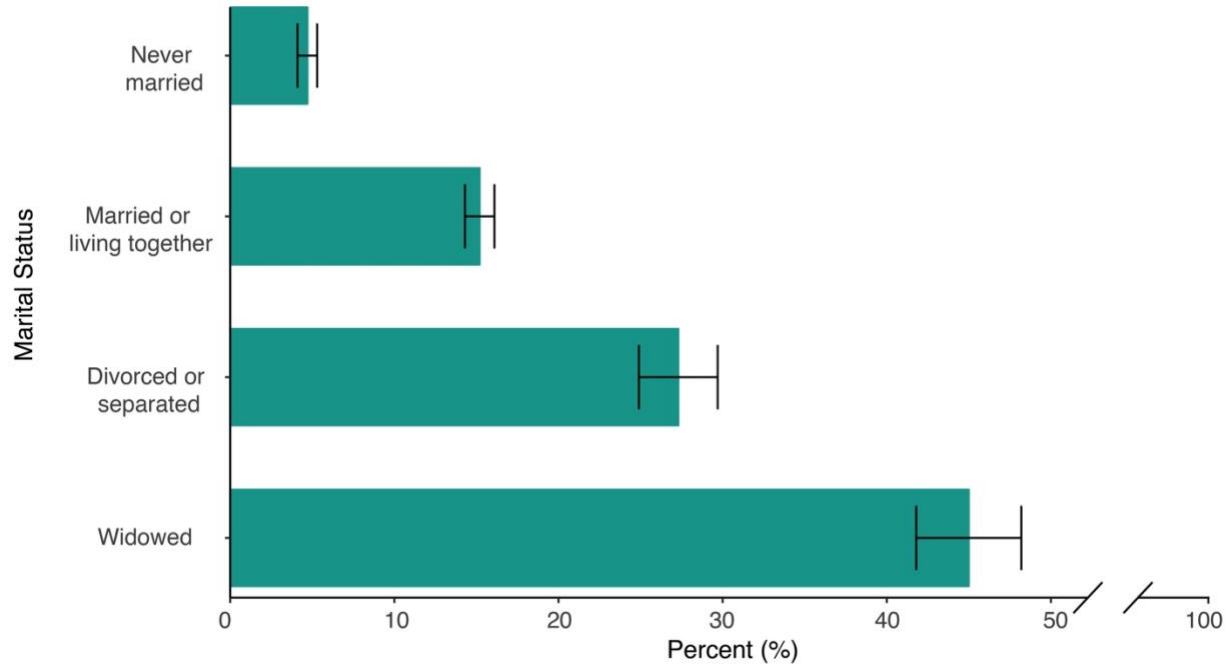
Table 6.3.B HIV prevalence by demographic characteristics: Ages 15-64 years (continued)

Prevalence of HIV among persons aged 15-64 years, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Education (cont.)						
More than secondary	6.9	634	9.5	612	7.9	1,246
Wealth quintile						
Lowest	12.5	2,025	17.1	2,818	14.9	4,843
Second	11.4	1,874	14.8	2,528	13.2	4,402
Middle	12.0	1,803	15.7	2,229	13.9	4,032
Fourth	13.4	1,328	18.6	2,071	16.2	3,399
Highest	10.7	1,365	14.2	2,536	12.6	3,901
Religion						
Traditional	16.2	273	10.3	118	14.8	391
Roman catholic	12.6	721	13.6	902	13.1	1,623
Protestant	10.8	1,234	15.6	2,115	13.5	3,349
Pentecostal	9.4	1,291	15.3	2,762	13.0	4,053
Apostolic sect	11.7	2,342	16.5	4,294	14.5	6,636
Other Christian	8.1	637	16.7	1,183	13.0	1,820
Muslim	(20.1)	40	16.8	51	18.5	91
Other	8.9	68	17.3	96	13.0	164
None	15.9	1,778	21.0	658	17.0	2,436
Pregnancy status						
Currently pregnant	NA	NA	10.5	608	NA	NA
Not currently pregnant	NA	NA	16.3	11,363	NA	NA
Total 15-64	12.0	8,395	16.0	12,182	14.1	20,577

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Figure 6.3.A HIV prevalence by marital status: Ages 15-64 years, ZIMPHIA 2015-2016



6.4 Adult HIV Prevalence by Age and Sex

The highest HIV prevalence estimated was nearly 30% for both men (28.1%) and women (29.6%) but occurred among women aged 40-44 years and slightly older in men aged 45-49 years. The disparity in

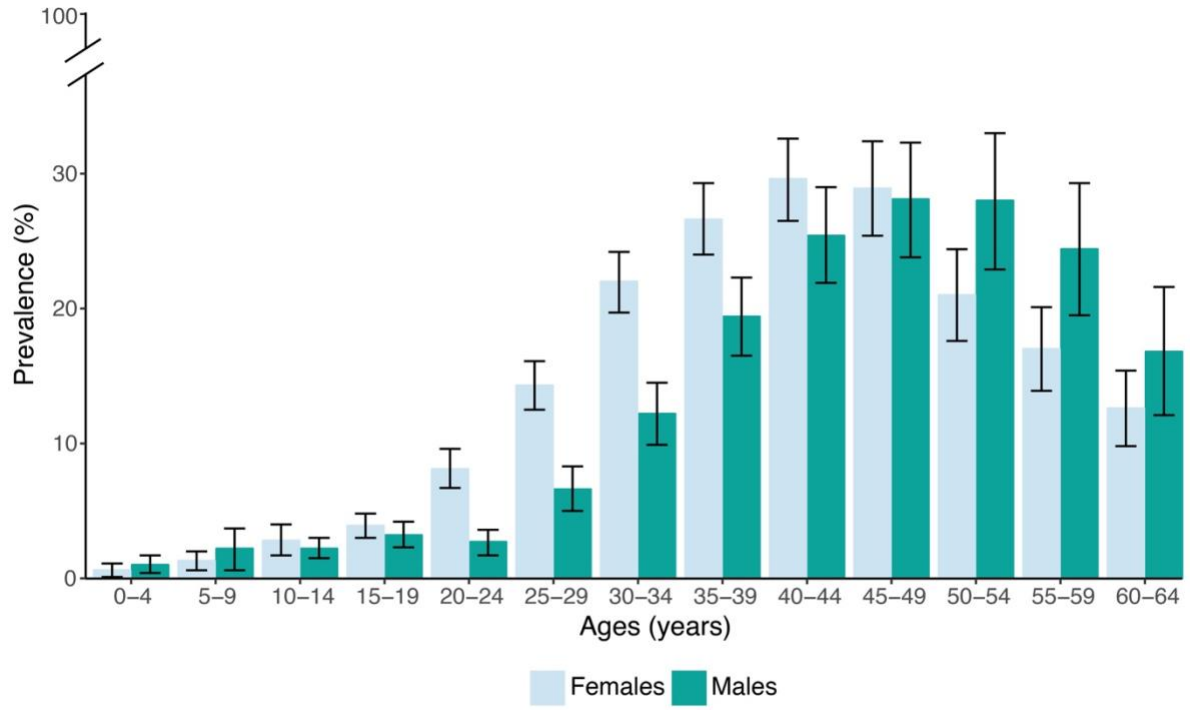
HIV prevalence by sex was most pronounced among young adults (those aged 20-24 years) in which HIV prevalence was three times higher among young women (8.1%) than young men (2.7%). For those aged 15-49 years, point estimates of HIV prevalence were higher among older adolescent girls (aged 15-19 years) and young women (aged 20-24 years) than their male counterparts. Among adults aged 50-64 years, point estimates of HIV prevalence were higher in men (Table 6.4.A; Figure 6.4.A).

Table 6.4.A HIV prevalence by age and sex

Prevalence of HIV among persons aged 0-64 years, by sex and age, ZIMPHIA 2015-2016

	Male		Female		Total	
Age	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
0-17 months	1.6	284	0.3	305	0.9	589
18-59 months	0.9	910	0.7	922	0.8	1,832
5-9	2.2	1,168	1.3	1,197	1.7	2,365
10-14	2.2	1,113	2.8	1,133	2.5	2,246
Total 0-4	1.0	1,194	0.6	1,227	0.8	2,421
Total 0-14	1.7	3,475	1.5	3,557	1.6	7,032
15-19	3.2	1,950	3.9	2,114	3.6	4,064
20-24	2.7	1,220	8.1	1,817	5.5	3,037
25-29	6.6	979	14.3	1,573	10.9	2,552
30-34	12.2	942	22.0	1,579	17.5	2,521
35-39	19.4	843	26.6	1,326	23.1	2,169
40-44	25.4	754	29.6	1,063	27.5	1,817
45-49	28.1	553	28.9	749	28.5	1,302
50-54	28.0	383	21.0	707	24.1	1,090
55-59	24.4	382	17.0	702	19.9	1,084
60-64	16.8	389	12.6	552	14.5	941
Total 15-24	3.0	3,170	5.9	3,931	4.4	7,101
Total 15-49	10.7	7,241	15.9	10,221	13.4	17,462
Total 15-64	12.0	8,395	16.0	12,182	14.1	20,577

Figure 6.4.A HIV prevalence by age and sex, ZIMPHIA 2015-2016



6.5 Adult HIV Prevalence by Province

Among adults, HIV prevalence ranged from 21.7% in Matabeleland South to 11.0% in Manicaland. HIV prevalence was higher in the provinces of Matabeleland North (19.5%), Bulawayo (17.9%), and Matabeleland South (21.7%) than in the other seven provinces, which were all below 15% (Table 6.3.A; Figure 6.5.A; Figure 6.5.B).

Figure 6.5.A HIV prevalence among adults aged 15-64 years, by province, ZIMPHIA 2015-2016 (map)

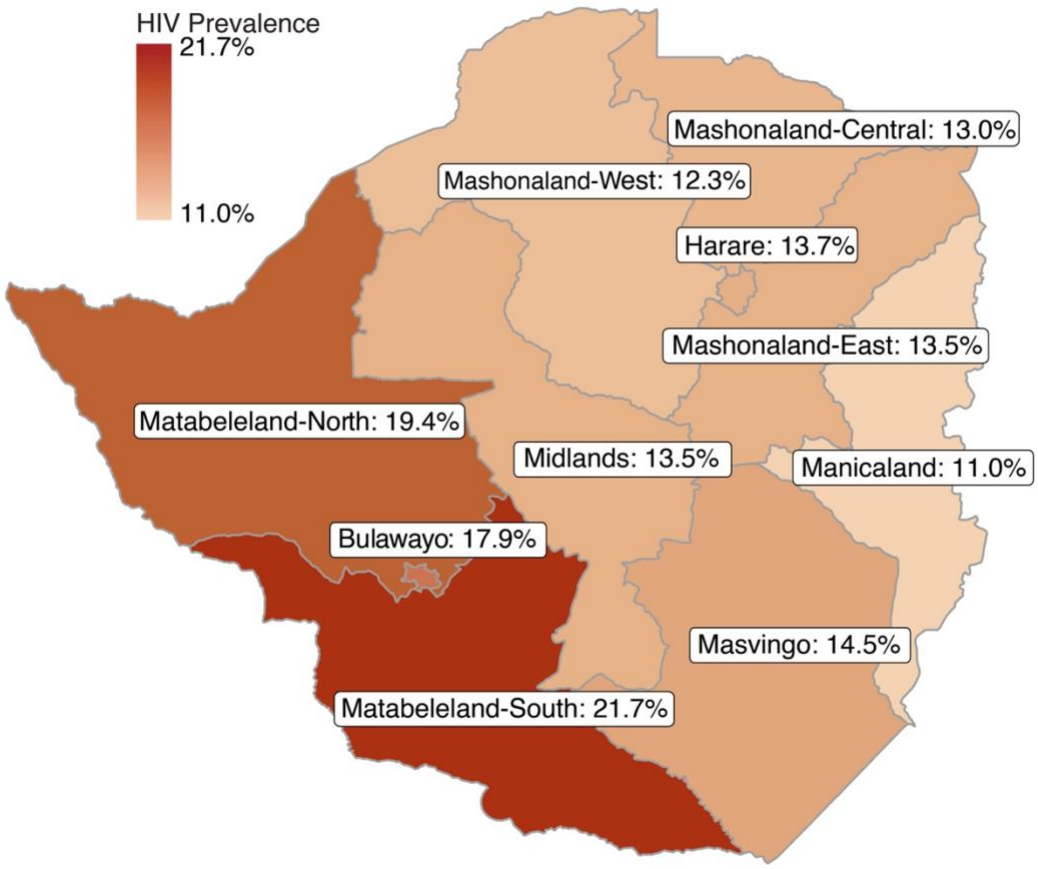
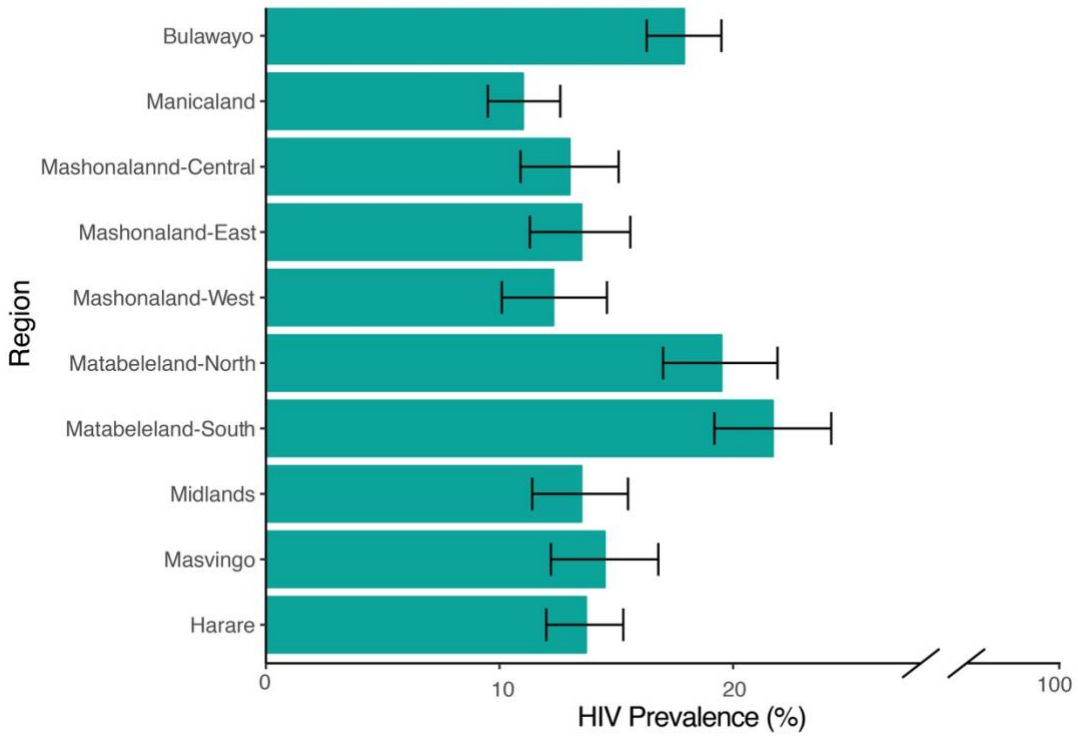


Figure 6.5.B HIV prevalence among adults aged 15-64 years, by province (bar graph), ZIMPHIA 2015-2016



7 HIV TESTING

7.1 Key Findings

- Among adults (ages 15-64 years), 73.7% had ever been tested for HIV and received their results, 65.7% among men and 80.9% among women, based on self-report.
- Among adults, 35.7% reported that they had been tested and received their results in the 12 months before the survey, 30.6% among men and 40.2% among women.
- Among adults who tested HIV positive in ZIMPHIA, only 8.8% reported that they had never taken an HIV test and received the results.

7.2 Background

HIV testing is necessary for awareness of HIV status and is a critical component of HIV epidemic control targets. Awareness of HIV-positive status is the first step in engagement with HIV care and treatment services; to access ART, receive prevention counseling for HIV-positive and HIV-negative individuals to reduce risk of HIV transmission or acquisition; and access to screening services for comorbidities.

Data presented in this section pertain to men and women who reported that they had ever received an HIV test and results. This section also presents results on HIV testing and receipt of results in the 12 months before the survey to understand frequent or recent testing.

7.3 Self-Reported HIV Testing Among Adults

About three-quarters (73.7%) of adults reported that they had previously tested for HIV and received their results—35.7% reported that they had tested and received their results in the 12 months prior the survey. Almost all (91.2%) HIV-positive adults reported that they had been tested and received their results, compared to 71.6% of those who were HIV negative. By province, the proportion of people who reported they had ever tested and received their results ranged from 70.4% on Manicaland to 77.9% in Matabeleland South. However, when examining the last 12 months, results appear similar across the provinces ranging from 37.9% in Manicaland to 32.8% in Midlands. Older adolescents (those aged 15-19 years) reported comparatively low coverage of ever having testing (45.3%). About half (51.0%) of the adults who had never been married had been tested. The lowest proportion of those who reported having ever been tested, and having tested in the past 12 months, was among adults who had no education, 66.8% and 27.2%, respectively (Table 7.3.C).

Two-thirds (65.7%) of men reported that they had ever tested for HIV and received their results, while less than half of that proportion (30.6%) reported that they had tested in the year preceding the survey. Three-fourths (75.1%) of men aged 25-29 years had been tested and received their results, compared to only 43.6% of older adolescent boys aged 15-19 years. Half (51.5%) of never-married men reported that they had been tested and received their HIV results, while 25.2% reported testing in the year preceding the survey. Self-reported coverage of testing was 78.5% among men with more than secondary education, 57.3% among those with primary education, and 54.8% among those with no education.

A similar pattern held across education levels for self-reported testing coverage in the year preceding the survey. History of HIV testing in men was more common among HIV-positive (85.5%) than HIV-negative (63.7%) men (Table 7.3.A; Figure 7.3.A).

A greater proportion of women (80.9%) than men (65.7%) reported that they had ever tested for HIV and received their results. A greater proportion of women (40.2%) than men (30.6%) had been tested in the previous 12 months. While the coverage of HIV testing among older adolescent girls aged 15-19 years was less than half (47.0%), from ages 25-44 years, it was over 90% for all age groups among women, possibly reflecting the high coverage of PMTCT programs. Women aged 60-64 years reported comparatively low coverage of ever having testing (61.7%). Among women who had never been married, about half (50.2%) had been tested. Almost all (94.9%) HIV-positive women reported that they had ever been tested and received results, compared to 79.0% of those who were HIV negative. Conversely, self-reported HIV testing with receipt of results in the past 12 months was higher among those who were HIV negative (43.5%), compared to those who were HIV positive (21.3%). This may reflect the fact that women who already knew that they were HIV positive would not have retested in the last year. Women who were never married (25.3%), widowed (26.4%), and those with no education (29.5%) had relatively low self-reported testing coverage in the 12 months preceding the survey (Table 7.3.A, Table 7.3.B). Among each age group, with the exception of those aged 60-64 years, a consistently higher proportion of women than men reported testing within the 12 months preceding the survey (Figure 7.3.A).

Table 7.3.A Self-reported HIV testing: Men

Percentage of men aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results[1]	Number
Result of PHIA survey HIV test			
HIV positive	85.5	24.6	1,146
HIV negative	63.7	31.2	7,171
Not tested	59.8	33.1	866
Residence			
Urban	69.9	31.7	2,394
Rural	63.6	30.1	6,789
Province			
Bulawayo	71.3	32.2	734
Manicaland	61.8	34.0	996
Mashonaland Central	60.2	27.3	1,072
Mashonaland East	63.0	29.1	987
Mashonaland West	68.2	32.1	1,234
Matabeleland North	65.5	30.6	848
Matabeleland South	70.3	32.3	683
Midlands	63.9	26.8	852
Masvingo	63.8	30.0	940
Harare	70.7	31.6	837
Marital status			
Never married	51.5	25.2	3,712
Married or living together	75.6	34.0	4,937
Divorced or separated	76.6	39.4	393
Widowed	77.7	33.6	127
Education			
No education	54.8	19.4	133
Primary	57.3	24.9	2,548
Secondary	67.0	32.0	5,738
More than secondary	78.5	36.3	755

Table 7.3.A Self-reported HIV testing: Men (continued)

Percentage of men aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results[1]	Number
Wealth quintile			
Lowest	62.2	28.9	2,195
Second	60.1	28.1	2,023
Middle	65.9	29.6	1,957
Fourth	68.6	32.9	1,468
Highest	71.7	33.6	1,540
Religion			
Traditional	63.4	28.2	302
Roman Catholic	68.9	33.1	794
Protestant	69.7	33.8	1,320
Pentecostal	66.7	29.5	1,406
Apostolic Sect	62.7	28.6	2,582
Other Christian	65.1	33.3	709
Muslim	(68.3)	(40.2)	42
Other	71.0	27.8	75
None	65.2	30.1	1,942
Age			
15-19	43.6	19.9	2,089
20-24	62.1	34.5	1,361
25-29	75.1	40.9	1,064
30-34	74.6	35.4	1,064
35-39	76.7	36.0	937
40-44	75.5	27.9	824
45-49	77.2	30.9	604
50-54	70.1	25.2	411
55-59	67.4	20.8	412
60-64	64.7	24.4	417
Total 15-24	51.8	26.3	3,450
Total 15-49	65.5	31.4	7,943
Total 15-64	65.7	30.6	9,183

[1]Relates to PEPFAR HTC_TST.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 7.3.B Self-reported HIV testing: Women

Percentage of women aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of survey HIV test and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results[1]	Number
Result of PHIA survey HIV test			
HIV positive	94.9	21.3	2,218
HIV negative	79.0	43.5	9,915
Labels don't match	72.2	44.9	1,025
Residence			
Urban	80.6	39.3	4,289
Rural	81.1	40.8	8,869
Province			
Bulawayo	78.3	36.3	1,356
Manicaland	77.9	41.4	1,384
Mashonaland Central	81.9	42.2	1,275
Mashonaland East	79.0	41.7	1,121
Mashonaland West	83.3	41.4	1,441
Matabeleland North	83.0	40.2	1,265
Matabeleland South	84.1	40.8	1,034

Table 7.3.B Self-reported HIV testing: Women (continued)

Percentage of women aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of survey HIV test and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results[1]	Number
Province (cont.)			
Midlands	79.2	37.6	1,377
Masvingo	82.1	41.3	1,443
Harare	81.6	39.2	1,462
Marital status			
Never married	50.2	25.3	2,876
Married or living together	91.3	47.5	7,866
Divorced or separated	91.1	44.4	1,127
Widowed	82.8	26.4	1,271
Education			
No education	70.3	29.5	544
Primary	80.7	35.4	4,172
Secondary	80.8	42.5	7,732
More than secondary	88.2	45.5	702
Wealth quintile			
Lowest	80.2	38.6	3,024
Second	79.2	40.1	2,703
Middle	83.5	42.3	2,385
Fourth	83.6	44.0	2,257
Highest	78.5	36.8	2,789
Religion			
Traditional	84.7	47.4	127
Roman Catholic	78.4	36.1	969
Protestant	80.6	39.3	2,261
Pentecostal	80.9	40.4	2,953
Apostolic Sect	81.1	40.9	4,711
Other Christian	79.1	39.5	1,265
Muslim	84.3	31.5	54
Other	81.0	41.0	99
None	85.8	43.9	716
Age			
15-19	47.0	29.1	2,266
20-24	87.4	51.4	1,974
25-29	95.7	51.7	1,722
30-34	95.2	47.9	1,692
35-39	93.8	39.0	1,441
40-44	93.1	38.7	1,138
45-49	85.4	34.6	815
50-54	76.4	27.7	746
55-59	71.7	24.4	752
60-64	61.7	22.1	612
Total 15-24	65.4	39.3	4,240
Total 15-49	82.4	42.4	11,048
Total 15-64	80.9	40.2	13,158

[1]Relates to PEPFAR HTS_TST.

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 7.3.C Self-reported HIV testing: Total

Percentage of persons aged 15-64 years who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, ZIMPHIA 2015-2016

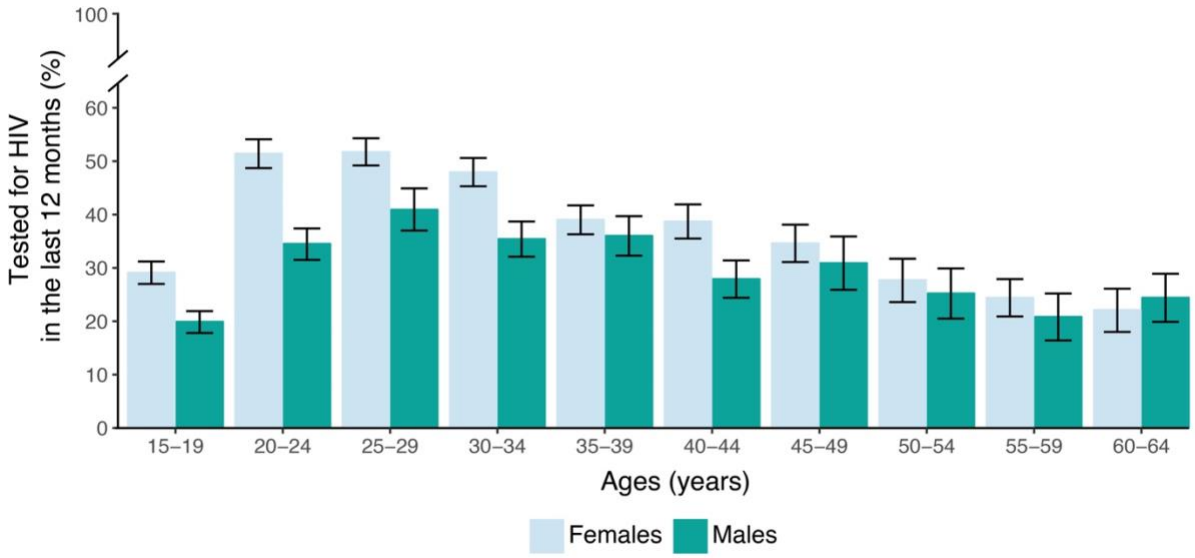
Characteristic	Percentage who ever received HIV testing and received their results	Percentage who received HIV testing in the past 12 months and received their results[1]	Number
Result of PHIA survey HIV test			
HIV positive	91.2	22.6	3,364
HIV negative	71.6	37.6	17,086
Not tested	65.7	38.7	1,891
Residence			
Urban	75.7	35.9	6,683
Rural	72.6	35.6	15,658
Province			
Bulawayo	75.2	34.5	2,090
Manicaland	70.4	37.9	2,380
Mashonaland Central	70.7	34.5	2,347
Mashonaland East	70.7	35.1	2,108
Mashonaland West	75.4	36.6	2,675
Matabeleland North	75.1	35.8	2,113
Matabeleland South	77.9	37.0	1,717
Midlands	72.4	32.8	2,229
Masvingo	73.9	36.2	2,383
Harare	76.6	35.8	2,299
Marital status			
Never married	51.0	25.2	6,588
Married or living together	84.3	41.5	12,803
Divorced or separated	86.6	42.9	1,520
Widowed	82.2	27.2	1,398
Education			
No education	66.8	27.2	677
Primary	70.6	30.9	6,720
Secondary	74.1	37.4	13,470
More than secondary	82.5	40.0	1,457
Wealth quintile			
Lowest	71.7	34.0	5,219
Second	69.9	34.3	4,726
Middle	74.6	35.9	4,342
Fourth	76.6	38.8	3,725
Highest	75.5	35.4	4,329
Religion			
Traditional	68.7	33.0	429
Roman Catholic	73.5	34.5	1,763
Protestant	75.9	36.9	3,581
Pentecostal	75.3	36.2	4,359
Apostolic Sect	73.5	35.8	7,293
Other Christian	73.0	36.8	1,974
Muslim	75.8	36.2	96
Other	75.7	34.1	174
None	69.8	33.2	2,658
Age			
15-19	45.3	24.5	4,355
20-24	75.1	43.2	3,335
25-29	86.5	46.9	2,786
30-34	85.7	42.2	2,756
35-39	85.6	37.6	2,378
40-44	84.4	33.4	1,962
45-49	81.3	32.7	1,419
50-54	73.6	26.6	1,157
55-59	70.0	23.0	1,164
60-64	63.0	23.1	1,029
Total 15-24	58.7	32.9	7,690
Total 15-49	74.3	37.1	18,991
Total 15-64	73.7	35.7	22,341

Table 7.3.C	Self-reported HIV testing: Total (continued and end)

[1]Relates to PEPFAR HTC_TST.

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Figure 7.3.A Proportion of adults who reported testing for HIV in the 12 months before the survey, by age and sex, ZIMPHIA 2015-2016



7.4 Gaps and Unmet Needs

- While the majority of adults reported testing for HIV at some point in their lives, less than half reported testing in the 12 months prior to the survey. The frequency of testing could be increased, particularly among men and young people.
- HIV testing strategies targeting men are required as self-reported testing coverage among men trails that of women for nearly all demographic groups.

8 HIV Diagnosis and Treatment

8.1 Key Findings

- Based on self-reported data, 27.0% of HIV-positive adults (those aged 15-64 years) were unaware of their status at the time of the survey, 31.7% among men and 23.9% among women.
- Based on self-reported data, 63.4% of adults living with HIV, were aware of their status and on ART, 58.9% among men and 66.4% among women.
- Concordance between self-report of ART use and detection of ARVs was high among adults, with 93.3% of those who reported current ART use having detectable ARVs in their blood. However, self-report of HIV status was less accurate—14.5% of those who reported no previous HIV diagnosis had detectable ARVs in their blood.

8.2 Background

Recent studies have proven that treating people living with HIV at higher CD4 counts improves immune recovery, decreases the incidence of non-AIDS events, comorbidities, and mortality, and reduces transmission. In 2016, after extensive review of evidence of both the clinical and population-level benefits of expanding ART treatment, WHO changed their recommendation to support a policy of "Treatment for All," regardless of CD4 count.[1,2] By November 2017, almost all countries in sub-Saharan Africa had adopted this policy, despite challenges in ensuring its uptake and implementation.[2] This policy was adopted in Zimbabwe on December 1, 2016.

8.3 Self-Reported Diagnosis and Treatment Status Among HIV-Positive Adults

Based on self-reports, a majority (63.4%) of adults living with HIV were aware of their HIV status and were on ART. A relatively small proportion (9.6%) were aware of their HIV status, but were not on ART. One-fourth (27.0%) of adults living with HIV reported they were unaware of their HIV status (Table 8.3.C).

Self-reported HIV diagnosis and treatment status varied by age. Less than half (42.4%) of HIV-positive young people (those aged 15-24 years) were aware of their HIV status and were on ART, while approximately half (49.4%) of this group were unaware of their HIV status. In contrast, nearly eight-of-ten (79.8%) people living with HIV aged 50-54 years were aware of their HIV status and were on ART, as well as 77.1% of those aged 55-59 years and 77.0% of those aged 60-64 years (Table 8.3.C).

Among adults living with HIV, self-reported HIV diagnosis and treatment status also varied by education and household wealth. The proportion of people living with HIV who were aware of their HIV status and on ART was 55.6% among those with more than secondary education compared to 72.7% among those with no education. Similarly, the proportion of people living with HIV who were aware of their HIV status and were on ART ranged from 66.9% among those in the lowest and second wealth quintiles to 59.3% and 61.4% among those in the fourth and highest wealth quintiles, respectively (Table 8.3.C).

Marital status-related variability in self-reported HIV diagnosis and treatment status was also evident. The proportion of adults living with HIV who were aware of their HIV status and on ART was 52.4%

among never-married persons and 77.3% among widowed persons. Approximately, six-of-ten divorced or separated (58.5%) and married or cohabitating people living with HIV (62.7%) were aware of their HIV status and on ART (Table 8.3.C).

Based on self-reports, about one-third (31.7%) of HIV-positive men were unaware of their HIV status, while over half (58.9%) were aware of their status and on ART. Over half (59.9%) of HIV-positive men aged 25-29 years were unaware of their status. Among never-married men, 43.0% were unaware of their HIV-positive status, while about half were on ART (48.8%). By comparison, 30.4% of married men were unaware of their status, while 60.3% were on ART. By region, the proportion unaware of their HIV-positive status ranged from 27.3% in Masvingo to 41.8% in Mashonaland East, with most provinces close to the mean of 31.8%. Coverage of ART was highest in Matebeleland South (64.9%), with lower coverage again observed in Mashonaland East (43.9%) (Table 8.3.A).

Less than one quarter (23.9%) of women were unaware of their status. Over twice the proportion of older adolescent girls and young women (aged 15-24 years) were unaware of their status (53.0% for older adolescent girls aged 15-19 years and 51.1% for young women aged 20-24 years) compared to all age groups among women over the age of 30 years. ART coverage followed a similar pattern, ranging from 45.6% and 39.3%, respectively, among older adolescent girls and young women aged 20-24-years, compared to over 75% among all age groups from ages 40-59 years (Table 8.3.B).

Differences in HIV treatment status were also observed by marital status and province. Among HIV-positive women who were never married, 39.4% were unaware of their status, while just over half (55.4%) were on ART. In contrast, among widowed women, only 14.3% were unaware of their status, while 79.4% were on ART. Among women in the higher-prevalence provinces of Matabeleland South and Matabeleland North, relatively few—23.0% and 16.7%, respectively—were unaware of their status, while the majority—71.5% and 72.9%, respectively—reported ART use (Table 8.3.B).

Table 8.3.A HIV treatment status: Men

Percent distribution of HIV-positive men aged 15-64 years by self-reported antiretroviral treatment (ART) status, by selected demographic characteristics, ZIMPHIA 2015-2016

		Aware of HIV status			
Characteristic	Unaware of HIV status	Not on ART	On ART[1]	Total	Number
Residence					
Urban	33.0	8.7	58.4	100.0	304
Rural	31.0	9.9	59.1	100.0	848
Province					
Bulawayo	30.0	7.6	62.4	100.0	114
Manicaland	35.1	7.0	57.9	100.0	96
Mashonaland Central	28.8	11.5	59.7	100.0	115
Mashonaland East	41.8	14.3	43.9	100.0	120
Mashonaland West	32.5	7.9	59.6	100.0	128
Matabeleland North	31.7	8.1	60.1	100.0	134
Matabeleland South	28.7	6.3	64.9	100.0	138
Midlands	31.4	6.1	62.5	100.0	97
Masvingo	27.3	11.6	61.2	100.0	118
Harare	28.1	11.2	60.7	100.0	92
Marital status					
Never married	43.0	8.2	48.8	100.0	127
Married or living together	30.4	9.3	60.3	100.0	859
Divorced or separated	32.2	8.2	59.6	100.0	104
Widowed	22.4	15.4	62.1	100.0	61
Education					
No education	*	*	*	*	24
Primary	29.6	7.5	62.9	100.0	408

Table 8.3.A HIV treatment status: Men (continued)

Percent distribution of HIV-positive men aged 15-64 years by self-reported antiretroviral treatment (ART) status, by selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Education (cont.)					
Secondary	32.1	10.3	57.6	100.0	664
More than secondary	41.2	11.2	47.7	100.0	55
Wealth quintile					
Lowest	26.5	11.0	62.5	100.0	295
Second	32.2	6.8	61.0	100.0	252
Middle	32.1	10.3	57.5	100.0	237
Fourth	33.4	8.4	58.2	100.0	184
Highest	34.3	10.7	55.0	100.0	184
Religion					
Traditional	37.7	6.7	55.6	100.0	52
Roman Catholic	30.3	11.0	58.7	100.0	103
Protestant	20.1	9.0	70.9	100.0	160
Pentecostal	35.8	7.6	56.6	100.0	137
Apostolic Sect	31.0	8.8	60.1	100.0	309
Other Christian	37.4	10.1	52.5	100.0	62
Muslim	*	*	*	*	9
Other	*	*	*	*	8
None	34.2	11.0	54.9	100.0	310
Age					
15-19	38.0	13.3	48.7	100.0	61
20-24	(54.9)	(8.2)	(36.9)	(100.0)	37
25-29	59.9	11.8	28.3	100.0	71
30-34	39.8	12.0	48.2	100.0	135
35-39	31.2	15.3	53.5	100.0	182
40-44	26.8	9.1	64.2	100.0	210
45-49	21.0	7.7	71.4	100.0	173
50-54	23.0	2.6	74.4	100.0	117
55-59	26.4	3.5	70.1	100.0	96
60-64	14.5	1.1	84.4	100.0	70
Total 15-24	44.7	11.2	44.0	100.0	98
Total 15-49	34.0	11.1	54.8	100.0	869
Total 15-64	31.7	9.5	58.9	100.0	1,152

[1]Relates to Global AIDS Monitoring Indicator 1.3: People living with HIV on ART.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 8.3.B HIV treatment status: Women

Percent distribution of HIV-positive women aged 15-64 years by self-reported antiretroviral treatment (ART) status, by selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Residence					
Urban	26.8	11.5	61.8	100.0	745
Rural	22.1	8.6	69.2	100.0	1,484
Province					
Bulawayo	27.3	11.2	61.5	100.0	274
Manicaland	20.5	11.0	68.5	100.0	179
Mashonaland Central	22.5	10.2	67.3	100.0	193
Mashonaland East	21.5	10.3	68.3	100.0	175
Mashonaland West	22.6	10.6	66.8	100.0	199
Matabeleland North	16.7	10.4	72.9	100.0	288
Matabeleland South	23.0	5.4	71.5	100.0	244
Midlands	25.6	7.2	67.2	100.0	203
Masvingo	27.1	9.4	63.5	100.0	240
Harare	27.1	10.6	62.3	100.0	234

Table 8.3.B HIV treatment status: Women

Percent distribution of HIV-positive women aged 15-64 years by self-reported antiretroviral treatment (ART) status, by selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Marital status					
Never married	39.4	5.2	55.4	100.0	215
Married or living together	23.7	11.1	65.2	100.0	1,147
Divorced or separated	28.9	13.0	58.1	100.0	331
Widowed	14.3	6.3	79.4	100.0	530
Education					
No education	23.5	3.1	73.4	100.0	92
Primary	21.0	9.7	69.2	100.0	877
Secondary	25.5	10.3	64.2	100.0	1,192
More than secondary	28.6	7.4	64.0	100.0	68
Wealth quintile					
Lowest	22.9	7.3	69.8	100.0	548
Second	21.0	7.8	71.2	100.0	426
Middle	21.8	11.1	67.1	100.0	387
Fourth	29.3	10.7	60.1	100.0	442
Highest	23.3	11.5	65.2	100.0	426
Religion					
Traditional	*	*	*	*	14
Roman Catholic	15.8	8.2	76.0	100.0	140
Protestant	19.2	9.6	71.2	100.0	375
Pentecostal	24.4	8.7	66.9	100.0	496
Apostolic Sect	25.7	11.1	63.2	100.0	795
Other Christian	23.5	8.0	68.4	100.0	236
Muslim	*	*	*	*	9
Other	*	*	*	*	19
None	29.7	11.8	58.5	100.0	145
Age					
15-19	53.0	1.4	45.6	100.0	86
20-24	51.1	9.7	39.3	100.0	161
25-29	35.9	11.6	52.5	100.0	257
30-34	22.8	15.5	61.6	100.0	386
35-39	14.1	11.2	74.7	100.0	390
40-44	14.4	9.0	76.5	100.0	346
45-49	16.3	6.8	76.8	100.0	233
50-54	13.2	1.4	85.4	100.0	160
55-59	13.4	2.9	83.7	100.0	133
60-64	22.1	9.0	68.9	100.0	77
Total 15-24	51.8	6.7	41.6	100.0	247
Total 15-49	25.2	10.7	64.1	100.0	1,859
Total 15-64	23.9	9.7	66.4	100.0	2,229

[1]Relates to Global AIDS Monitoring Indicator 1.3: People living with HIV on ART.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 8.3.C HIV treatment status: Total

Percent distribution of HIV-positive persons aged 15-64 years by self-reported HIV diagnosis and antiretroviral treatment (ART) status, by selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Residence					
Urban	29.2	10.4	60.5	100.0	1,049
Rural	25.8	9.2	65.0	100.0	2,332
Province					
Bulawayo	28.4	9.8	61.9	100.0	388
Manicaland	26.3	9.4	64.3	100.0	275
Mashonaland Central	25.2	10.7	64.1	100.0	308

Table 8.3.C HIV treatment status: Total (continued)

Percent distribution of HIV-positive persons aged 15-64 years by self-reported HIV diagnosis and antiretroviral treatment (ART) status, by selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Unaware of HIV status	Aware of HIV status		Total	Number
		Not on ART	On ART[1]		
Province (cont.)					
Mashonaland East	31.0	12.2	56.9	100.0	295
Mashonaland West	27.2	9.3	63.4	100.0	327
Matabeleland North	22.2	9.6	68.2	100.0	422
Matabeleland South	25.3	5.8	68.9	100.0	382
Midlands	27.8	6.8	65.4	100.0	300
Masvingo	27.2	10.2	62.6	100.0	358
Harare	27.5	10.8	61.7	100.0	326
Marital status					
Never married	41.0	6.6	52.4	100.0	342
Married or living together	27.0	10.2	62.7	100.0	2,006
Divorced or separated	29.8	11.7	58.5	100.0	435
Widowed	15.3	7.4	77.3	100.0	591
Education					
No education	23.1	4.3	72.7	100.0	116
Primary	24.1	8.9	67.0	100.0	1,285
Secondary	28.3	10.3	61.4	100.0	1,856
More than secondary	35.1	9.3	55.6	100.0	123
Wealth quintile					
Lowest	24.3	8.8	66.9	100.0	843
Second	25.7	7.4	66.9	100.0	678
Middle	26.3	10.8	62.9	100.0	624
Fourth	30.9	9.8	59.3	100.0	626
Highest	27.4	11.2	61.4	100.0	610
Religion					
Traditional	37.9	6.4	55.6	100.0	66
Roman Catholic	23.1	9.6	67.3	100.0	243
Protestant	19.5	9.4	71.1	100.0	535
Pentecostal	27.7	8.4	63.9	100.0	633
Apostolic Sect	27.5	10.4	62.2	100.0	1,104
Other Christian	27.3	8.6	64.2	100.0	298
Muslim	*	*	*	*	18
Other	(26.5)	(10.1)	(63.4)	(100.0)	27
None	32.9	11.2	55.9	100.0	455
Age					
15-19	46.2	6.8	47.0	100.0	147
20-24	52.0	9.3	38.7	100.0	198
25-29	42.5	11.6	45.9	100.0	328
30-34	28.3	14.4	57.3	100.0	521
35-39	21.1	12.8	66.1	100.0	572
40-44	20.1	9.1	70.9	100.0	556
45-49	18.7	7.2	74.1	100.0	406
50-54	18.2	2.0	79.8	100.0	277
55-59	19.6	3.2	77.1	100.0	229
60-64	18.1	4.8	77.0	100.0	147
Total 15-24	49.4	8.2	42.4	100.0	345
Total 15-49	28.6	10.8	60.5	100.0	2,728
Total 15-64	27.0	9.6	63.4	100.0	3,381

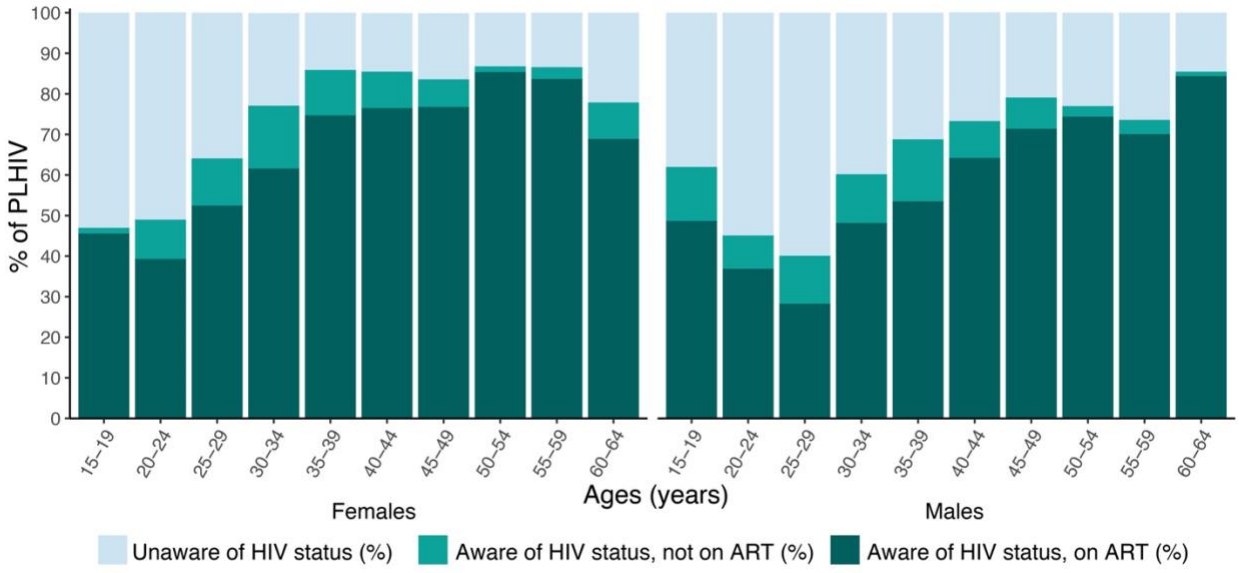
[1]Relates to Global AIDS Monitoring Indicator 1.3: People living with HIV on ART and PEPFAR TX_CURR_NAT / SUBNAT.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Figure 8.3.A Proportion of HIV-positive adults aged 15-64 years reporting awareness of HIV status and antiretroviral therapy (ART) use, by age and sex, ZIMPHIA 2015-2016



8.4 Concordance of Self-Reported Treatment Status versus Laboratory ARV Data

ZIMPHIA determined the presence of three ARVs in blood (efavirenz, lopinavir, and nevirapine) as markers of first- and second-line regimes prescribed in the country at the time of the survey. Overall, ARVs were detected in 63.8% of HIV-positive adults. Among those who reported current use of ART, ARVs were detected in 93.3% of adults (93.5% of men and 93.2% of women). Among those who reported a previous HIV diagnosis but that they were not on ART, 7.3% had ARVs detected in blood (8.7% of men and 6.4% of women). Among those who reported no previous HIV diagnosis, 14.5% had ARVs detected in blood (11.8% among men and 16.9% among women) (Tables 8.4.A, 8.4.B and 8.4.C).

Table 8.4.A Concordance of self-reported treatment status versus presence of antiretrovirals (ARVs): Men

Percent distribution of HIV-positive men aged 15-64 years by presence of detectable ARVs versus self-reported HIV treatment status, ZIMPHIA 2015-2016

Characteristic	ARV status[1]		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	88.2	11.8	100.0	323
Previously diagnosed, not on ART	91.3	8.7	100.0	104
Previously diagnosed, on ART	6.5	93.5	100.0	716
Total 15-24	52.3	47.7	100.0	96
Total 15-49	43.8	56.2	100.0	860
Total 15-64	40.3	59.7	100.0	1,144

[1]ARV detection assay included only efavirenz, lopinavir, and nevirapine.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 8.4.B	Concordance of self-reported treatment status versus presence of antiretrovirals (ARVs): Women			
Percent distribution of HIV-positive women aged 15-64 years by presence of detectable ARVs versus self-reported HIV treatment status, ZIMPHIA 2015-2016				
	ARV status[1]			
Characteristic	Not detectable	Detectable	Total	Number
Self-reported treatment status				
Not previously diagnosed	83.1	16.9	100.0	468
Previously diagnosed, not on ART	93.6	6.4	100.0	207
Previously diagnosed, on ART	6.8	93.2	100.0	1,536
Total 15-24	52.1	47.9	100.0	244
Total 15-49	35.3	64.7	100.0	1,844
Total 15-64	33.3	66.7	100.0	2,212

[1]ARV detection assay included only efavirenz, lopinavir, and nevirapine.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 8.4.C	Concordance of self-reported treatment status versus presence of antiretrovirals (ARVs): Total			
Percent distribution of HIV-positive persons aged 15-64 years by presence of detectable ARVs versus self-reported HIV treatment status, ZIMPHIA 2015-2016				
	ARV status[1]			
Characteristic	Not detectable	Detectable	Total	Number
Self-reported treatment status				
Not previously diagnosed	85.5	14.5	100.0	791
Previously diagnosed, not on ART	92.7	7.3	100.0	311
Previously diagnosed, on ART	6.7	93.3	100.0	2,252
Total 15-24	52.2	47.8	100.0	340
Total 15-49	38.6	61.4	100.0	2,704
Total 15-64	36.2	63.8	100.0	3,356

[1]ARV detection assay included only efavirenz, lopinavir, and nevirapine.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

8.5 Gaps and Unmet Needs

- The greatest gap in the treatment cascade is at the point of entry—diagnosis.
- With a *test and start* policy now in place, it will also be a goal to reduce the proportion of people diagnosed, but not on treatment, to zero. *Test and start* was, however, not in place at the time of the ZIMPHIA survey.

8.6 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://www.who.int/hiv/pub/arv/arv-2016/en/. Accessed December 17, 2018.

2. World Health Organization. *Treat all: policy adoption and implementation status in countries.* Geneva: World Health Organization; 2017. http://apps.who.int/iris/bitstream/handle/10665/259532/WHO-HIV-2017.58-eng.pdf;jsessionid=B3857967C208CC9E4093EEA9CEDC3A0C?sequence=1. Accessed December 20, 2018.

9 VIRAL LOAD SUPPRESSION

9.1 Key Findings

- In Zimbabwe, 59.6% of HIV-positive adults (those aged 15-64 years) had suppressed viral loads, 53.6% among men and 63.7% among women.
- The prevalence of VLS ranged from 53.7% in Mashonaland East to 65.3% in Matabeleland North.

9.2 Background

Viral load suppression is a key indicator of treatment success in HIV-positive individuals. For the purposes of ZIMPHIA, VLS was defined as VL less than 1,000 HIV RNA copies/mL of plasma. This chapter describes VLS among the population of HIV-positive adults by age, sex, region, and other demographic characteristics.

9.3 Adult Viral Load Suppression by Demographic Characteristics

Among adults living with HIV, the prevalence of VLS was 59.6% (53.6% among men and 63.7% among women). Of the HIV-positive adults who reported current use of ART, 86.5% had VLS (84.3% of males; 87.7% of females) (Table 9.3.A).

Table 9.3.A Viral load suppression (VLS) prevalence by demographic characteristics

Among HIV-positive persons age 15-64 years, percentage with VLS (< 1,000 copies/mL), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percentage VLS[1]	Number	Percentage VLS[1]	Number	Percentage VLS[1]	Number
Self-reported diagnosis and treatment status						
Not previously diagnosed	11.0	326	18.0	473	14.7	799
Previously diagnosed, not on ART	4.9	104	10.6	207	8.3	311
Previously diagnosed, on ART	84.3	721	87.7	1,546	86.5	2,267
Missing	*	2	*	1	*	3
Residence						
Urban	53.6	304	60.9	743	58.1	1,047
Rural	53.6	849	65.4	1,484	60.5	2,333
Province						
Bulawayo	61.4	114	63.7	274	62.8	388
Manicaland	50.4	96	67.2	178	60.5	274
Mashonaland Central	53.0	115	63.6	192	59.1	307
Mashonaland East	43.5	119	62.7	175	53.7	294
Mashonaland West	50.8	128	64.4	199	58.1	327
Matabeleland North	58.0	134	69.5	289	65.3	423
Matabeleland South	61.5	138	65.6	244	63.9	382
Midlands	52.6	99	63.7	202	59.4	301
Masvingo	56.8	118	63.5	240	61.0	358
Harare	54.9	92	58.9	234	57.4	326
Marital status						
Never married	45.7	127	56.9	215	51.9	342
Married or living together	54.6	859	62.8	1,145	58.7	2,004
Divorced or separated	56.3	104	56.1	331	56.2	435
Widowed	53.0	62	73.9	530	71.3	592
Education						
No education	*	24	76.8	92	70.5	116
Primary	56.1	408	64.5	875	61.5	1,283

Table 9.3.A Viral load suppression (VLS) prevalence by demographic characteristics (continued)

Among HIV-positive persons age 15-64 years, percentage with VLS (< 1,000 copies/mL), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percentage VLS[1]	Number	Percentage VLS[1]	Number	Percentage VLS[1]	Number
Education (cont.)						
Secondary	53.2	664	62.5	1,192	58.5	1,856
More than secondary	46.8	56	61.1	68	53.7	124
Wealth quintile						
Lowest	52.2	296	66.8	548	61.0	844
Second	56.1	251	66.3	427	62.0	678
Middle	52.9	237	62.4	386	58.2	623
Fourth	55.4	185	59.1	442	57.7	627
Highest	51.3	184	64.4	424	59.4	608
Religion						
Traditional	51.8	52	*	14	53.1	66
Roman Catholic	56.0	103	70.8	140	63.4	243
Protestant	61.6	160	70.7	375	67.5	535
Pentecostal	51.0	137	63.9	496	60.2	633
Apostolic Sect	53.2	310	61.4	794	58.7	1,104
Other Christian	46.7	62	63.4	235	58.9	297
Muslim	*	9	*	9	*	18
Other	*	8	*	19	(49.3)	27
None	52.5	310	52.2	145	52.4	455
Total 15-24	40.1	98	47.9	246	45.3	344
Total 15-49	48.9	869	61.2	1,857	56.4	2,726
Total 15-64	53.6	1,153	63.7	2,227	59.6	3,380

[1]Relates to Global AIDS Monitoring Indicator 1.4: People living with HIV who have suppressed viral loads.
Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

9.4 Adult Viral Load Suppression by Age and Sex

Prevalence of VLS among people living with HIV was highest among women aged 55-59 years (82.6%) and among men aged 60-64 years (77.5%). Among HIV-positive young people (those aged 15-24 years), 40.1% of older adolescent boys and young men had suppressed viral loads, compared to 47.9% of older adolescent girls and young women (Tables 9.4.A and 9.4.B, Figure 9.4.A).

Table 9.4.A Viral load suppression by age (5-year age groups)

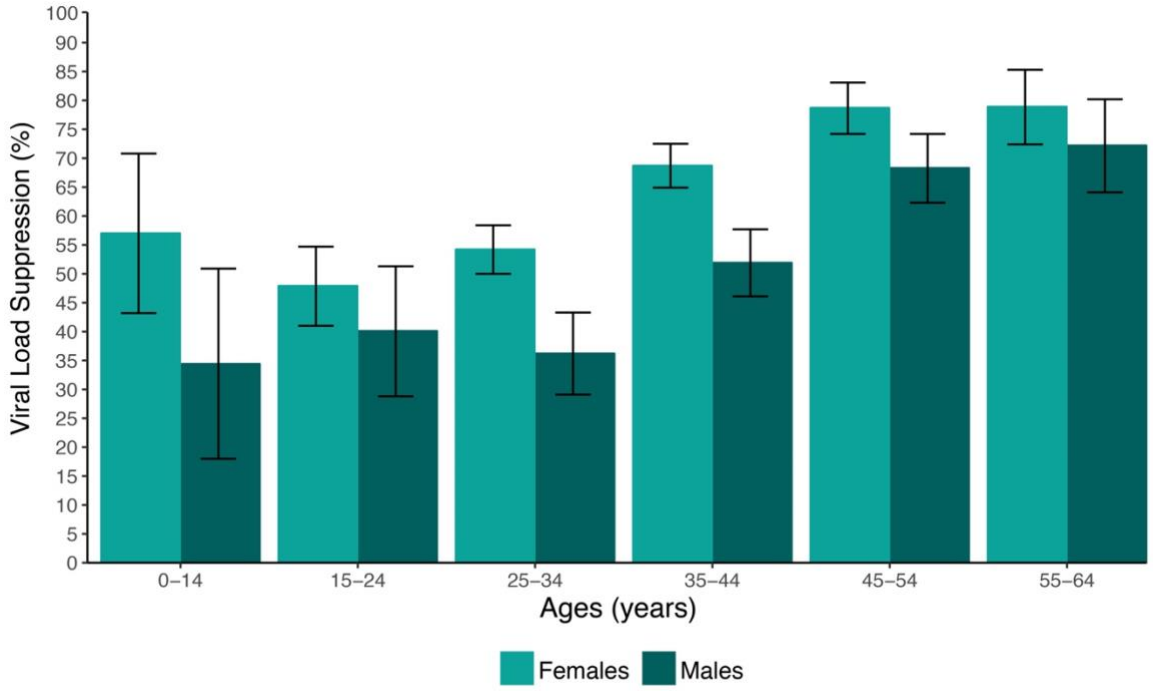
Among HIV-positive persons aged 0-64 years, percentage with VLS (< 1,000 copies/mL), by sex and age, ZIMPHIA 2015-2016

	Male		Female		Total	
Age	Percentage VLS[1]	Number	Percentage VLS[1]	Number	Percentage VLS[1]	Number
0-4	*	11	*	8	*	19
5-9	*	21	*	18	(44.8)	39
10-14	(50.7)	27	(56.6)	34	54.0	61
15-19	42.2	61	58.4	85	51.0	146
20-24	(36.8)	37	41.9	161	40.7	198
25-29	26.2	71	48.4	256	42.3	327
30-34	41.9	136	58.2	386	53.0	522
35-39	45.4	181	67.6	389	58.6	570
40-44	58.1	210	69.9	347	64.5	557
45-49	65.3	173	76.7	233	70.9	406
50-54	73.3	118	82.2	160	77.6	278
55-59	68.6	96	82.6	133	75.9	229
60-64	77.5	70	72.2	77	75.0	147
Total 15-24	40.1	98	47.9	246	45.3	344
Total 15-49	48.9	869	61.2	1,857	56.4	2,726
Total 15-64	53.6	1,153	63.7	2,227	59.6	3,380

[1]Relates to Global AIDS Monitoring Indicator 1.4: People living with HIV who have suppressed viral loads.
Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Table 9.4.B	Viral load suppression by age (10-15-year age groups)					
Among HIV-positive persons aged 0-64 years, percentage with VLS (< 1,000 copies/mL), by sex and age, ZIMPHIA 2015-2016						
	Male		Female		Total	
Age	Percentage VLS[1]	Number	Percentage VLS[1]	Number	Percentage VLS[1]	Number
0-14	34.4	59	57.0	60	45.0	119
15-24	40.1	98	47.9	246	45.3	344
25-34	36.2	207	54.2	642	48.7	849
35-44	51.9	391	68.7	736	61.5	1,127
45-54	68.3	291	78.7	393	73.4	684
55-64	72.2	166	78.9	210	75.5	376
[1]Relates to Global AIDS Monitoring Indicator 1.4 People living with HIV who have suppressed viral loads.						

Figure 9.4.A Proportion of viral load suppression (<1000 copies/mL) among people living with HIV, by age and sex, ZIMPHIA 2015-2016



9.5 Adult Viral Load Suppression by Province

Among HIV-positive adults, prevalence of VLS varied by province, ranging from 53.7% in Mashonaland East to 65.3% in Matabeleland North. Provinces with high HIV prevalence (Matabeleland South, Matabeleland North, and Bulawayo) also had a high prevalence of VLS (63.9%, 65.3%, and 62.8%, respectively) (Table 9.3.A; Figures 9.5.A and 9.5.B).

Figure 9.5.A Viral load suppression (<1000 copies/mL) among HIV-positive adults aged 15-64 years, by province, ZIMPHIA 2015-2016 (map)

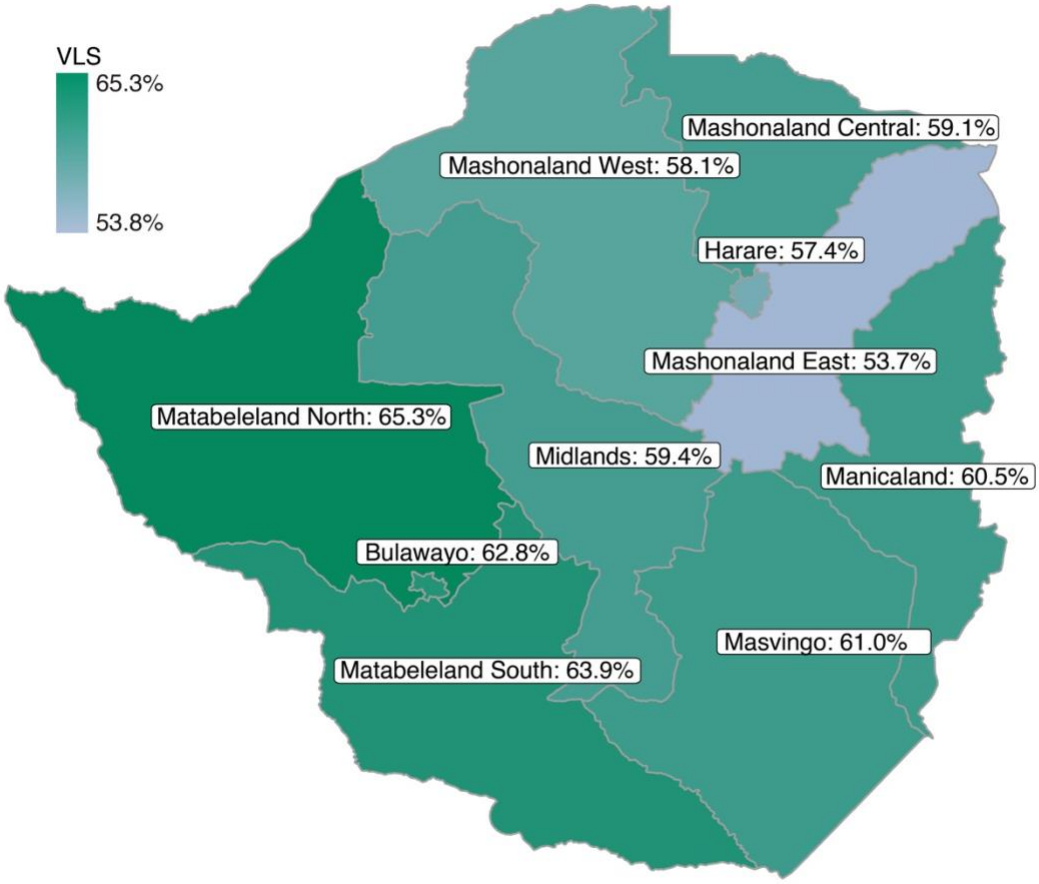
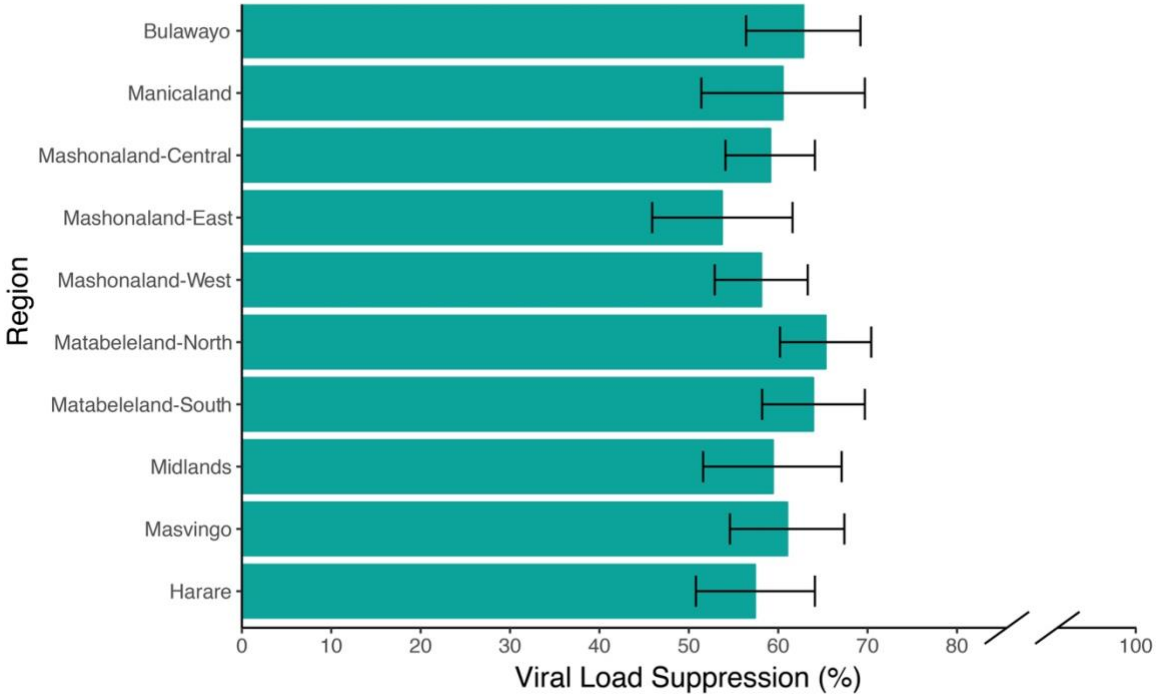


Figure 9.5.B Viral load suppression (<1000 copies/mL) among HIV-positive adults aged 15-64 years, by province, ZIMPHIA 2015-2016 (bar graph)



9.6 Gaps and Unmet Needs

- Viral load suppression was lowest among men and young people living with HIV. This gap appeared to be driven by the large proportion of these groups who were unaware of their status. Targeted testing strategies could help reach these groups.

10 UNAIDS 90-90-90 TARGETS

10.1 Key Findings

- Based on self-report and ARV detection data, 76.8% of HIV-positive adults were aware of their status.
- Among HIV-positive adults aware of their status, 88.4% were on ART, based on self-report and ARV detection data.
- Among adults living with HIV on ART, 85.3% had VLS.

10.2 Background

In order to bring the HIV epidemic under control, UNAIDS has set ambitious targets referred to as 90-90-90: by 2020, 90% of all people living with HIV will know their HIV status; 90% of all persons diagnosed with HIV will receive sustained ART; and 90% of all persons receiving ART will have VLS.[1]

While the previous chapters on HIV testing and treatment provide results on coverage of HIV testing and treatment services, VLS among all HIV-positive individuals is a measure of program impact, irrespective of knowledge of status or ART use. This chapter presents the status of the 90-90-90 indicators, which indicate program performance. Awareness of HIV-positive status and treatment status among those aware of their HIV-positive status are indicators of access to services. VLS among those on ART not only provides an indication of access to and retention in care, but also, when compared to VLS among all HIV-positive individuals, provides a measure of program success. VLS among all HIV-positive individuals of 73% (90 x 90 x 90) or greater is an indication of successful testing and treatment services.

The 90-90-90 results in this chapter have been presented in two ways. First, Table 10.3.A uses only self-reported awareness and ARV status. Individuals were defined as 'aware' of their HIV-positive status if they reported their HIV-positive status before testing as part of the ZIMPHIA survey. Individuals were defined as 'on treatment' if they reported ART use. Second, Table 10.3.B measures the 90-90-90 indicators using both self-reported and ARV biomarker data. In this table, 'aware' and 'on treatment' have been adjusted such that individuals in whom ARVs were detected were classified as 'aware' and 'on treatment' even if they did not report it. Individuals were classified as 'aware' of their HIV-positive status if they reported HIV-positive status or had detectable ARVs in their blood. Individuals were classified as 'on treatment' if they reported that they were taking ART or had detectable ARVs in their blood.

It is important to note that in both cascades, individuals who had VLS, but were not aware of their HIV-positive status or were not on ARVs, were excluded from the numerator for the third 90 (VLS among those who are aware and on ARVs).

10.3 Status of UNAIDS 90-90-90 Targets

90-90-90 cascade based on self-reported awareness of HIV status and ARV use

According to ZIMPHIA, among all HIV-positive adults, 73.0% reported that they were HIV positive, which is still somewhat below the 90% target for awareness of HIV status. Of those who reported awareness of their HIV-positive status, 86.8% reported that they were on ART, and of those who reported ART use, 86.5% had VLS, both very close to the 90% targets (Table 10.3.A).

90-90-90 cascade based on self-reported awareness of HIV status and ARV use and detectable ARVs:

ARV-adjusted awareness of HIV-positive status: Among adults living with HIV, 76.8% (72.1% of men and 80.1% of women) were classified as aware, according to combined self-reported awareness and detectable ARV data (ARV-adjusted awareness). Similar levels of ARV-adjusted awareness were observed for all age groups over the age of 35 years. However, ARV-adjusted awareness of HIV-positive status was observed in only 60.3% of young people living with HIV (those aged 15-24 years) (64.5% of older adolescent boys and young men and 58.2% of older adolescent girls and young women) (Table 10.3.B; Figure 10.3.A).

ARV-adjusted treatment status: Based on either self-reported ARV status or detectable ARVs, 88.4% of those with ARV-adjusted awareness of HIV-positive status were classified as on ART (ARV-adjusted treatment status). This was similar across age groups ranging from 82.1% among adults aged 25-34 years to 89.0% among adults aged 35-49 years. The greatest disparity by gender was seen in young people aged 15-24 years, among whom 82.6% of older adolescent boys and young men and 89.3% of older adolescent girls and young women were on ART (Table 10.3.B; Figure 10.3.A).

Viral suppression: Among persons on ART (ARV-adjusted treatment status), 85.3% had VLS. Across all age bands, the greatest disparity in VLS by gender was seen again among young people among whom 75.2% of men and 86.1% of women on ART had VLS (Table 10.3.B; Figure 10.3.A).

Table 10.3.A Adult 90-90-90 (self-reported antiretroviral therapy (ART) status; conditional percentages)

90-90-90 targets among people living with HIV aged 15-64 years, by sex and age, ZIMPHIA 2015-2016

	Diagnosed					
	Men		Women		Total	
Age	Percentage self-reported HIV positive	Number	Percentage self-reported HIV positive	Number	Percentage self-reported HIV positive	Number
15-24	55.3	98	48.2	247	50.6	345
25-34	52.9	206	71.7	643	66.0	849
35-49	73.3	565	85.3	969	79.9	1,534
15-49	66.0	869	74.8	1,859	71.4	2,728
15-64	68.3	1,152	76.1	2,229	73.0	3,381

	On Treatment					
	Among men report as HIV positive		Among women self-reported as HIV positive		Total	
Age	Percentage self-reported on ART	Number	Percentage self-reported on ART	Number	Percentage self-reported on ART	Number
15-24	79.7	55	86.2	121	83.8	176
25-34	77.4	117	80.6	479	79.9	596
35-49	85.3	425	88.9	838	87.4	1,263
15-49	83.1	597	85.7	1,438	84.8	2,035
15-64	86.2	825	87.2	1,755	86.8	2,580

Table 10.3.A Adult 90-90-90 (self-reported antiretroviral therapy (ART) status; conditional percentages) (continued)

90-90-90 targets among people living with HIV aged 15-64 years, by sex and age, ZIMPHIA 2015-2016

	Viral Load Suppression (VLS)					
	Among men self-reported on ART		Among women self-reported on ART		Total	
Age	Percentage with VLS	Number	Percentage with VLS	Number	Percentage with VLS	Number
15-24	(77.0)	46	89.0	104	84.8	150
25-34	80.8	91	83.1	392	82.6	483
35-49	82.6	365	88.0	747	85.8	1,112
15-49	81.7	502	86.5	1,243	84.8	1,745
15-64	84.3	721	87.7	1,546	86.5	2,267

Table 10.3.B Adult 90-90-90 (self-reported antiretroviral therapy (ART) status and/or laboratory antiretroviral (ARV) data; conditional percentages)

90-90-90 targets among people living with HIV aged 15-64 years, by sex and age, ZIMPHIA 2015-2016

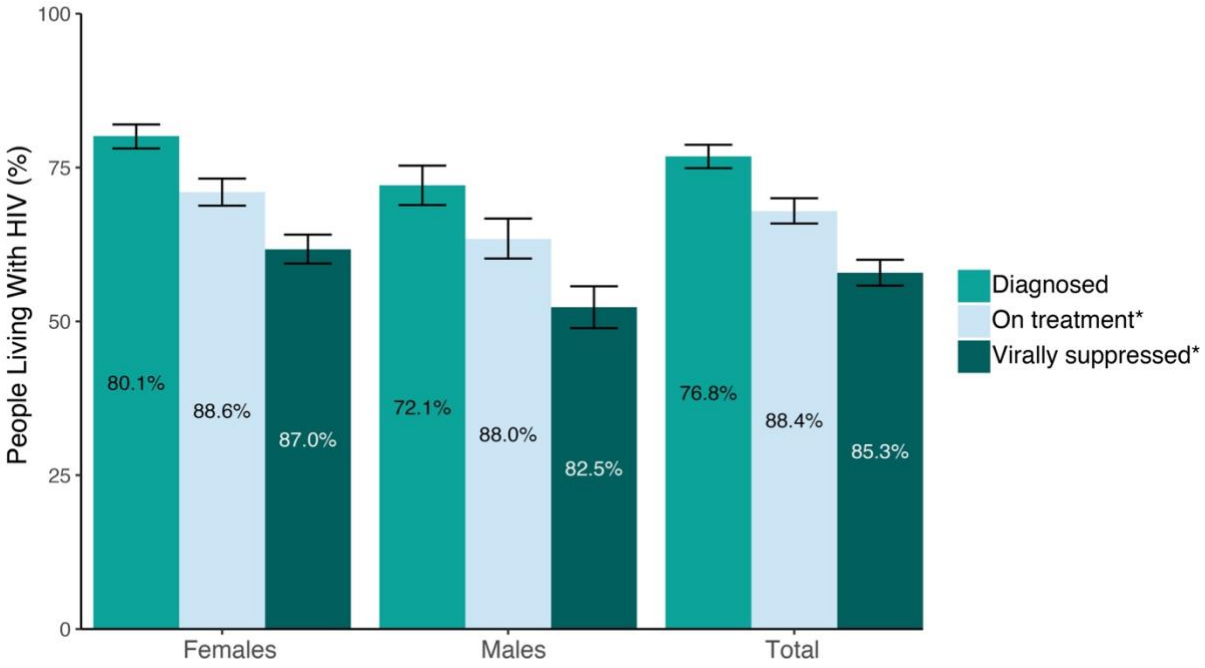
	Diagnosed					
	Men		Women		Total	
Age	Percentage self-reported HIV positive or with detectable ARVs[1]	Number	Percentage self-reported HIV positive or with detectable ARVs[1]	Number	Percentage self-reported HIV positive or with detectable ARVs[1]	Number
15-24	64.5	98	58.2	247	60.3	345
25-34	56.6	206	75.8	643	70.0	849
35-49	76.4	565	88.1	970	82.8	1,535
15-49	69.9	869	79.2	1,860	75.6	2,729
15-64	72.1	1,153	80.1	2,230	76.8	3,383

	On Treatment					
	Among men self-reported as HIV positive or with detectable ARVs		Among women self-reported as HIV positive or with detectable ARVs		Total	
Age	Percentage with detectable ARVs or who reported current ARV usage[2]	Number	Percentage with detectable ARVs or who reported current ARV usage[2]	Number	Percentage with detectable ARVs or who reported current ARV usage[2]	Number
15-24	82.6	63	89.3	147	86.9	210
25-34	80.5	125	82.7	502	82.1	627
35-49	87.3	441	90.1	863	89.0	1,304
15-49	85.4	629	87.4	1,512	86.7	2,141
15-64	88.0	866	88.6	1,833	88.4	2,699

	Viral Load Suppression (VLS) Among Those on Treatment					
	Men		Women		Total	
Age	Percentage with VLS[3]	Number	Percentage with VLS[3]	Number	Percentage with VLS[3]	Number
15-24	75.2	54	86.1	131	82.4	185
25-34	77.0	101	82.9	420	81.5	521
35-49	81.0	386	87.4	778	84.8	1,164
15-49	79.6	541	85.7	1,329	83.6	1,870
15-64	82.5	770	87.0	1,637	85.3	2,407

[1]Relates to Global AIDS Monitoring indicator (GAM) 1.1: People living with HIV who know their HIV status, and PEPFAR DIAGNOSED_NAT; [2]Relates to GAM 1.2: People living with HIV on antiretroviral (ARV) therapy (ART) and PEPFAR indicator TX_CURR_NAT; [3]Relates to GAM 1.4: People living with HIV who have suppressed viral loads and PEPFAR indicator VL_SUPPRESSION_NAT.

Figure 10.3.A Adult 90-90-90 (adjusted for laboratory antiretroviral data among adults aged 15-64 years), ZIMPHIA 2015-2016



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 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.

10.4 Gaps and Unmet Needs

- The greatest gap is in meeting the first 90, awareness of status, particularly among men and young people.

10.5 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. http://www.unaids.org/sites/default/files/media_asset/90-90-90_en_0.pdf. Accessed December 20, 2018.

11 Clinical Perspectives on People Living with HIV

11.1 Key Findings

- Among HIV-positive adults (those aged 15-64 years), 67.9% had CD4 counts less than 500 cells/µL.
- Among HIV-positive adults, 53.1% of those who were unaware of their HIV status had a CD4 count less than 350 cells/µL; 22.0% had a CD4 cell count less than 200 cells/µL.
- Self-reported retention on ART among adults living with HIV was 98.7% among those who started ART in the 12 months before the survey and 98.1% among those who started ART more than 12 months before the survey.

11.2 Background

The quality of HIV care is based on key principles of accessibility, efficiency, and safety. 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] 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. Finally, the measurement of transmitted and secondary drug resistance allows optimization of national ART guidelines, including second- and third-line therapies. The PHIA Project, therefore, provided a unique opportunity to gauge progress in the expansion of HIV clinical services in Zimbabwe, as well as identify gaps and future challenges.

11.3 CD4 Counts and Immunosuppression

The median CD4 count was 387 cells/µL among all HIV-positive adults. The median CD4 count was 413 cells/µL among those who were previously diagnosed and on ART, compared to 332 cells/µL among those who had been previously diagnosed, but were not on ART, and 348 cells/µL among those not previously diagnosed. Among those on ART, median CD4 count was 320 cells/µL among men and 475 cells/µL among women. Similar disparities by gender were observed across all sociodemographic characteristics. By age, median CD4 count was highest among young people (the population aged 15-24 years) at 435 cells/µL for older adolescents aged 15-19 years and 456 cells/µL for young adults aged 20-24 years (Table 11.3.A, Figure 11.3.A).

Two-thirds (67.9%) of HIV-positive adults were immunosuppressed, defined as CD4 count less than 500 cells/µL. The prevalence of immunosuppression among adults who were previously diagnosed and reported ART use was 63.6%, compared to 73.7% among those previously diagnosed but not on ART, and 76.0% among those not previously diagnosed. Approximately half (53.6%) of all HIV-positive women who were previously diagnosed and on ART were immunosuppressed, compared to 80.3% among men. By age, the prevalence of immunosuppression ranged from 54.9% among young adults aged 20-24 years to 79.4% among adults aged 60-64 years (Table 11.3.A).

Table 11.3.A Median CD4 count and prevalence of immunosuppression

Among HIV-positive persons aged 15-64 years, median (Q1, Q3) CD4 count and percentage with immunosuppression (< 500 cells/µL), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, ZIMPHIA 2015-2016

	Men			Women			Total		
Characteristic	Median (Q1, Q3)	Percentage < 500 cells/µL	Number	Median (Q1, Q3)	Percentage < 500 cells/µL	Number	Median (Q1, Q3)	Percentage < 500 cells/µL	Number
Self-reported diagnosis and treatment status									
Not previously diagnosed	317 (202, 424)	83.8	327	394 (244, 570)	68.9	474	348 (225, 488)	76.0	801
Previously diagnosed, not on ART	252 (156, 377)	88.8	104	407 (256, 589)	63.6	208	332 (202, 506)	73.7	312
Previously diagnosed, on ART	320 (209, 452)	80.3	721	475 (329, 639)	53.6	1,544	413 (273, 580)	63.6	2,265
Missing	*	*	3	*	*	1	*	*	4
Residence									
Urban	300 (191, 437)	82.9	304	438 (285, 626)	58.2	743	386 (249, 569)	67.7	1,047
Rural	320 (205, 441)	81.7	851	448 (301, 615)	58.3	1,484	388 (250, 552)	68.0	2,335
Province									
Bulawayo	287 (201, 414)	86.4	114	433 (294, 607)	60.3	274	377 (238, 529)	70.5	388
Manicaland	325 (179, 426)	81.3	96	443 (316, 659)	57.5	178	396 (254, 542)	67.0	274
Mashonaland Central	282 (147, 387)	85.8	115	450 (324, 621)	60.7	193	377 (222, 534)	71.3	308
Mashonaland East	304 (191, 408)	86.6	120	426 (258, 604)	60.4	175	343 (224, 516)	72.7	295
Mashonaland West	314 (212, 459)	80.6	128	460 (310, 636)	54.7	199	385 (258, 573)	66.8	327
Matabeleland North	313 (225, 442)	82.6	135	424 (318, 554)	65.0	289	390 (278, 522)	71.4	424
Matabeleland South	337 (226, 469)	78.4	138	467 (299, 610)	55.4	244	401 (266, 571)	64.7	382
Midlands	326 (236, 433)	82.6	99	467 (296, 637)	55.5	203	388 (258, 570)	66.0	302
Masvingo	309 (188, 439)	83.5	118	481 (332, 607)	54.7	239	421 (258, 568)	65.5	357
Harare	314 (181, 462)	77.0	92	429 (270, 620)	59.8	233	388 (238, 581)	66.3	325
Marital status									
Never married	343 (202, 499)	74.7	127	470 (345, 650)	55.7	215	419 (255, 584)	64.3	342
Married or living together	317 (208, 432)	82.9	861	449 (302, 623)	57.3	1,147	379 (247, 540)	70.0	2,008
Divorced or separated	270 (161, 388)	83.2	104	432 (273, 610)	59.3	331	387 (239, 570)	65.8	435
Widowed	265 (163, 381)	85.7	62	434 (287, 593)	61.2	528	411 (266, 580)	64.3	590
Education									
No education	*	*	24	390 (259, 611)	63.8	92	354 (226, 572)	67.6	116
Primary	289 (185, 405)	86.4	409	443 (308, 614)	58.9	877	384 (247, 542)	68.8	1,286
Secondary	319 (212, 459)	79.5	665	450 (293, 623)	57.3	1,190	393 (253, 568)	66.9	1,855
More than secondary	316 (178, 428)	88.0	56	395 (245, 638)	60.7	68	347 (219, 495)	74.9	124
Wealth quintile									
Lowest	317 (187, 436)	83.8	296	442 (305, 591)	62.0	548	390 (248, 534)	70.7	844
Second	323 (208, 428)	80.9	252	457 (303, 629)	56.9	427	383 (258, 565)	67.0	679
Middle	318 (220, 440)	81.8	238	448 (301, 623)	56.3	386	387 (245, 553)	67.5	624
Fourth	304 (195, 429)	82.9	185	447 (280, 643)	56.5	442	388 (244, 571)	66.8	627
Highest	300 (186, 455)	80.9	184	433 (289, 616)	59.4	424	386 (251, 565)	67.5	608

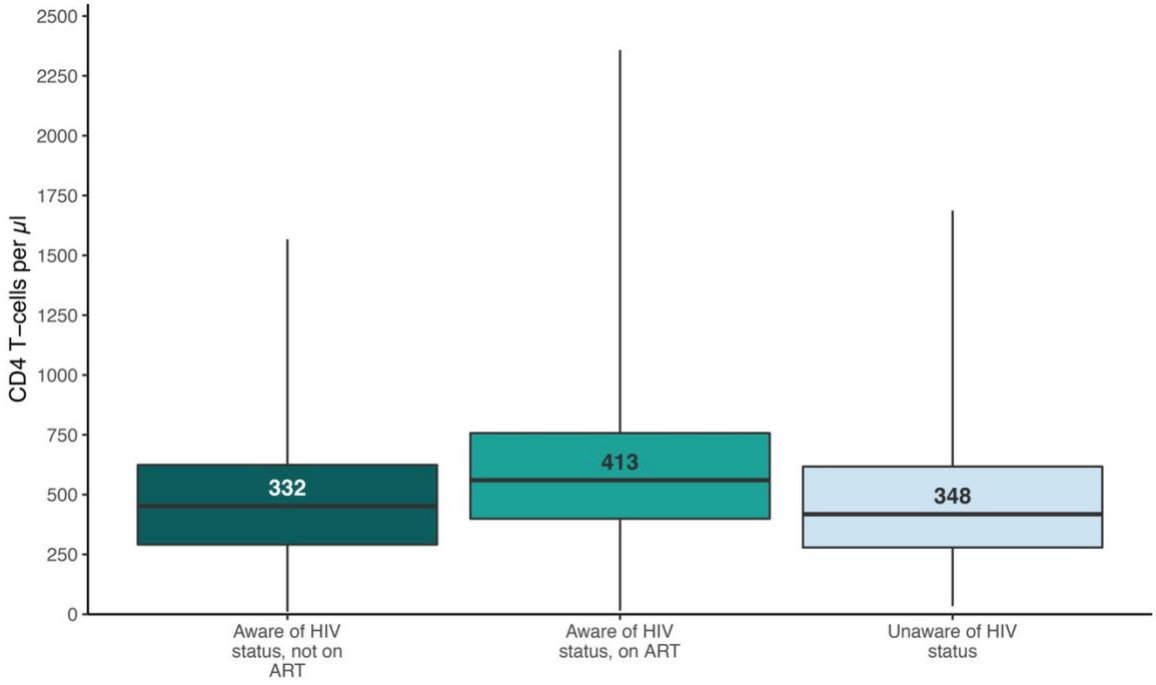
Table 11.3.A Median CD4 count and prevalence of immunosuppression (continued)

Among HIV-positive persons aged 15-64 years, median (Q1, Q3) CD4 count and percentage with immunosuppression (< 500 cells/µL), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, ZIMPHIA 2015-2016

	Men			Women			Total		
Characteristic	Median (Q1, Q3)	Percentage < 500 cells/µL	Number	Median (Q1, Q3)	Percentage < 500 cells/µL	Number	Median (Q1, Q3)	Percentage < 500 cells/µL	Number
Religion									
Traditional	346 (186, 421)	85.3	53	*	*	14	348 (202, 459)	78.5	67
Roman Catholic	328 (212, 424)	85.1	104	446 (305, 653)	56.8	140	388 (235, 546)	71.1	244
Protestant	302 (207, 457)	79.1	160	460 (297, 648)	56.1	374	394 (255, 585)	64.2	534
Pentecostal	348 (230, 527)	74.0	137	439 (284, 602)	58.2	495	421 (273, 577)	62.7	632
Apostolic Sect	312 (206, 422)	82.6	310	442 (303, 610)	58.7	795	396 (264, 569)	66.7	1,105
Other Christian	286 (165, 446)	81.8	62	462 (302, 623)	56.2	236	407 (253, 573)	63.1	298
Muslim	*	*	9	*	*	9	*	*	18
Other	*	*	8	*	*	19	390 (280, 545)	(68.2)	27
None	292 (176, 422)	85.0	310	409 (256, 580)	66.2	145	320 (209, 460)	79.9	455
Age									
15-19	354 (190, 531)	69.6	61	484 (384, 652)	51.5	86	435 (288, 596)	59.7	147
20-24	329 (191, 428)	(80.2)	37	510 (344, 662)	47.0	161	456 (298, 639)	54.9	198
25-29	337 (259, 456)	81.9	71	462 (327, 614)	56.6	256	414 (290, 561)	63.5	327
30-34	305 (191, 470)	78.0	136	414 (274, 613)	60.5	386	394 (246, 577)	66.1	522
35-39	311 (161, 406)	86.9	182	442 (311, 605)	60.3	389	374 (255, 536)	71.1	571
40-44	336 (222, 451)	78.7	210	426 (273, 591)	63.3	347	369 (239, 540)	70.4	557
45-49	294 (190, 403)	85.6	173	450 (287, 623)	56.8	232	356 (232, 525)	71.3	405
50-54	315 (214, 425)	85.5	118	500 (320, 647)	49.4	160	395 (246, 543)	67.9	278
55-59	270 (180, 397)	84.2	97	443 (277, 629)	62.7	133	351 (221, 528)	73.0	230
60-64	297 (191, 417)	86.5	70	386 (242, 522)	71.6	77	345 (224, 468)	79.4	147
Total 15-24	339 (192, 501)	73.8	98	509 (360, 661)	48.6	247	441 (294, 622)	57.0	345
Total 15-49	315 (201, 446)	81.3	870	442 (296, 618)	58.1	1,857	391 (255, 565)	67.1	2,727
Total 15-64	314 (199, 438)	82.1	1,155	444 (295, 619)	58.3	2,227	387 (250, 558)	67.9	3,382

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Figure 11.3.A CD4 count distribution among HIV-positive adults, by antiretroviral therapy status, ZIMPHIA 2015-2016



11.4 Late HIV Diagnosis

Table 11.4.A pertains to adults who tested HIV positive during ZIMPHIA, but who had reported an HIV-negative status or that they did not know their HIV status during their individual interview—and also did not have ARVs detected in their blood. That is, these individuals represent people living with HIV who were unaware of their HIV-positive status at the time of the survey. The table presents the proportions of people living with HIV with a CD4 count less than 200 cells/µL and less than 350 cells/µL, as determined by CD4 testing conducted during the survey.

Half (53.1%) of the people living with HIV who were unaware of their HIV status had a CD4 count less than 350 cells/µL and one-fifth (22.0%) had a CD4 count less than 200 cells/µL. Among men, 61.3% had a CD4 count less than 350 cells/µL and 25.0% had a CD4 count less than 200 cells/µL, while among women, 45.3% had a CD4 count less than 350/µL and 19.1% had a CD4 count less than 200 cells/µL (Table 11.4.A).

Among young people living with HIV who were unaware of their HIV status, 42.7% had a CD4 count less than 350 cells/µL and 16.3% had a CD4 count less than 200 cells/µL. Among older adolescent boys and young men, 72.5% had a CD4 count less than 350 cells/µL and 24.9% had a CD4 count less than 200 cells/µL; however, estimates for this demographic group are based on a small number of unweighted cases and should be interpreted with caution. Among older adolescent girls and young women, 30.0% had a CD4 count less than 350 cells/µL and 12.6% had a CD4 count less than 200 cells/µL (Table 11.4.A).

Table 11.4.A Late HIV diagnosis

Among persons aged 15-64 years who tested HIV positive in the PHIA survey but self-reported as HIV negative with no detectable ARVs, percentage who had a CD4 cell count < 200 cells/mL and < 350 cells/mL, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Men			Women			Total		
	Percentage < 200 cells/μL[1]	Percentage < 350 cells/μL[1]	Number	Percentage < 200 cells/μL[1]	Percentage < 350 cells/μL[1]	Number	Percentage < 200 cells/μL[1]	Percentage < 350 cells/μL[1]	Number
Residence									
Urban	28.0	68.5	77	17.2	45.5	153	22.0	55.6	230
Rural	23.3	57.2	210	20.5	45.2	244	21.9	51.4	454
Province									
Bulawayo	(29.9)	(70.1)	26	23.4	51.2	59	26.2	59.2	85
Manicaland	(20.0)	(65.9)	28	(14.1)	(33.8)	27	17.4	51.8	55
Mashonaland Central	(29.3)	(72.4)	27	(28.5)	(42.1)	33	28.9	56.7	60
Mashonaland East	(17.8)	(51.8)	41	(25.1)	(58.3)	30	20.4	54.1	71
Mashonaland West	(18.8)	(54.8)	35	(17.4)	(44.2)	33	18.3	50.5	68
Matabeleland North	(29.3)	(69.6)	33	(21.1)	(45.0)	37	25.5	58.2	70
Matabeleland South	(29.7)	(67.4)	29	(10.9)	(42.5)	44	19.4	53.7	73
Midlands	*	*	24	(21.4)	(48.5)	38	20.8	48.6	62
Masvingo	(28.4)	(55.5)	26	(18.5)	(33.3)	48	22.4	42.0	74
Harare	*	*	18	(15.7)	(50.1)	48	23.3	57.6	66
Marital status									
Never married	(22.2)	(61.3)	42	15.4	30.9	56	18.7	45.7	98
Married or living together	24.5	59.8	208	17.3	41.1	203	21.4	51.8	411
Divorced or separated	(29.3)	(67.1)	28	19.8	49.4	70	22.7	54.7	98
Widowed	*	*	9	28.4	68.0	67	30.1	70.1	76
Education									
No education	*	*	4	*	*	18	*	*	22
Primary	24.8	68.3	87	12.8	41.5	133	18.0	53.1	220
Secondary	24.4	58.3	177	23.3	45.6	234	23.8	52.0	411
More than secondary	*	*	19	*	*	12	(23.1)	(67.5)	31
Wealth quintile									
Lowest	23.1	59.3	62	20.8	40.0	91	21.8	48.6	153
Second	21.5	57.0	70	18.3	54.9	69	20.1	56.1	139
Middle	21.3	61.4	61	22.2	46.4	67	21.7	54.6	128
Fourth	(25.0)	(60.6)	46	17.9	42.7	90	20.9	50.4	136
Highest	(34.1)	(67.9)	48	17.1	45.5	80	25.3	56.3	128
Religion									
Traditional	*	*	13	*	*	3	*	*	16
Roman Catholic	(22.4)	(44.9)	26	*	*	11	(30.8)	(50.6)	37
Protestant	(24.9)	(64.1)	27	20.1	45.1	57	22.0	52.4	84
Pentecostal	(14.5)	(53.0)	29	17.0	47.5	89	16.2	49.3	118
Apostolic Sect	26.1	72.0	79	18.9	44.5	148	21.8	55.3	227
Other Christian	*	*	21	(14.2)	(42.2)	48	22.7	56.2	69
Muslim	*	*	3	*	*	2	*	*	5
Other	*	*	1	*	*	6	*	*	7
None	27.1	59.3	86	(18.3)	(45.1)	33	25.0	55.9	119
Age									
15-19	*	*	17	(10.0)	(26.8)	31	(18.3)	(38.4)	48
20-24	*	*	18	13.9	31.6	69	15.1	45.3	87
25-29	(10.6)	(56.1)	38	9.9	29.3	70	10.2	40.1	108
30-34	(30.1)	(61.0)	43	25.3	57.2	71	27.6	59.0	114
35-39	(23.1)	(58.5)	45	(19.4)	(64.2)	42	21.7	60.7	87
40-44	(29.8)	(52.0)	47	(24.9)	(56.9)	37	28.1	53.7	84
45-49	(33.6)	(77.7)	32	(38.8)	(62.9)	28	35.8	71.6	60
50-54	*	*	16	*	*	20	(18.1)	(42.6)	36
55-59	*	*	21	*	*	13	(30.2)	(70.0)	34
60-64	*	*	10	*	*	16	(28.8)	(67.0)	26
Total 15-24	(24.9)	(72.5)	35	12.6	30.0	100	16.3	42.7	135
Total 15-49	25.1	61.5	240	18.3	44.0	348	21.5	52.3	588
Total 15-64	25.0	61.3	287	19.1	45.3	397	22.0	53.1	684

[1]Relates to Global AIDS Monitoring Indicator 1.5: Late HIV diagnosis.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

11.5 Retention on Antiretroviral Therapy

Self-reported retention on ART among HIV-positive adults who started ART in the 12 months before the survey was 98.7%. Retention was similar in urban (99.5%) and rural (98.3%) areas. There was also little difference in retention by other demographic characteristics including gender, province, marital status, education, wealth quintile, religion, and age (Table 11.5.A).

Similarly, among adults living with HIV who started ART more than 12 months before the survey was 98.1%, with little variation by demographic characteristic. The near universal retention bodes well for treatment as prevention in Zimbabwe as once people start ART, they stay on ART (Table 11.5.B).

Table 11.5.A Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy LESS THAN 12 months prior to the survey

Among HIV-positive adults aged 15-64 years who self-reported initiating ART less than 12 months prior to the survey, percentage who self-reported still receiving ART, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number
Presence of detectable ARVs						
Detectable	100.0	73	100.0	182	100.0	255
Not detectable	*	13	*	17	(87.2)	30
Residence						
Urban	*	18	99.3	64	99.5	82
Rural	98.9	68	97.9	136	98.3	204
Province						
Bulawayo	*	6	*	23	(97.4)	29
Manicaland	*	12	*	14	(100.0)	26
Mashonaland Central	*	8	*	7	*	15
Mashonaland East	*	7	*	14	*	21
Mashonaland West	*	10	(100.0)	26	(100.0)	36
Matabeleland North	*	13	(95.9)	25	(97.4)	38
Matabeleland South	*	11	(95.8)	25	(94.1)	36
Midlands	*	7	*	21	(100.0)	28
Masvingo	*	7	*	22	(95.5)	29
Harare	*	5	*	23	(100.0)	28
Marital status						
Never married	*	9	*	14	*	23
Married or living together	100.0	56	98.9	115	99.3	171
Divorced or separated	*	15	(94.2)	37	96.1	52
Widowed	*	6	(100.0)	34	(100.0)	40
Education						
No education	*	4	*	5	*	9
Primary	(100.0)	37	97.4	85	98.3	122
Secondary	(98.6)	44	98.9	104	98.8	148
More than secondary	*	1	*	6	*	7
Wealth quintile						
Lowest	(97.5)	30	(98.3)	49	98.0	79
Second	*	16	(98.7)	48	99.0	64
Middle	*	18	(95.9)	33	97.6	51
Fourth	*	15	(98.8)	43	99.2	58
Highest	*	7	(100.0)	27	(100.0)	34
Religion						
Traditional	*	5	*	1	*	6
Roman Catholic	*	6	*	12	*	18
Protestant	*	8	(95.5)	28	(96.5)	36
Pentecostal	*	6	100.0	52	100.0	58
Apostolic Sect	*	21	97.2	66	98.0	87
Other Christian	*	4	*	21	(100.0)	25
Muslim	*	2	*	1	*	3
Other	*	0	*	3	*	3
None	(98.0)	34	*	16	98.6	50

Table 11.5.A Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy LESS THAN 12 months prior to the survey (continued)

Among HIV-positive adults aged 15-64 years who self-reported initiating ART less than 12 months prior to the survey, percentage who self-reported still receiving ART, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number
Age						
15-19	*	4	*	8	*	12
20-24	*	1	*	15	*	16
25-29	*	9	(92.0)	35	(92.5)	44
30-34	*	16	(100.0)	42	100.0	58
35-39	*	18	(100.0)	42	100.0	60
40-44	*	11	(97.7)	25	(98.5)	36
45-49	*	12	*	16	(100.0)	28
50-54	*	9	*	5	*	14
55-59	*	4	*	8	*	12
60-64	*	2	*	4	*	6
Total 15-24	*	5	*	23	(100.0)	28
Total 15-49	99.1	71	98.3	183	98.5	254
Total 15-64	99.2	86	98.4	200	98.7	286

[1]Relates to Global AIDS Monitoring Indicator 1.3: Retention on antiretroviral therapy at 12 months.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 11.5.B Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy MORE THAN 12 months prior to the survey

Among HIV-positive persons aged 15-64 years who self-reported initiating ART 12 months or more prior to the survey, percentage who self-reported still receiving ART, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number
Presence of detectable ARVs						
Detectable	99.6	586	99.6	1231	99.6	1817
Not detectable	(80.8)	37	78.7	97	79.4	134
Residence						
Urban	98.4	170	97.0	418	97.5	588
Rural	98.3	459	98.4	919	98.3	1378
Province						
Bulawayo	98.3	69	97.8	154	98.0	223
Manicaland	(97.7)	46	99.0	111	98.6	157
Mashonaland Central	98.3	61	100.0	125	99.3	186
Mashonaland East	(100.0)	49	94.2	111	96.2	160
Mashonaland West	100.0	70	98.0	112	98.9	182
Matabeleland North	98.2	70	98.2	186	98.2	256
Matabeleland South	100.0	83	99.4	154	99.6	237
Midlands	100.0	57	99.1	119	99.4	176
Masvingo	96.4	69	98.4	134	97.6	203
Harare	96.3	55	96.2	131	96.2	186
Marital status						
Never married	98.1	56	100.0	107	99.2	163
Married or living together	98.6	491	96.9	672	97.7	1163
Divorced or separated	(96.0)	48	98.2	170	97.6	218
Widowed	(100.0)	34	98.8	383	98.9	417
Education						
No education	*	12	100.0	56	100.0	68
Primary	98.9	228	98.5	539	98.7	767
Secondary	98.0	360	97.1	701	97.5	1061
More than secondary	(100.0)	28	(100.0)	41	100.0	69
Wealth quintile						
Lowest	99.1	160	98.2	343	98.5	503
Second	100.0	142	99.5	260	99.7	402
Middle	95.7	126	98.4	234	97.3	360
Fourth	99.3	98	95.7	245	97.0	343
Highest	97.7	103	97.8	255	97.7	358
Religion						
Traditional	(100.0)	25	*	8	(100.0)	33

Table 11.5.B Retention on antiretroviral therapy (ART): people initiating antiretroviral therapy MORE THAN 12 months prior to the survey (continued)

Among HIV-positive persons aged 15-64 years who self-reported initiating ART 12 months or more prior to the survey, percentage who self-reported still receiving ART, by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number	Percentage still receiving ART[1]	Number
Religion (cont.)						
Roman Catholic	100.0	58	98.9	100	99.4	158
Protestant	100.0	105	97.7	244	98.5	349
Pentecostal	98.7	80	98.4	295	98.4	375
Apostolic Sect	96.1	174	98.1	456	97.5	630
Other Christian	(100.0)	27	99.0	140	99.2	167
Muslim	*	4	*	6	*	10
Other	*	4	*	10	*	14
None	98.5	152	91.2	78	96.2	230
Age						
15-19	(100.0)	26	(100.0)	29	100.0	55
20-24	*	13	(95.1)	49	94.4	62
25-29	*	11	94.5	116	95.1	127
30-34	94.9	55	95.5	207	95.4	262
35-39	99.0	83	98.2	253	98.5	336
40-44	96.2	131	99.5	243	98.1	374
45-49	100.0	108	98.4	165	99.2	273
50-54	100.0	81	100.0	125	100.0	206
55-59	100.0	67	100.0	103	100.0	170
60-64	100.0	54	(100.0)	47	100.0	101
Total 15-24	(97.3)	39	97.1	78	97.2	117
Total 15-49	97.8	427	97.4	1062	97.5	1489
Total 15-64	98.4	629	97.9	1337	98.1	1966

[1]Relates to Global AIDS Monitoring Indicator 1.3: Retention on antiretroviral therapy at 12 months.
Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

11.6 Transmitted Resistance to Antiretroviral Therapy

Among 23 adults identified as having had a recent HIV infection, 1 showed evidence of transmitted drug resistance. That person showed evidence of resistance to non-nucleoside reverse transcriptase inhibitors (NNRTIs) (Table 11.6.A). No cases of resistance to protease inhibitors were identified. All of the samples tested were found to be HIV subtype C (Table 11.6.B).

Table 11.6.A Resistance to antiretrovirals (ARVs)

Among persons aged 15-64 years who were recently infected with HIV, percentage with resistance to ARVs, by class of ARV resistance, ZIMPHIA 2015-2016

	Percent	Number	DR Mutations Detected[1]
Successfully amplified[2]	*	23	
Any	*	1	K103N
Nucleoside reverse transcriptase inhibitors (NRTIs)	*	0	
Non-nucleoside reverse transcriptase inhibitors (NNRTIs)	*	1	K103N
Protease inhibitors (PIs)	*	0	
NRTI & NNRTI	*	0	
NRTI, NNRTI & PI	*	0	

[1]Based on *Stanford Database for HIV Drug Resistance Mutation*
[2]Unweighted figures, from a total of 29 cases.
https://hivdb.stanford.edu/assets/media/resistance-mutation-handout-Feb2017.516aee6f.pdf
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Table 11.6.B HIV Subtype		
Percent distribution of HIV-positive persons aged 15-64 years that underwent genotyping, by HIV subtype, ZIMPHIA 2015-2016		
	Total	
	Percent	Number
Subtype A	*	0
Subtype B	*	0
Subtype C	100.0	84
Subtype D	*	0
Subtype G	*	0
Recombinant	*	0
Total	100.0	84

Unweighted figures.
*An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

11.7 Gaps and Unmet Needs

- Late diagnosis, or the prevalence of CD4 counts less than 350 cells/µL among undiagnosed people living with HIV, is common, particularly, among those aged 45 years and older. This population requires urgent diagnosis and treatment initiation to reduce the risk of significant or life-threatening health complications.

11.8 References

1. World Health Organization. *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection.* Geneva: World Health Organization; 2016. http://www.who.int/hiv/pub/arv/arv-2016/en/. Accessed December 20, 2018.

12 PREVENTION OF MOTHER-TO-CHILD TRANSMISSION

12.1 Key Findings

- Among women of childbearing age (ages 15-49 years), who delivered in the three years preceding the survey, 95.5% had at least one ANC visit.
- Among women who delivered within the 12 months before the survey, 98.2% knew their HIV status.
- Among HIV-positive women who delivered in the 12 months preceding the survey, 96.8% received ARV to reduce the risk of MTCT, suggesting high coverage of PMTCT programs.
- Among last-born infants of HIV-positive mothers in the 36 months preceding the survey, 53.8% were reported to have been tested for HIV within two months of birth.
- Among infants born in the 17 months prior to the survey to HIV-positive mothers, 6.2% were confirmed HIV positive by virological testing conducted as part of ZIMPHIA.

12.2 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 MTCT. Without any interventions, between 20-45% of infants may become infected with HIV, with an estimated risk of 5-10% during pregnancy, 10-20% during labor and delivery, and 5-20% 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;* (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, their children, and families.[2]

This chapter describes 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, and infant HIV testing to confirm HIV infection through self-report by the mother and through biomarker testing during the survey.

12.3 Antenatal Care Attendance

Among women who delivered in the three years preceding the survey, 95.5% had at least one ANC visit during their most recent pregnancy. Attending at least one ANC visit was almost universal across all provinces, ranging from 93.1% in Mashonaland East to 99.3% in Matabeleland South (Table 12.3.A).

*Women of childbearing age (ages 15-49 years) are referred to as either women or mothers in this chapter.

Table 12.3.A Antenatal care

Among women aged 15-49 years who delivered in the three years preceding the survey, percentage who attended at least one antenatal care (ANC) visit for her most recent birth, by selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Percentage who attended at least one ANC visit	Number
Residence		
Urban	96.1	1,023
Rural	95.2	2,534
Province		
Bulawayo	97.1	275
Manicaland	94.0	380
Mashonaland Central	96.8	434
Mashonaland East	93.1	323
Mashonaland West	95.0	442
Matabeleland North	95.9	344
Matabeleland South	99.3	259
Midlands	93.4	345
Masvingo	97.3	362
Harare	96.2	393
Marital status		
Never married	97.5	254
Married or living together	95.6	2,994
Divorced or separated	95.3	245
Widowed	88.8	58
Education		
No education	(95.7)	43
Primary	92.1	1,063
Secondary	96.6	2,275
More than secondary	99.6	175
Wealth quintile		
Lowest	94.3	937
Second	94.3	727
Middle	95.5	672
Fourth	95.8	660
Highest	98.1	561
Religion		
Traditional	*	23
Roman Catholic	99.7	174
Protestant	98.4	480
Pentecostal	97.9	776
Apostolic Sect	92.3	1,558
Other Christian	99.1	273
Muslim	*	12
Other	(100.0)	27
None	94.0	234
Age		
15-19	95.0	312
20-24	95.9	986
25-29	95.2	875
30-34	95.3	726
35-39	96.3	478
40-44	94.4	157
45-49	*	23
Total 15-24	95.7	1,298
Total 15-49	95.5	3,557

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

12.4 Breastfeeding

Among women who delivered during the 36 months preceding the survey, 97.8% of women had ever breastfed; half (49.7%) had ever breastfed their last-born child, but at the time of the survey were not currently breastfeeding; and nearly half (48.1%) were currently breastfeeding their last-born child at the time of the survey. Similar proportions of HIV-positive (93.7%) and HIV-negative (98.5%) mothers breastfed their last-born child. At the time of the survey, over 91% of children aged 9-11 months were currently breastfeeding, while fewer (75.1%) children aged 12-17 months were currently breastfeeding (Table 12.4.A).

Table 12.4.A 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 preceding the survey by breastfeeding status, by child's age, and mother's HIV status, ZIMPHIA 2015-2016

Characteristic	Never breast fed	Ever breast fed, but not currently breast feeding	Currently breast feeding	Total	Number
Child's age (months)					
0-1	0.3	0.9	97.4	100.0	185
2-3	0.0	0.3	97.4	100.0	201
4-5	0.0	1.1	97.4	100.0	234
6-8	0.8	2.1	96.7	100.0	313
9-11	1.8	6.7	91.0	100.0	288
12-17	0.5	22.6	75.1	100.0	546
18-23	0.5	80.3	17.3	100.0	622
24-36	0.7	95.2	2.3	100.0	1,162
Result of mother's PHIA survey HIV test					
HIV positive	2.7	53.2	40.5	100.0	484
HIV negative	0.3	49.9	48.6	100.0	2,787
Not tested	0.3	42.6	54.6	100.0	286
Total	0.6	49.7	48.1	100.0	3,557

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

12.5 Awareness of Mother's HIV Status

Nearly all women (98.2%) who delivered within the 12 months preceding the survey knew their HIV status: 91.3% were tested during ANC (88.0% tested HIV negative; 3.3% tested HIV positive), and 6.9% already knew they were HIV positive. Across the provinces, the percentage of mothers who tested positive during ANC ranged from 0.7% in Mashonaland Central to 7.4% in Matabeleland South. The percentage of women who already knew that they were HIV positive ranged from 2.7% in Mashonaland East to 11.7% in Matabeleland North (Table 12.5.A).

Table 12.5.A Prevention of mother-to-child transmission, known HIV status

Among women aged 15-49 years who gave birth within the past 12 months, percentage who were tested for HIV during antenatal care and received their results or who already knew they were HIV positive, by selected demographic characteristics, ZIMPHIA 2015-2016

	Tested for HIV and received result[1]				
Characteristic	Percentage who tested HIV positive	Percentage who tested HIV negative	Percentage who already knew they were HIV positive	Total percentage with known HIV status[2]	Number of women who delivered within the past 12 months
Residence					
Urban	2.0	90.5	6.0	98.5	314
Rural	3.9	86.9	7.2	98.0	851
Province					
Bulawayo	2.5	92.4	5.1	100.0	76
Manicaland	5.8	81.2	10.3	97.3	115
Mashonaland Central	0.7	93.5	5.1	99.2	144
Mashonaland East	3.4	92.2	2.7	98.2	101
Mashonaland West	2.9	86.4	7.4	96.7	154
Matabeleland North	7.3	78.4	11.7	97.4	115

Table 12.5.A Prevention of mother-to-child transmission, known HIV status (continued)

Among women aged 15-49 years who gave birth within the past 12 months, percentage who were tested for HIV during antenatal care and received their results or who already knew they were HIV positive, by selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Tested for HIV and received result[1]: Percentage who tested HIV positive	Tested for HIV and received result[1]: Percentage who tested HIV negative	Percentage who already knew they were HIV positive	Total percentage with known HIV status[2]	Number of women who delivered within the past 12 months
Province (cont.)					
Matabeleland South	7.4	79.1	10.4	96.9	89
Midlands	1.7	92.1	3.9	97.7	118
Masvingo	3.1	89.6	7.2	100.0	121
Harare	2.5	89.1	7.1	98.7	132
Marital status					
Never married	2.2	89.6	4.9	96.7	88
Married or living together	3.0	88.8	6.6	98.4	1,000
Divorced or separated	10.6	81.0	5.7	97.3	61
Widowed	*	*	*	*	13
Education					
No education	*	*	*	*	14
Primary	5.4	81.4	9.2	96.0	333
Secondary	2.6	89.8	6.5	98.8	753
More than secondary	3.2	96.1	0.7	100.0	65
Wealth quintile					
Lowest	3.6	87.9	5.9	97.4	298
Second	4.7	86.3	7.2	98.2	268
Middle	3.1	86.4	8.9	98.5	222
Fourth	2.9	89.0	6.4	98.3	194
Highest	1.9	90.9	5.8	98.7	183
Religion					
Traditional	*	*	*	*	10
Roman Catholic	1.0	84.9	12.3	98.2	60
Protestant	3.4	88.5	7.3	99.2	156
Pentecostal	2.5	89.3	6.4	98.2	255
Apostolic Sect	4.0	86.8	7.2	97.9	515
Other Christian	1.4	92.9	4.7	99.0	91
Muslim	*	*	*	*	3
Other	*	*	*	*	3
None	4.6	86.9	4.5	96.0	72
Age					
15-19	1.2	95.5	0.0	96.7	173
20-24	2.1	93.4	3.2	98.7	316
25-29	4.3	88.5	5.5	98.3	271
30-34	3.6	85.6	10.8	100.0	211
35-39	4.9	72.4	20.4	97.7	155
40-44	(9.8)	(73.3)	(6.2)	(89.3)	35
45-49	*	*	*	*	4
Total 15-24	1.8	94.2	2.0	98.0	489
Total 15-49	3.3	88.0	6.9	98.2	1,165

[1]Relates to PEPFAR PMTCT_STAT_NAT / SUBNAT

[2]The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

12.6 Antiretroviral Therapy Among HIV-Positive Pregnant Women

Among HIV-positive women who delivered within the 12 months preceding the survey, 96.8% received ART to reduce the risk of MTCT: 56.2% were already taking ART at the time of their first ANC visit, while 40.6% were newly initiated on ART during pregnancy or labor and delivery (Table 12.6.A).

Table 12.6.A Prevention of mother-to-child transmission: HIV-positive pregnant women who received antiretrovirals (ARVs)

Among HIV-positive women aged 15-49 years who gave birth within the past 12 months, percentage who received ARV during pregnancy to reduce the risk of MTCT, by selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Percentage who were already on ARVs prior to pregnancy	Percentage who were newly initiated on ARVs during pregnancy or labor and delivery	Total percentage who received ARVs[1]	Number of HIV-positive women who gave birth within the past 12 months
Residence				
Urban	(68.2)	(29.5)	(97.7)	25
Rural	52.3	44.2	96.4	104
Province				
Bulawayo	*	*	*	6
Manicaland	*	*	*	19
Mashonaland Central	*	*	*	9
Mashonaland East	*	*	*	7
Mashonaland West	*	*	*	17
Matabeleland North	*	*	*	22
Matabeleland South	*	*	*	17
Midlands	*	*	*	7
Masvingo	*	*	*	12
Harare	*	*	*	13
Marital status				
Never married	*	*	*	6
Married or living together	55.8	40.3	96.1	106
Divorced or separated	*	*	*	10
Widowed	*	*	*	5
Education				
No education	*	*	*	1
Primary	52.5	43.2	95.7	51
Secondary	59.3	37.9	97.2	74
More than secondary	*	*	*	3
Wealth Quintile				
Lowest	(52.1)	(44.6)	(96.7)	32
Second	(45.3)	(46.8)	(92.2)	35
Middle	(58.7)	(41.3)	(100.0)	28
Fourth	*	*	*	19
Highest	*	*	*	15
Religion				
Traditional	*	*	*	0
Roman Catholic	*	*	*	11
Protestant	*	*	*	16
Pentecostal	(66.1)	(33.9)	(100.0)	27
Apostolic Sect	53.1	42.1	95.2	57
Other Christian	*	*	*	9
Muslim	*	*	*	0
Other	*	*	*	2
None	*	*	*	7
Age				
15-19	*	*	*	2
20-24	*	*	*	17
25-29	(49.4)	(48.3)	(97.7)	31
30-34	(68.6)	(31.4)	(100.0)	30
35-39	(58.8)	(36.1)	(94.8)	43
40-44	*	*	*	6
45-49	*	*	*	0
Total 15-24	*	*	*	19
Total 15-49	56.2	40.6	96.8	129

[1]Relates to Global AIDS Monitoring Indicator 2.3: Preventing the mother-to-child transmission of HIV and PMTCT_ARV_NAT / SUBNAT.
Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

12.7 Early Infant Diagnosis

More than half (53.8%) of last-born infants of HIV-positive mothers in the 36 months preceding the survey were reported to have been tested for HIV within two months of birth, and 26.3% were tested between two months and 12 months of birth (Table 12.7.A).

Table 12.7.A Prevention of mother-to-child transmission, early infant testing

Among HIV-positive women aged 15-49 years who delivered within the past 36 months, percentage reporting that last-born infant had an HIV test within two months of birth and within 12 months of birth, by result of HIV test, ZIMPHIA 2015-2016

Characteristic	Percentage of infants who had an HIV test done within 2 months of birth[1]	Percentage of infants who had an HIV test done between 2 to 12 months of birth[2,3]	Number of last-born infants of HIV-positive women who delivered within the past 36 months
Result of infant's HIV test			
HIV positive	*	*	13
HIV negative	62.3	30.7	254
Don't know/other	(78.9)	(21.1)	30
Total	53.8	26.3	344

[1]Relates to Global AIDS Monitoring Indicator 2.1: Early infant diagnosis and PEPFAR PMTCT_EID; [2]Relates to PEPFAR PMTCT_EID; [3]Includes only last-born infants.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

12.8 Mother-to-Child Transmission

Among infants born in the 17 months prior to the survey to HIV-positive women, 6.2% were confirmed HIV positive. Among those who were ever breastfed, 6.4% were confirmed HIV positive. (Table 12.8.A).

Table 12.8.A Mother-to-child transmission of HIV

Among infants born in the last 17 months to HIV-positive women aged 15-49 years, percentage confirmed positive for HIV infection, by mother's self-reported antiretroviral (ARV) and breastfeeding status ZIMPHIA 2015-2016

Characteristic	Percentage of infants confirmed HIV positive[1,2]	Number of infants born to HIV-positive women[3,4]
Mother's self-reported ARV status		
Mother unaware of HIV status during pregnancy	*	15
Already on ARVs at first antenatal visit	(2.6)	36
Newly initiated on ARVs during pregnancy or labor and delivery	(0.0)	27
Did not receive ARVs during pregnancy	*	3
Missing self-reported ARV status	*	6
Mother's self-reported breastfeeding status		
Ever breastfed the infant	6.4	84
Never breastfed the infant	*	1
Missing self-reported breastfeeding status	*	2
Total 0-11 months	1.1	53
Total 0-17 months	6.2	87

[1]Relates to Global AIDS Monitoring Indicator 2.2: Mother-to-child transmission of HIV; [2]Only infants with a reactive rapid test received virologic testing; [3]Includes only infants who were tested for HIV during the PHIA survey; [4]Women who tested HIV positive in the PHIA survey.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

12.9 Gaps and Unmet Needs

- According to mothers' reports, nearly half the infants born to HIV-positive women did not receive a virologic test for HIV infection in the first two months of life and nearly three quarters did not receive the recommended second test between 2 and 12 months of age. Early testing of HIV-exposed children is essential to avoid HIV-related morbidity and mortality among children.
- Mother-to-child transmission of HIV remains above targets with over 6% of infants confirmed HIV positive. To reduce MTCT to zero, it will be critical to reach the remaining small proportion of women who do not access ANC, do not know their HIV status, and do not receive ART during pregnancy. It would also be important to understand what proportion of women are retained on ART throughout pregnancy and breastfeeding.

12.10 References

1. De Cock KM, Fowler MG, Mercier E, et al. Prevention of mother-to-child HIV transmission in resource-poor countries: translating research into policy and practice. *JAMA*, 2000, 283:1175–1182. doi:10.1001/jama.283.9.1175.

2. World Health Organization. *Towards the elimination of mother-to-child transmission of HIV: report of a WHO technical consultation.* Geneva: World Health Organization; 2011. http://apps.who.int/iris/bitstream/handle/10665/44638/9789241501910_eng.pdf;jsessionid=CD35DAE3C3D00349A9B149BCFF9262C4?sequence=1. Accessed December 17, 2018.

13 YOUNG PEOPLE

13.1 Key Findings

- Among young people (including older adolescents [ages 15-19 years] and young adults [ages 20-24 years], 3.9% reported having sex before the age of 15 years, 5.1% of boys and young men and 2.7% of girls and young women.
- Among young people, 43.4% answered all five questions about HIV transmission correctly.

13.2 Background

One-third of the population of sub-Saharan Africa is between the ages of 10-24 years, a phenomenon often referred to as the youth bulge.[1] Young people aged 15-24 years are more likely to engage in risky sexual behaviors than older adults and have less frequent contact with the healthcare system. Control of HIV in this demographic is critical for long-term epidemic control, but is also particularly challenging.

This chapter presents the prevalence of early sexual debut before 15 years of age among older adolescent boys and young men and older adolescent girls and young women, by marital status, region, and sociodemographic characteristics. Knowledge of HIV prevention among young people is described. These data were measured by asking participants to agree or disagree with both accurate and inaccurate statements about HIV prevention. The UNAIDS definition of comprehensive knowledge of HIV corresponds to answering all of these statements correctly. Incidence, prevalence, and the 90-90-90 cascade are also described for young people.

13.3 Sexual Intercourse Before the Age of 15 Years

Among young people, 3.9% reported sexual activity before the age of 15 years. Reporting sexual activity before the age of 15 years was nearly twice as common among older adolescent boys and young men (5.1%) as among older adolescent girls and young women (2.7%). Among older adolescent boys and young men living in rural areas, 6.3% reported having sex before the age of 15 years, compared to 2.6% of their peers in urban areas. A similar pattern was found across rural and urban areas among older adolescent girls and young women. By province, the percentage of young people reporting sex before the age of 15 years ranged from 1.2% in Harare to 6.2% in Mashonaland Central. The proportion of young people reporting early sexual debut also varied by education, ranging from 12.2% and 8.5% among those with no education and primary education, respectively, to 2.7% and 2.3% among those with secondary and more than secondary education, respectively (Table 13.3.A).

Table 13.3.A Sex before the age of 15 years

Percentage of young men and young women aged 15–24 years who have had sexual intercourse before the age of 15 years; by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Young men		Young women		Total	
Characteristic	Percentage who had sex before age 15	Number	Percentage who had sex before age 15	Number	Percentage who had sex before age 15	Number
Residence						
Urban	2.6	900	1.9	1,485	2.2	2,385
Rural	6.3	2,553	3.3	2,740	4.8	5,293

Table 13.3.A Sex before the age of 15 years (continued)

Percentage of young men and young women aged 15–24 years who have had sexual intercourse before the age of 15 years; by sex and selected demographic characteristics, ZIMPHIA 2015-2016

	Young men		Young women		Total	
Characteristic	Percentage who had sex before age 15	Number	Percentage who had sex before age 15	Number	Percentage who had sex before age 15	Number
Province						
Bulawayo	3.8	278	3.2	466	3.5	744
Manicaland	6.0	364	1.8	440	3.8	804
Mashonaland Central	7.8	373	4.2	375	6.2	748
Mashonaland East	6.8	389	1.8	349	4.6	738
Mashonaland West	6.7	483	4.2	495	5.5	978
Matabeleland North	7.1	303	4.4	387	5.7	690
Matabeleland South	6.1	296	5.4	335	5.8	631
Midlands	3.4	311	2.4	433	2.9	744
Masvingo	3.4	350	3.1	455	3.3	805
Harare	1.6	306	0.9	490	1.2	796
Marital status						
Never married	5.2	3,088	1.3	2,374	3.7	5,462
Married or living together	4.7	304	4.5	1,614	4.5	1,918
Divorced or separated	3.6	54	5.3	221	4.9	275
Widowed	*	1	*	13	*	14
Education						
No education	*	20	(16.6)	29	(12.2)	49
Primary	9.0	787	8.1	836	8.5	1,623
Secondary	4.2	2,463	1.4	3,163	2.7	5,626
More than secondary	3.1	183	1.2	197	2.3	380
Wealth quintile						
Lowest	6.6	769	5.2	934	5.9	1,703
Second	6.1	828	2.0	822	4.3	1,650
Middle	6.7	809	3.4	735	5.3	1,544
Fourth	2.6	466	2.2	755	2.4	1,221
Highest	2.6	581	1.3	979	1.9	1,560
Religion						
Traditional	8.8	56	(2.1)	32	6.6	88
Roman Catholic	3.9	276	1.8	297	2.9	573
Protestant	3.8	537	1.7	709	2.7	1,246
Pentecostal	4.7	660	1.7	1,070	3.0	1,730
Apostolic Sect	5.9	1,037	3.3	1,493	4.5	2,530
Other Christian	2.8	336	2.1	386	2.5	722
Muslim	*	15	*	10	(0.0)	25
Other	*	24	(9.3)	25	(6.0)	49
None	7.7	507	10.3	201	8.4	708
Age						
15-19	6.5	2,098	2.9	2,261	4.7	4,359
20-24	3.4	1,355	2.5	1,964	2.9	3,319
Total 15-24	5.1	3,453	2.7	4,225	3.9	7,678

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

13.4 Knowledge About HIV Prevention

Among young people, 43.4% answered all five questions about HIV transmission correctly with similar performance among older adolescent girls and young women (44.7%) and older adolescent boys and young men (42.0%) (Table 13.4.A, Table 13.4.B, Table 13.4.C). Young adults performed slightly better (48.0%) than older adolescents (39.6%) and answered all five questions correctly. Over half of urban youth (50.8%) answered all questions correctly, while 39.4% of rural youth answered all questions correctly. Roughly twice the proportion of young people with more than secondary education (64.5%) than those with primary education (26.7%) answered all question correctly (Table 13.4.C). These trends were similar across boys and young men and girls and young women (Table 13.4.A; Table 13.4.B).

With respect to the individual questions, nearly nine in 10 young people (87.5%) knew that it is not possible to get HIV by sharing food with someone. However, only three quarters of young people (74.9%) knew that a person can reduce the risk of HIV by using a condom every time they have sex (Table 13.4.C).

Table 13.4.A Young people, knowledge about HIV prevention: Older adolescent boys and young men

Among older adolescent boys and young men aged 15-24 years, percentage who correctly identify both ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission, by selected demographic characteristics, ZIMPHIA 2015-2016

	Percentage who correctly answered the questions:						
Characteristic	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?	All five questions	Number[2]
Residence							
Urban	85.5	84.6	87.5	74.6	92.2	50.4	461
Rural	75.2	76.6	82.5	70.7	82.4	38.2	1,305
Province							
Bulawayo	90.1	89.5	86.0	71.6	88.8	52.1	149
Manicaland	77.7	78.6	80.5	82.0	83.6	42.4	178
Mashonaland Central	80.1	77.4	85.4	75.1	89.0	44.7	181
Mashonaland East	73.3	76.6	88.1	81.7	85.8	42.6	194
Mashonaland West	75.0	76.7	87.4	70.1	83.6	41.1	257
Matabeleland North	68.4	78.7	69.7	58.1	79.4	29.0	161
Matabeleland South	79.0	79.5	78.0	59.8	82.4	31.6	156
Midlands	75.3	81.5	79.4	68.8	86.4	41.6	169
Masvingo	80.4	75.4	82.5	67.5	77.8	38.6	170
Harare	85.2	81.9	89.7	70.5	92.1	47.3	151
Marital status							
Never married	77.8	79.2	82.9	71.9	85.5	41.7	1,573
Married or living together	83.4	80.1	93.3	71.5	85.0	45.1	157
Divorced or separated	(83.1)	(72.7)	(94.6)	(72.4)	(83.7)	(39.5)	31
Widowed	*	*	*	*	*	*	1
Education							
No education	*	*	*	*	*	*	15
Primary	65.7	69.3	70.1	58.5	71.4	21.8	408
Secondary	80.8	81.5	87.0	74.8	89.2	45.8	1,244
More than secondary	92.1	85.7	94.9	83.7	90.9	63.3	99
Wealth quintile							
Lowest	70.7	76.7	79.3	70.1	79.4	35.1	395
Second	74.2	73.9	83.1	67.5	82.8	36.1	433
Middle	78.9	77.6	81.6	71.9	82.4	38.0	411
Fourth	82.8	83.3	87.1	76.2	92.1	52.6	226
Highest	86.8	86.1	90.3	75.5	92.8	52.1	301
Religion							
Traditional	(74.4)	(75.9)	(70.3)	(47.6)	(74.8)	(26.5)	26
Roman Catholic	78.3	80.9	87.5	75.2	87.4	47.2	138
Protestant	82.1	82.4	88.7	79.4	86.7	50.5	267
Pentecostal	85.1	85.1	86.2	74.3	90.9	49.8	323
Apostolic Sect	75.5	76.8	82.2	69.4	83.3	36.7	549
Other Christian	78.4	78.2	81.7	73.5	83.7	41.5	189
Muslim	*	*	*	*	*	*	6
Other	*	*	*	*	*	*	16
None	71.9	72.8	81.0	64.5	82.0	30.6	247
Age							
15-19	75.0	76.9	78.8	72.4	84.4	38.9	1,079
20-24	82.7	81.9	90.8	71.3	86.7	45.9	687
Total 15-24	78.4	79.1	84.1	71.9	85.5	42.0	1,766

Table 13.4.A Young people, knowledge about HIV prevention: Older adolescent boys and young men (end)

[1]Relates to Global AIDS Monitoring Indicator 5.1: Young people: Knowledge about HIV prevention. [2]Includes only participants who answered all five questions.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 13.4.B Young people, knowledge about HIV prevention: Older adolescent girls and young women

Among older adolescent girls and young women aged 15-24 years, percentage who correctly identify both ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission, by selected demographic characteristics, ZIMPHIA 2015-2016

	Percentage who correctly answered the questions:						
Characteristic	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?	All five questions	Number[2]
Residence							
Urban	79.9	75.1	88.7	87.4	92.4	51.1	754
Rural	74.3	68.0	82.7	81.7	87.8	40.7	1,391
Province							
Bulawayo	82.1	80.1	89.2	82.6	92.3	54.9	258
Manicaland	80.7	68.8	86.9	87.9	92.2	47.4	220
Mashonaland Central	76.5	66.5	87.5	81.2	92.8	41.4	192
Mashonaland East	73.3	75.3	83.1	83.7	91.4	43.6	184
Mashonaland West	74.6	67.2	87.5	85.2	88.2	44.8	227
Matabeleland North	72.0	73.8	78.6	76.1	84.5	42.1	194
Matabeleland South	76.5	72.8	78.2	69.5	79.6	39.8	168
Midlands	72.3	69.2	81.1	80.7	85.8	37.1	230
Masvingo	75.8	66.5	84.9	83.8	87.8	41.6	227
Harare	78.2	71.8	86.6	90.7	92.7	49.7	245
Marital status							
Never married	73.5	69.1	83.7	84.4	90.3	43.2	1,216
Married or living together	81.4	72.9	87.1	83.7	87.9	47.3	807
Divorced or separated	74.3	73.8	82.7	80.9	92.7	44.0	112
Widowed	*	*	*	*	*	*	7
Education							
No education	*	*	*	*	*	*	19
Primary	68.0	63.2	77.0	74.1	79.4	32.0	421
Secondary	77.8	71.7	86.4	85.9	91.6	46.6	1,614
More than secondary	91.5	83.5	93.3	90.7	99.0	66.0	91
Wealth quintile							
Lowest	74.8	64.6	78.8	78.4	84.4	38.2	477
Second	70.5	68.4	81.0	81.2	88.5	38.9	405
Middle	75.8	71.2	83.9	86.4	86.7	41.6	379
Fourth	78.4	72.6	89.2	85.2	93.3	50.0	385
Highest	81.0	75.4	90.0	87.4	93.3	52.1	499
Religion							
Traditional	*	*	*	*	*	*	16
Roman Catholic	79.3	73.4	84.1	84.7	87.9	48.6	164
Protestant	78.1	73.7	88.8	86.2	93.9	48.6	365
Pentecostal	78.4	72.6	87.1	85.5	91.0	48.4	532
Apostolic Sect	73.6	67.7	83.5	81.0	86.4	39.8	759
Other Christian	76.8	72.9	78.9	86.4	91.2	46.2	206
Muslim	*	*	*	*	*	*	2
Other	*	*	*	*	*	*	8
None	76.2	64.7	81.6	77.4	86.8	35.8	93
Age							
15-19	72.7	65.9	82.4	84.2	89.5	40.3	1,169
20-24	80.9	76.6	88.1	83.6	89.6	50.0	976
Total 15-24	76.4	70.8	85.0	83.9	89.5	44.7	2,145

Table 13.4.B Young people, knowledge about HIV prevention: Older adolescent girls and young women (end)

[1]Relates to Global AIDS Monitoring Indicator 5.1 Young people: Knowledge about HIV prevention. [2]Includes only participants who answered all five questions. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 13.4.C Young people, knowledge about HIV prevention: Total

Among older adolescents and young adults aged 15-24 years, percentage who correctly identify both ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission, by selected demographic characteristics, ZIMPHIA 2015-2016

	Percentage who correctly answered the questions:						
Characteristic	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?	All five questions	Number[2]
Residence							
Urban	82.4	79.3	88.1	81.7	92.3	50.8	1,215
Rural	74.8	72.5	82.6	76.0	85.0	39.4	2,696
Province							
Bulawayo	85.4	84.0	87.9	78.0	90.8	53.7	407
Manicaland	79.3	73.4	83.9	85.2	88.1	45.0	398
Mashonaland Central	78.4	72.3	86.4	78.0	90.7	43.2	373
Mashonaland East	73.3	76.0	85.8	82.6	88.3	43.0	378
Mashonaland West	74.9	72.7	87.5	76.5	85.6	42.7	484
Matabeleland North	70.3	76.1	74.2	67.3	82.0	35.7	355
Matabeleland South	77.8	76.2	78.1	64.5	81.0	35.6	324
Midlands	73.7	75.0	80.3	75.1	86.1	39.2	399
Province (cont.)							
Masvingo	78.0	70.7	83.8	76.1	83.1	40.2	397
Harare	81.4	76.3	88.0	81.6	92.4	48.6	396
Marital status							
Never married	76.1	75.2	83.2	76.8	87.4	42.3	2,789
Married or living together	81.8	74.3	88.3	81.3	87.3	46.9	964
Divorced or separated	76.6	73.6	85.7	78.7	90.4	42.8	143
Widowed	*	*	*	*	*	*	8
Education							
No education	(61.3)	(71.5)	(89.0)	(70.5)	(69.0)	(34.2)	34
Primary	66.8	66.4	73.4	65.9	75.2	26.7	829
Secondary	79.3	76.4	86.7	80.6	90.5	46.2	2,858
More than secondary	91.9	84.8	94.2	86.6	94.2	64.5	190
Wealth quintile							
Lowest	72.7	70.6	79.1	74.3	81.9	36.7	872
Second	72.6	71.4	82.2	73.6	85.3	37.3	838
Middle	77.5	74.8	82.7	78.4	84.3	39.6	790
Fourth	80.2	77.0	88.3	81.5	92.8	51.1	611
Highest	83.6	80.2	90.1	82.0	93.1	52.1	800
Religion							
Traditional	(77.5)	(70.6)	(80.6)	(65.7)	(83.5)	(36.0)	42
Roman Catholic	78.8	77.1	85.8	80.0	87.7	47.9	302
Protestant	79.9	77.7	88.7	83.1	90.6	49.5	632
Pentecostal	81.3	78.0	86.7	80.7	90.9	49.0	855
Apostolic Sect	74.5	71.9	82.9	75.7	85.0	38.4	1,308
Other Christian	77.7	75.7	80.4	79.5	87.2	43.7	395
Muslim	*	*	*	*	*	*	8
Other	*	*	*	*	*	*	24
None	73.0	70.9	81.2	67.6	83.1	31.9	340
Age							
15-19	73.9	71.4	80.6	78.3	87.0	39.6	2,248
20-24	81.8	79.2	89.4	77.6	88.2	48.0	1,663
Total 15-24	77.4	74.9	84.5	78.0	87.5	43.4	3,911

Table 13.4.C	Young people, knowledge about HIV prevention: Total (end)

[1]Relates to Global AIDS Monitoring Indicator 5.1 Young people: Knowledge about HIV prevention. [2]Includes only participants who answered all five questions. Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

13.5 HIV Incidence and Prevalence

Overall incidence among young people was estimated at 0.30% (95% CI 0.08, 0.52), 0.14% among older adolescent boys and young men and 0.46% among older adolescent girls and young women. These figures, however, should be interpreted cautiously as ZIMPHIA was designed to estimate incidence among the overall population aged 15-49 years and there is low precision of estimates for other age-sex sub-groups (Table 5.3.B).

Overall HIV prevalence among young people was 4.4%, twice as high in older adolescent girls and young women (5.9%) as in older adolescent boys and young men (3.0%). HIV prevalence was higher in young women (8.1%) compared to older adolescent girls (3.9%). HIV prevalence was more similar among boys and men in the corresponding age groups: 2.7% among young adults and 3.2% among older adolescents. (Table 6.4.A).

13.6 HIV Testing, Treatment, and Viral Load Suppression

Among young people, 58.7% reported that they had ever tested for HIV and received their results (51.8% among older adolescent boys and young men and 65.4% among older adolescent girls and young women). However, the percentage among older adolescents (45.3%) was roughly half of that among young adults (75.1%). Testing within the previous year was lower with 32.9% of young people reporting testing in the 12 months preceding the survey (26.3% among the boys and young men and 39.3% among the girls and young women) (Tables 7.3.A, 7.3.B, and 7.3.C).

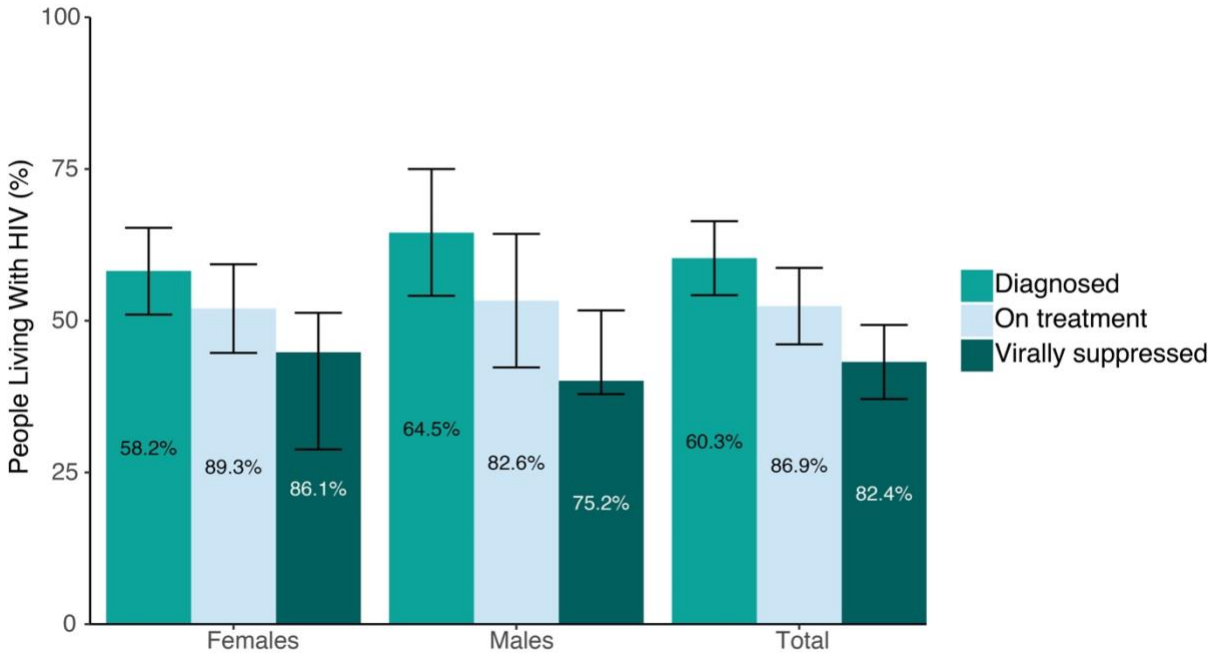
Among HIV-positive young people, 49.4% were unaware of their status, according to self-report, while 42.4% were on ART, and 8.2% reported awareness of their HIV-positive status, but that they had not yet initiated ART (Table 8.3.C).

Viral load suppression was observed in 51.0% of older adolescents and 40.7% of young adults living with HIV, respectively. Overall, 40.1% of HIV-positive older adolescent boys and young men and 47.9% of HIV-positive older adolescent girls and young women had VLS (Table 9.4.A).

13.7 Status of UNAIDS 90-90-90 Targets

In ZIMPHIA, it was found that 60.3% of HIV-positive young people reported that they were aware of their HIV status or had detectable ARVs in their blood (64.5% of older adolescent boys and young men and 58.2% of older adolescent girls and young women). Among those who self-reported awareness of HIV status or had detectable ARVs, 86.9% self-reported ART use or had detectable ARVs in blood. Among those on ART, 82.4% had VLS (Table 10.3.B and Figure 13.7.A).

Figure 13.7.A Young people 90-90-90 (ARV-adjusted data among older adolescents and young adults) ZIMPHIA 2015-2016



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 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.

13.8 Gaps and Unmet Needs

- Improved prevention education and messaging may be helpful in promoting epidemic control as less than half of young people could answer five basic questions about HIV transmission correctly.
- Older adolescents and young adults had the lowest achievement toward each of the 90-90-90 targets among all adult age groups. It is particularly important to improve on the first 90, diagnosis.

13.9 References

1. Hervish A, Clifton D. *The Status Report on Adolescents and Young People in Sub-Saharan Africa: Opportunities and Challenges.* Johannesburg and Washington, DC: Population Reference Bureau; 2012.

14 CHILDREN

14.1 Key Findings

- HIV prevalence among children (those aged 0-14 years) was 1.6%
- Among children living with HIV, 68.1% had a parent or guardian who was aware of their status based on parental-report and laboratory ARV data.
- Among those children whose HIV positive status was known by their parent, 96.7% were on ART based parental report and ARV detection data.
- Among children on ART, 68.8% had a suppressed viral load.

14.2 Background

Estimates of HIV prevalence in children, estimates of children living with HIV, and VLS among children are most commonly derived indirectly from clinic-based data or epidemiologic models. In Zimbabwe, ZIMPHIA provided direct measurements of these estimates among children, which are critical to meet the needs of pediatric HIV treatment; plan for HIV prevention, care and treatment services for children; evaluate PMTCT programs; and address specific needs of children.

This chapter presents results on the UNAIDS 90-90-90 cascade in children, using both parent/guardian-reported data (on awareness of child's HIV status and ARV use) and data on detectable ARVs. Analyses for the 90-90-90 tables for children were similar to that described for adults in Chapter 10. Parents or guardians were asked about a child's HIV status and ART use. Data on detectable ARVs were used in combination with self-reported ARV use to define awareness of HIV-positive status and ART use of a child. Presence of detectable ARVs among children who were reported as HIV negative was used to reclassify the child as having (parental/guardian) awareness of HIV-positive status.

This chapter also presents results on the nutrition status of HIV-positive, and a sub-sample of HIV-negative children, using two indices: height-for-age and weight-for-age. Stunting, or low height-for-age, reflects inadequate nutrition over a long period of time. Children whose height-for-age *z* score is -2 SD from the WHO Child Growth Standards median are considered stunted or chronically undernourished. Children who are below -3 SD are considered severely stunted.

Underweight, or low weight-for-age status, captures both inadequate nutrition in the period immediately before the survey as well as and long-term undernutrition. Underweight is therefore an indicator of overall undernutrition. Children whose weight-for-age *z* score is below -2 SD from WHO Child Growth Standards median are classified as underweight. Children whose weight-for-age *z* scores is -3 SD from the WHO Child Growth Standards median are considered severely underweight.

The means of the *z* scores are presented as summary statistics representing the nutrition status of all children in the population. The farther away the mean *z* scores are from zero, the higher the prevalence of undernutrition.

These indicators are presented for all HIV-positive children and 5% of HIV-negative children based on a child's HIV exposure (mother is HIV negative or mother is HIV positive, unknown, or dead) and HIV infection status. The HIV status of the mother and child are based on the HIV testing conducted in ZIMPHIA.

14.3 HIV Prevalence

Among children, HIV prevalence was 1.6%, 1.7% among boys and 1.5% among girls. Among children aged 0-17 months and 18-59 months, prevalence was 0.9% and 0.8%, respectively. For ages 5-9 years and 10-14 years, 1.7% and 2.5% of children were living with HIV, respectively. Differences by gender were not statistically significant (Table 6.4.A).

14.4 Status of the UNAIDS 90-90-90 Targets

90-90-90 cascade based on parent/guardian-reported HIV status and ART use in children:
Among all HIV-positive children (children who tested positive in ZIMPHIA), 60.6% were reported by their parents as HIV positive, 96.3% were reported by their parent/guardian as receiving ART, and 67.7% had VLS (Table 14.4.A).

90-90-90 cascade based on parent/guardian-reported HIV status and ART use and detectable ARVs children:
ARV-adjusted awareness of HIV-positive status: Based on parent/guardian-reported HIV-positive status of the child and presence of detectable ARVs, 68.1% of HIV-positive children were classified as aware (ARV-adjusted awareness) (Table 14.4.B, Figure 14.4.A).

ARV-adjusted treatment status: Using parent/guardian-reported ARV status of the child and detectable ARVs, 96.7% of children with parent/guardian-reported awareness of HIV-positive status (ARV-adjusted awareness), were classified as on ART (Table 14.4.B, Figure 14.4.A).

Viral load suppression: Among children on ART, 68.8% had suppressed viral loads (Table 14.4.B, Figure 14.4.A).

Table 14.4.A Pediatric 90-90-90 (parent-reported antiretroviral therapy (ART) data; conditional percentages)

90-90-90 targets among children living with HIV aged 0-14 years, by age ZIMPHIA 2015-2016

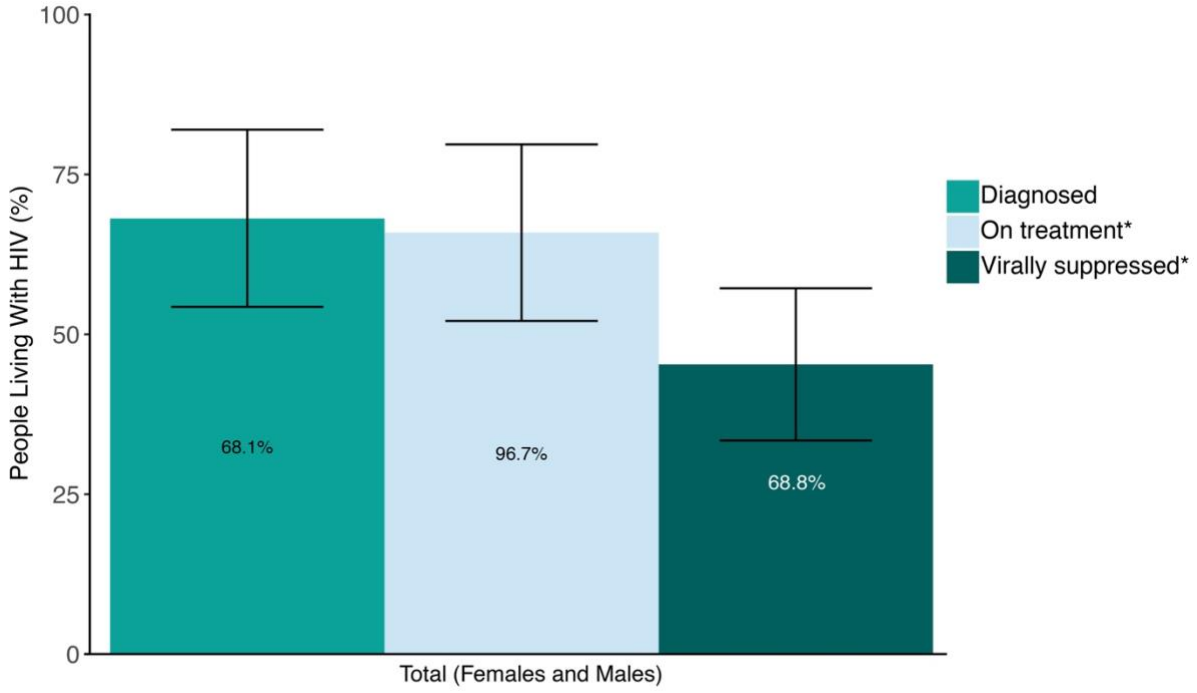
	Diagnosed		On Treatment		Viral Load Suppression (VLS)	
	Total		Among children whose parent reported that the child is HIV positive		Among children whose parent reported that the child is on ART	
Age	Percentage whose parent reported that the child is HIV positive	Number	Percentage whose parent reported that the child is on ART	Number	Percentage with VLS	Number
0-17 months	*	5	*	1	*	1
18-59 months	*	13	*	6	*	5
0-4 years	*	18	*	7	*	6
5-9 years	(56.7)	39	(96.3)	25	*	24
10-14 years	70.3	58	(97.4)	40	(71.7)	39
0-14 years	60.6	115	96.3	72	67.7	69

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Table 14.4.B	Pediatric 90-90-90 (parent-reported antiretroviral therapy (ART) data and laboratory antiretroviral (ARV) data; conditional percentages)					
90-90-90 targets among children living with HIV aged 0-14 years, by age ZIMPHIA 2015-2016						
	Diagnosed		On Treatment		Viral Load Suppression (VLS)	
	Total		Among children whose parent reported that the child is HIV positive or with detectable ARVs		Among children on treatment	
Age	Percentage whose parent reported that the child is HIV positive or with detectable ARVs[1]	Number	Percentage with detectable ARVs or whose parent reported current ARV usage for the child[2]	Number	Percentage with VLS[3]	Number
0-17 months	*	5	*	2	*	2
18-59 months	*	14	*	7	*	6
0-4 years	*	19	*	9	*	8
5-9 years	(64.3)	39	(96.8)	28	(72.0)	27
10-14 years	78.4	60	(97.7)	47	(71.7)	46
0-14 years	68.1	118	96.7	84	68.8	81

[1]Relates to Global AIDS Monitoring Indicator (GAM) 1.1: People living with HIV who know their HIV status, and PEPFAR DIAGNOSED_NAT; [2]Relates to GAM 1.2: People living with HIV on antiretroviral (ARV) therapy (ART), and PEPFAR TX_CURR_NAT / SUBNAT; [3]Relates to GAM 1.4: People living with HIV who have suppressed viral loads, and PEPFAR VL_SUPPRESSION_NAT.
Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

Figure 14.4.A Pediatric 90-90-90 (laboratory antiretroviral [ARV]-adjusted data), ZIMPHIA 2015-2016



Note: In the antiretroviral (ARV)-adjusted 90-90-90, children are classified as 'aware' or 'diagnosed' if their parent or guardian reported knowing the child's HIV positive status before testing positive in ZIMPHIA or if the child had detectable ARVs in his or her blood. Children are classified as 'on treatment' if their parent or guardian reported that the child was on treatment or if the child had detectable ARVs in his or her blood.
*Inset numbers are conditional proportions.

14.5 Nutrition Status

Among HIV-unexposed children (i.e., children born to an HIV-negative mother), 12.7% were stunted and 7.4% were severely stunted. Among HIV-exposed and uninfected children (i.e., HIV-negative children born to HIV-positive mothers), 25.3% were stunted and 12.8% were severely stunted (Table 14.5.A).

Among HIV unexposed children, 5.2% were underweight while 1.9% of HIV-exposed and uninfected children were underweight (Table 14.5.A).

Table 14.5.A Nutritional status of children aged 0-59 months

Prevalence of malnourishment among HIV-positive[1] and HIV-negative children aged 0-59 months by mother's HIV status, according to two anthropometric indices of nutritional status: height-for-age and weight-for-age[2], ZIMPHIA 2015-2016

		Height-for-age				Weight-for-age			
Mother's HIV Status	Child's Status	Percentage below -3 SD	Percentage below -2 SD[3]	Mean Z-score (SD)	Number of children	Percentage below -3 SD	Percentage below -2 SD[3]	Mean Z-score (SD)	Number of children
HIV positive, unknown, dead	HIV positive	*	*	*	18	*	*	*	18
	HIV negative	12.8	25.3	-1.4	51	0.4	1.9	-0.5	54
	Total	12.8	25.7	-1.4	69	0.5	1.9	-0.5	72
HIV negative	HIV positive	*	*	*	0	*	*	*	0
	HIV negative	7.4	12.7	-0.9	79	1.4	5.2	-0.5	89
	Total	7.4	12.7	-0.9	79	1.4	5.2	-0.5	89

[1]Child's HIV status as defined by the result of the child's ZIMPHIA HIV test result.
[2]Each index is expressed in standard deviation units (SD) from the median of the WHO Child Growth Standards.
[3]Includes children who are below -3 standard deviations (SD) from the WHO Child Growth Standards.
An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

14.6 Gaps and Unmet Needs

- Diagnosis of children, particularly younger children, must be improved to ensure that lifesaving treatment is promptly provided.
- Children are the only age group who are not close to achieving the 3rd 90, VLS. Only two-thirds of children whose parents report they are on ART have VLS. A combination of retention, adherence, and treatment monitoring interventions are needed to ensure that pediatric treatment is effective at suppressing VL.

15 HIV Risk Factors

15.1 Key Findings

- HIV prevalence among adults (those aged 15-64 years) who had intercourse before the age of 15 years was 16.3%.
- Among adults who reported having sex in the 12 months before the survey, 39.7% of men and 18.6% of women reported having sex with a non-marital, non-cohabitating partner.
- Among men, 11.8% reported having had medical circumcision.

15.2 Background

This chapter describes the prevalence of sexual behaviors that elevate the risk of HIV infection. In ZIMPHIA, participants were asked about high-risk behaviors, including early sexual debut, recent engagement in multiple sexual partnerships, condom use at last sexual intercourse, recent engagement in paid sexual intercourse, and condom use at last sexual intercourse with a non-marital, non-cohabitating partner. With this information, programs can target those individuals most in need of information and most at risk for HIV infection.

Since 2007, WHO and UNAIDS have recommended voluntary medical male circumcision (VMMC) as a cost-effective strategy to reduce male acquisition of HIV. To inform VMMC programs, men were asked if they had been medically or traditionally circumcised.

15.3 HIV Prevalence by Sexual Behavior

HIV prevalence among adults who had intercourse before the age of 15 years was 16.3% and nearly three times as high for women (25.0%) as for men (9.4%). Among persons reporting two or more sexual partners in the 12 months before the survey, prevalence was more than twice as high among women (30.8%) as among men (12.4%). HIV prevalence was higher among those who used a condom at last sexual intercourse during the previous 12 months (32.6%) than among those who did not use a condom (10.1%). This finding may reflect the impact of positive prevention wherein people who know they are HIV-positive are taking steps to protect their partner. The prevalence of HIV among those who reported paying or receiving money for sexual intercourse in the 12 months before the survey was almost four times higher for women (47.2%) than for men (12.0%) (Table 15.3.A).

Table 15.3.A HIV prevalence by sexual behavior

Prevalence of HIV among persons aged 15-64 years, by sex and sexual behavior characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Age at first sexual intercourse						
<15	9.4	351	25.0	372	16.3	723
15-19	14.0	3,117	18.4	6,473	16.7	9,590
20-24	13.9	2,227	17.3	2,922	15.6	5,149
≥25	14.5	811	19.7	519	16.2	1,330
Number of sexual partners in the past 12 months						
0	13.8	1,087	27.0	2,179	21.6	3,266

Table 15.3.A HIV prevalence by sexual behavior (continued)

Prevalence of HIV among persons aged 15-64 years, by sex and sexual behavior characteristics, ZIMPHIA 2015-2016

	Men		Women		Total	
Characteristic	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Number of sexual partners in the past 12 months						
1	14.2	4,063	15.6	7,740	15.0	11,803
≥2	12.4	1,301	30.8	328	15.3	1,629
Condom use at last sexual intercourse in the past 12 months						
Used condom	24.7	1,535	44.0	1,493	32.6	3,028
Did not use condom	9.6	3,816	10.5	6,566	10.1	10,382
No sexual intercourse in the past 12 months	13.8	1,087	27.0	2,179	21.6	3,266
Paid sexual intercourse in the past 12 months						
Yes	12.0	295	47.2	89	18.4	384
Used condom at last paid sexual intercourse	9.9	245	50.8	71	17.1	316
Did not use condom at last paid sexual intercourse	(24.2)	45	*	18	25.7	63
No	13.9	5,067	15.8	7,972	15.0	13,039
Total 15-24	3.0	3,170	5.9	3,931	4.4	7,101
Total 15-49	10.7	7,241	15.9	10,221	13.4	17,462
Total 15-64	12.0	8,395		12,182		20,577

[1]Includes persons who paid or received money for sexual intercourse.

[2]No paid sexual intercourse or no sexual intercourse in the past 12 months.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

15.4 Condom Use at Last Sex with a Non-Marital, Non-Cohabitating Partner

Among adults who reported having sex in the 12 months before the survey, 28.5% reported having sex with a non-marital, non-cohabitating partner. Of those who reported having sex with a non-marital, non-cohabitating partner, 56.1% used a condom the last time they had sex with such a partner. The proportion of older adults, ages 55-59 years and ages 60-64 years, reporting condom use at last sex with a non-marital, non-cohabitating partner was 41.5% and 46.2%, respectively. Approximately 94% of divorced or separated adults reported having a non-marital, non-cohabitating partner in the previous 12 months. Of those, 49.2% reported condom use at last sex with such a partner (Table 15.4.C).

Among men who reported having had sex in the 12 months before the survey, 39.7% reported having had sex with a non-marital, non-cohabitating partner. Among those who reported having had sex with a non-marital, non-cohabitating partner in the previous 12 months, 61.5% used a condom the last time they had sex with such a partner (Table 15.4.A).

Among women who reported having had sex in the 12 months before the survey, 18.6% reported having had sex with a non-marital, non-cohabitating partner during that time. Among those who reported having had sex with a non-marital, non-cohabitating partner in the previous 12 months, 46.0% used a condom the last time they had sex with such a partner (Table 15.4.B).

Table 15.4.A Condom use at last sex with a non-marital, non-cohabitating partner: Men

Among men aged 15-64 years who reported having sex in the past 12 months, percentage who reported having a non-marital, non-cohabitating partner in the past 12 months; among those who reported having sex with a non-marital, non-cohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, ZIMPHIA 2015-2016

	Among men who reported having sex in the past 12 months		Among men who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	
Characteristic	Percentage who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner[1]	Number
Residence				
Urban	41.9	1,585	64.7	699
Rural	38.4	4,316	59.5	1,594
Province				
Bulawayo	49.5	489	66.8	247
Manicaland	34.8	579	61.0	188
Mashonaland Central	42.0	647	61.4	255
Mashonaland East	41.5	595	62.8	240
Mashonaland West	38.9	765	59.2	288
Matabeleland North	40.8	621	54.9	239
Matabeleland South	50.6	475	62.4	230
Midlands	34.3	571	63.1	186
Masvingo	33.7	592	59.1	189
Harare	40.3	567	62.3	231
Marital status				
Never married	95.9	1,357	63.9	1,296
Married or living together	16.5	4,203	58.3	674
Divorced or separated	96.5	273	56.2	260
Widowed	93.3	60	69.7	55
Education				
No education	19.4	76	*	13
Primary	35.7	1,681	53.6	573
Secondary	40.6	3,558	63.1	1,460
More than secondary	44.2	578	65.8	246
Wealth quintile				
Lowest	35.3	1,423	53.5	482
Second	39.5	1,226	62.2	460
Middle	39.9	1,227	60.4	494
Fourth	39.1	1,001	64.5	405
Highest	44.0	1,024	65.0	452
Religion				
Traditional	40.2	206	58.2	77
Roman Catholic	41.9	508	63.6	199
Protestant	41.3	796	63.0	321
Pentecostal	44.7	848	63.7	373
Apostolic Sect	32.9	1,625	60.2	542
Other Christian	44.5	416	64.3	184
Muslim	*	22	*	3
Other	(37.5)	48	*	19
None	41.0	1,426	59.2	572
Age				
15-19	94.2	439	62.4	414
20-24	78.5	848	62.4	652
25-29	47.0	855	58.9	408
30-34	32.7	905	65.7	300
35-39	23.3	774	57.3	181
40-44	18.5	673	61.5	128
45-49	14.6	476	60.7	76
50-54	15.2	328	68.5	54
55-59	15.4	317	(49.1)	46
60-64	10.7	286	(54.6)	34
Total 15-24	83.1	1,287	62.4	1,066
Total 15-49	43.1	4,970	61.6	2,159
Total 15-64	39.7	5,901	61.5	2,293

Table 15.4.A Condom use at last sex with a non-marital, non-cohabitating partner: Men (end)

[1]Relates to Global AIDS Monitoring Indicator 3.18: Condom use at last high-risk sex.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 15.4.B Condom use at last sex with a non-marital, non-cohabitating partner: Women

Among women aged 15-64 years who reported having sex in the past 12 months, percentage who reported having a non-marital, non-cohabitating partner in the past 12 months; among those who reported having sex with a non-marital, non-cohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, ZIMPHIA 2015-2016

	Among women who reported having sex in the past 12 months		Among women who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	
Characteristic	Percentage who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner[1]	Number
Residence				
Urban	26.1	2,798	48.4	785
Rural	14.3	5,895	43.4	881
Province				
Bulawayo	39.3	872	49.1	328
Manicaland	13.4	854	48.2	108
Mashonaland Central	14.6	845	45.0	118
Mashonaland East	13.0	712	41.8	87
Mashonaland West	13.4	965	42.6	125
Matabeleland North	24.7	921	52.1	213
Matabeleland South	30.2	720	47.3	214
Midlands	14.9	910	40.0	128
Masvingo	16.9	926	45.8	152
Harare	20.8	968	45.9	193
Marital status				
Never married	88.8	775	48.4	687
Married or living together	2.5	7,047	33.5	189
Divorced or separated	92.8	616	45.1	569
Widowed	86.0	248	51.5	215
Education				
No education	12.5	260	(43.9)	32
Primary	14.3	2,799	42.1	414
Secondary	19.8	5,128	46.2	1,073
More than secondary	29.0	502	52.7	146
Wealth quintile				
Lowest	14.8	2,070	40.5	328
Second	12.6	1,731	36.5	231
Middle	14.4	1,593	47.4	233
Fourth	22.3	1,554	51.5	369
Highest	27.5	1,745	47.6	505
Religion				
Traditional	10.7	84	*	10
Roman Catholic	22.3	569	48.7	122
Protestant	20.9	1,428	46.4	300
Pentecostal	22.9	1,906	49.5	438
Apostolic Sect	13.7	3,262	43.3	485
Other Christian	18.8	808	40.2	171
Muslim	(16.4)	33	*	6
Other	15.9	64	*	12
None	23.2	536	45.7	120
Age				
15-19	40.3	687	46.8	300
20-24	24.8	1,524	42.0	400
25-29	17.8	1,491	40.6	281
30-34	14.6	1,451	52.0	220
35-39	13.9	1,192	54.2	168
40-44	17.0	860	55.2	151
45-49	13.0	537	46.8	74
50-54	8.4	414	(31.0)	35
55-59	5.3	316	*	19
60-64	6.7	221	*	18

Table 15.4.B Condom use at last sex with a non-marital, non-cohabitating partner: Women (continued)

Among women aged 15-64 years who reported having sex in the past 12 months, percentage who reported having a non-marital, non-cohabitating partner in the past 12 months; among those who reported having sex with a non-marital, non-cohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, ZIMPHIA 2015-2016

	Among women who reported having sex in the past 12 months		Among women who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	
Characteristic	Percentage who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner[1]	Number
Age (cont.)				
Total 15-24	29.6	2,211	44.0	700
Total 15-49	19.7	7,742	46.6	1,594
Total 15-64	18.6	8,693	46.0	1,666

[1]Relates to Global AIDS Monitoring Indicator 3.18: Condom use at last high-risk sex.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 15.4.C Condom use at last sex with a non-marital, non-cohabitating partner: Total

Among persons aged 15-64 years who reported having sex in the past 12 months, percentage who reported having a non-marital, non-cohabitating partner in the past 12 months; among those who reported having sex with a non-marital, non-cohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, ZIMPHIA 2015-2016

	Among persons who reported having sex in the past 12 months		Among persons who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	
Characteristic	Percentage who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner[1]	Number
Residence				
Urban	33.4	4,383	57.9	1,484
Rural	25.7	10,211	54.8	2,475
Province				
Bulawayo	43.9	1,361	58.2	575
Manicaland	23.1	1,433	57.0	296
Mashonaland Central	28.1	1,492	57.0	373
Mashonaland East	27.6	1,307	58.0	327
Mashonaland West	26.2	1,730	55.0	413
Matabeleland North	32.0	1,542	53.7	452
Matabeleland South	39.4	1,195	56.1	444
Midlands	23.5	1,481	55.0	314
Masvingo	24.3	1,518	54.0	341
Harare	30.0	1,535	56.2	424
Marital status				
Never married	93.9	2,132	59.7	1,983
Married or living together	8.6	11,250	54.3	863
Divorced or separated	94.2	889	49.2	829
Widowed	87.6	308	55.8	270
Education				
No education	14.2	336	(55.2)	45
Primary	23.3	4,480	49.5	987
Secondary	29.7	8,686	57.2	2,533
More than secondary	38.3	1,080	62.0	392
Wealth quintile				
Lowest	24.1	3,493	49.1	810
Second	25.2	2,957	55.4	691
Middle	26.9	2,820	56.8	727
Fourth	30.2	2,555	59.4	774
Highest	35.2	2,769	57.7	957
Religion				
Traditional	33.2	290	59.6	87
Roman Catholic	33.0	1,077	59.1	321
Pentecostal	31.3	2,754	57.3	811
Protestant	29.6	2,224	56.2	621

Table 15.4.C Condom use at last sex with a non-marital, non-cohabitating partner: Total (continued)

Among persons aged 15-64 years who reported having sex in the past 12 months, percentage who reported having a non-marital, non-cohabitating partner in the past 12 months; among those who reported having sex with a non-marital, non-cohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner, by selected demographic characteristics, ZIMPHIA 2015-2016

	Among persons who reported having sex in the past 12 months		Among persons who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	
Characteristic	Percentage who reported having sex with a non-marital, non-cohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner[1]	Number
Religion (cont.)				
Apostolic Sect	21.2	4,887	53.5	1,027
Other Christian	29.5	1,224	55.3	355
Muslim	16.8	55	*	9
Other	26.8	112	(59.7)	31
None	36.9	1,962	57.2	692
Age				
15-19	62.3	1,126	56.5	714
20-24	47.9	2,372	56.4	1,052
25-29	30.2	2,346	52.8	689
30-34	22.9	2,356	61.0	520
35-39	18.5	1,966	56.1	349
40-44	17.8	1,533	58.6	279
45-49	13.9	1,013	54.9	150
50-54	12.0	742	56.5	89
55-59	10.8	633	41.5	65
60-64	9.1	507	46.2	52
Total 15-24	52.3	3,498	56.4	1,766
Total 15-49	30.5	12,712	56.4	3,753
Total 15-64	28.5	14,594	56.1	3,959

[1]Relates to Global AIDS Monitoring Indicator 3.18: Condom use at last high-risk sex.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

15.5 Male Circumcision

Among men, 11.8% reported having undergone medical circumcision. A higher percentage of HIV-negative men (12.9%) reported having had a VMMC compared to HIV-positive men (4.7%). Approximately one-fourth had been circumcised by a medical practitioner in Bulawayo (26.7%) and Matabeleland South (24.6%). Higher coverage of VMMC was also found among those never married (19.4%), those with more than secondary education (18.7%), and older adolescents aged 15-19 years (22.9%). By comparison, 15.8% of young men aged 20-24 years and 10.1% of men aged 25-29 years reported having undergone medical circumcision. Higher rates of medical circumcision were recorded in urban areas (15.5%) compared to rural areas (9.9%). (Table 15.5.A).

Table 15.5.A Male circumcision

Percent distribution of men aged 15-64 years by self-reported circumcision status, by result of PHIA survey HIV test and selected demographic characteristics, ZIMPHIA 2015-2016

	Circumcised[1]					
Characteristic	Medical circumcision	Non-medical circumcision	Uncircumcised	Unknown	Total	Number
Result of PHIA survey HIV test						
HIV positive	4.7	2.4	88.9	4.0	100.0	1,155
HIV negative	12.9	2.2	81.9	3.0	100.0	7,240
Not tested	11.0	2.5	82.4	4.1	100.0	876
Residence						
Urban	15.5	2.1	79.3	3.2	100.0	2,415
Rural	9.9	2.4	84.5	3.3	100.0	6,856
Province						
Bulawayo	26.7	3.3	67.2	2.8	100.0	737
Manicaland	8.7	2.8	84.1	4.4	100.0	1,006
Mashonaland Central	6.3	1.7	89.3	2.7	100.0	1,089
Mashonaland East	9.0	1.4	85.2	4.4	100.0	997

Table 15.5.A Male circumcision (continued)

Percent distribution of men aged 15-64 years by self-reported circumcision status, by result of PHIA survey HIV test and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Circumcised[1]		Uncircumcised	Unknown	Total	Number
	Medical circumcision	Non-medical circumcision				
Province (cont.)						
Mashonaland West	10.3	1.4	85.8	2.5	100.0	1,241
Matabeleland North	11.6	3.5	79.7	5.3	100.0	858
Matabeleland South	24.6	3.1	69.1	3.2	100.0	691
Midlands	12.5	2.2	82.8	2.5	100.0	859
Masvingo	8.4	3.3	86.5	1.8	100.0	950
Harare	13.3	2.1	81.2	3.4	100.0	843
Marital status						
Never married	19.4	1.2	77.3	2.1	100.0	3,744
Married or living together	6.1	3.0	87.1	3.8	100.0	4,989
Divorced or separated	8.7	3.1	83.9	4.3	100.0	395
Widowed	9.0	2.6	74.2	14.2	100.0	129
Education						
No education	4.0	3.5	84.7	7.8	100.0	133
Primary	7.1	3.1	85.3	4.6	100.0	2,584
Secondary	12.5	1.9	82.8	2.8	100.0	5,783
More than secondary	18.7	2.8	76.2	2.3	100.0	762
Wealth quintile						
Lowest	9.2	2.6	84.7	3.4	100.0	2,214
Second	10.3	2.3	83.8	3.6	100.0	2,043
Middle	9.7	2.3	85.1	2.9	100.0	1,978
Fourth	12.5	1.6	82.5	3.4	100.0	1,481
Highest	17.0	2.4	77.7	2.9	100.0	1,555
Religion						
Traditional	4.8	3.5	89.7	2.0	100.0	303
Roman Catholic	12.2	2.4	83.7	1.8	100.0	801
Protestant	14.9	1.6	80.3	3.3	100.0	1,335
Pentecostal	16.7	2.0	78.5	2.9	100.0	1,416
Apostolic Sect	9.4	2.1	84.1	4.4	100.0	2,614
Other Christian	14.3	1.8	80.5	3.5	100.0	716
Muslim	(30.0)	(25.6)	(31.8)	(12.6)	(100.0)	42
Other	11.1	1.2	87.0	0.8	100.0	76
None	8.0	2.6	86.8	2.6	100.0	1,956
Age						
15-19	22.9	0.7	74.3	2.2	100.0	2,112
20-24	15.8	1.8	80.5	1.9	100.0	1,373
25-29	10.1	1.7	84.0	4.2	100.0	1,077
30-34	6.0	1.8	88.9	3.4	100.0	1,076
35-39	6.1	2.0	87.5	4.3	100.0	943
40-44	6.3	2.9	86.5	4.3	100.0	831
45-49	5.8	5.1	85.4	3.7	100.0	608
50-54	9.2	5.1	82.5	3.2	100.0	414
55-59	4.9	4.5	86.1	4.5	100.0	414
60-64	2.6	7.5	85.2	4.7	100.0	423
Total 15-24	19.7	1.2	77.1	2.0	100.0	3,485
Total 15-49	12.4	1.9	82.5	3.2	100.0	8,020
Total 15-64	11.8	2.3	82.7	3.2	100.0	9,271

[1]Relates to Global AIDS Monitoring Indicator 3.16: Prevalence of male circumcision and PEPFAR VMMC_TOTALCIRC NAT / SUBNAT.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

15.6 Gaps and Unmet Needs

- HIV prevention practices, including regular condom use, need strengthening, particularly among groups with high-risk behaviors, including early sexual debut, multiple sexual partners, and sex with a non-marital, non-cohabitating partner.
- Coverage of VMMC must be expanded in order to meet the 65% target set by the national program.

16 INTIMATE PARTNER VIOLENCE

16.1 Key Findings

- Among ever-married or partnered women aged 15-64 years, 3.7% reported experiencing physical violence, 0.5% reported experiencing sexual violence, and 4.0% reported experiencing either physical or sexual violence from a live-in partner within the 12 month period before the survey.

16.2 Background

Intimate partner violence (IPV) is defined as physical violence, sexual violence, stalking, and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner, or ongoing sexual partner).[1] Exposure to IPV has been implicated in increased risk of a woman contracting HIV, through mechanisms such as forced sex with an HIV-positive partner, an increase in risky sexual behaviors, and reduced ability to negotiate forms of safe sex (e.g., condom use).[2] Data from ZIMPHIA helps fill gaps in information on subnational prevalence estimates and demographic characteristics of women who experienced different forms of IPV. This chapter provides data on the nature of violence in this population, which can assist in the development of violence prevention programs.

This chapter reports the prevalence of experiencing sexual or physical violence perpetrated by a live-in partner in the 12 months before the survey among ever married or partnered women. Sexual violence was defined in ZIMPHIA as experiencing physical force or pressure to have sex. Physical violence was defined as experiencing punching, kicking, whipping, beating, slapping, pushing, shoving, choking, smothering, drowning, or burning. It also included having an object thrown at you or being hurt or threatened with a knife, gun, or other weapon. Prevalence numbers are broken down by age, education, region, and sociodemographic characteristics. Violence markers are measured against a woman's HIV status, as well as demographic characteristics.

Violence questionnaires were administered to one randomly-selected woman in each household who had ever been in an intimate relationship. Questions were adapted from the Demographic and Health Survey as well as Violence Against Children Survey, which measures physical, emotional, and sexual violence in childhood, adolescence, and young adulthood (up to the age of 24 years). Women and adolescents reporting violence were offered referral to social services.

16.3 Prevalence of Recent Intimate Partner Violence

Among ever-married or partnered women, 3.7% reported experiencing physical violence, 0.5% reported experiencing sexual violence, and 4.0% reported experiencing either physical or sexual violence by a live-in partner in the 12 months preceding the survey. The percentage of women who experienced IPV in the previous 12 months ranged from 8.9% among those aged 15-19 years to 0.7% among those aged 60-64 years. Across the provinces, the percentage of women who experienced physical or sexual violence by an intimate partner in the 12 months before the survey ranged from 2.0% in Matabeleland North to 6.6% in Mashonaland Central. Among women who have experienced physical or sexual

violence by a partner, HIV prevalence was slightly higher (5.1%) than in those who had not experienced partner violence (4.0%) (Table 16.3.A).

IPV was likely under-reported in the survey; the finding that 4.6% of respondents aged 15-49 years experienced sexual or physical violence in the last 12 months was low compared to previous data on IPV in Zimbabwe.

Table 16.3.A Prevalence of recent intimate partner violence

Among ever-married or partnered women aged 15-64 years, percentage who experienced physical or sexual violence from a male intimate partner in the past 12 months[1], by woman's HIV status and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Physical violence	Sexual violence[2]	Physical and sexual violence	Physical or sexual violence[3]	Number of ever-married or partnered women
Result of PHIA survey HIV test					
HIV positive	4.5	0.8	0.2	5.1	1,476
HIV negative	3.7	0.4	0.2	4.0	5,387
Not tested	2.0	0.1	0.1	2.0	609
Residence					
Urban	3.6	0.6	0.2	3.9	2,159
Rural	3.8	0.4	0.2	4.1	5,313
Province					
Bulawayo	3.2	0.8	0.4	3.6	603
Manicaland	3.0	0.5	0.2	3.3	798
Mashonaland Central	5.9	1.3	0.6	6.6	854
Mashonaland East	4.3	0.3	0.1	4.5	697
Mashonaland West	5.5	0.7	0.1	6.2	850
Matabeleland North	2.0	0.1	0.1	2.0	697
Matabeleland South	2.1	0.1	0.1	2.1	539
Midlands	3.5	0.0	0.0	3.5	817
Masvingo	2.9	0.4	0.3	3.0	821
Harare	3.4	0.4	0.1	3.7	796
Marital status					
Never married	*	*	*	*	0
Married or living together	3.7	0.5	0.1	4.0	5,918
Divorced or separated	6.8	0.7	0.6	6.9	668
Widowed	0.8	0.3	0.0	1.1	877
Education					
No education	2.8	0.2	0.0	3.0	345
Primary	3.3	0.4	0.2	3.6	2,745
Secondary	4.2	0.5	0.2	4.6	4,049
More than secondary	1.7	0.4	0.0	2.1	330
Wealth quintile					
Lowest	4.1	0.2	0.2	4.2	1,827
Second	3.4	0.4	0.1	3.8	1,573
Middle	3.6	0.2	0.1	3.8	1,483
Fourth	5.4	0.9	0.2	6.2	1,314
Highest	2.1	0.5	0.3	2.3	1,275
Religion					
Traditional	0.8	0.0	0.0	0.8	72
Roman Catholic	2.7	0.2	0.0	2.9	506
Protestant	3.5	0.3	0.2	3.6	1,176
Pentecostal	3.6	0.8	0.3	4.0	1,505
Apostolic Sect	4.2	0.3	0.1	4.3	2,964
Other Christian	2.3	0.3	0.2	2.5	684
Muslim	(0.0)	(11.3)	(0.0)	(11.3)	34
Other	1.9	0.0	0.0	1.9	52
None	6.1	0.7	0.0	6.8	479
Age					
15-19	8.2	0.7	0.0	8.9	280
20-24	7.7	0.8	0.3	8.2	985
25-29	4.1	0.6	0.2	4.5	1,216
30-34	4.1	0.3	0.0	4.4	1,264
35-39	1.6	0.4	0.2	1.8	1,041
40-44	2.5	0.5	0.4	2.7	758
45-49	1.8	0.4	0.2	2.1	558
50-54	1.3	0.2	0.2	1.3	481
55-59	1.3	0.2	0.0	1.4	491
60-64	0.7	0.0	0.0	0.7	398

Table 16.3.A Prevalence of recent intimate partner violence (continued)

Among ever-married or partnered women aged 15-64 years, percentage who experienced physical or sexual violence from a male intimate partner in the past 12 months[1], by woman's HIV status and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Physical violence	Sexual violence[2]	Physical and sexual violence	Physical or sexual violence[3]	Number of ever-married or partnered women
Age					
Total 15-24	7.8	0.8	0.2	8.4	1,265
Total 15-49	4.2	0.5	0.2	4.6	6,102
Total 15-64	3.7	0.5	0.2	4.0	7,472

[1]Physical violence was defined as being punched, kicked, whipped, beaten, slapped, pushed, shoved, choked, smothered, drowned or burned. It also included having an object thrown at oneself or being hurt or threatened with a knife, gun or other weapon.
[2]Sexual violence was defined as being physically forced to have sex
[3]Relates to Global AIDS Monitoring indicator 4.3: Prevalence of recent intimate partner violence.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable. Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. Estimates with an asterisk are based on a very small number (less than 25) of unweighted cases and have been suppressed.

16.4 Gaps and Unmet Needs

- While IPV is likely under-reported in a face-to-face interview, nearly one in ten women aged 15-24 years reported experiencing IPV in the 12 month period before the survey. Violence prevention interventions, including behavior change communication should target partners of young women while social support services should target the affected women themselves.

16.5 References

1. Breiding MJ, Basile KC, Smith SG, Black MC, Mahendra RR. *Intimate Partner Violence Surveillance: Uniform Definitions and Recommended Data Elements, Version 2.0*. Atlanta (GA): National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; 2015.

2. Maman S, Campbell J, Sweat MD, Gielen AC. The intersections of HIV and violence: directions for future research and interventions. *Soc Sci Med.* 2000 Feb;50(4):459-78.

17 Discriminatory Attitudes Towards People Living with HIV

17.1 Key Findings

- Among adults (those aged 15-64 years) who have heard of HIV, 16.3% showed discriminatory attitudes towards people living with HIV.
- Over one-fourth (27.6%) of older adolescents (ages 15-19 years) reported discriminatory attitudes towards people living with HIV.

17.2 Background

Attitudes toward and perceptions of people living with HIV play an important role in the HIV epidemic. Misconceptions about HIV have resulted in people developing a number of false beliefs: HIV/AIDS always entails death; HIV is associated with depraved and immoral behaviors; HIV infection results from irresponsibility; and HIV is only spread through sex, to name a few. Fears arising from these beliefs can lead to marginalization of particular populations, rendering them more vulnerable. Furthermore, HIV-related discrimination continues to act as a barrier to prevention and treatment, undermining programmatic attempts to help people living with HIV/AIDS, and may even result in the denial of health services.[1]

This chapter focuses on potential stigmatization directed against people living with HIV. In ZIMPHIA, the assessment of discriminatory attitudes towards people living with HIV follows the guidance for global AIDS monitoring by UNAIDS and is based on two questions: 1) Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV; and 2) Do you think that children living with HIV should be able to attend school with children who are HIV negative. Responses of "No" to either question would indicate a discriminatory attitude (UNAIDS 2016). This data can help to explain how HIV-related stigma may be negatively impacting efforts aimed at HIV prevention, HIV testing, and access to HIV treatment and care.

17.3 Discriminatory Attitudes Towards People Living with HIV

Among adults who have heard of HIV, 16.3% showed discriminatory attitudes towards people living with HIV. Approximately 12% of adults reported that they would not buy fresh vegetables from a shopkeeper if they knew that the individual had HIV and 8% reported that they do not feel children living with HIV should be allowed to attend school with HIV-negative children. One-fourth (27.6%) of older adolescents reported discriminatory attitudes towards people living with HIV. Among older adolescents, one-fifth (21.8%) would not buy vegetables from a shopkeeper with HIV and 13.9% do not feel a child with HIV should attend school with HIV-negative children. By province, 23.2% of adults in Matabeleland South and 10.8% of adults in Harare reported discriminatory attitudes against people living with HIV (Table 17.3.A).

Table 17.3.A Discriminatory attitudes toward people living with HIV

Among persons aged 15-64 years, percentage who report discriminatory attitudes towards people living with HIV, by selected demographic characteristics, ZIMPHIA 2015-2016

	Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV?	Do you think that children living with HIV should be able to attend school with children who are HIV negative?	Both questions	
Characteristic	Percentage who responded "No"	Percentage who responded "No"	Percentage who responded "No" to either question[1]	Number[2]
Residence				
Urban	9.0	5.0	11.7	3,258
Rural	14.2	9.3	18.8	7,606
Province				
Bulawayo	11.6	5.6	14.8	1,038
Manicaland	10.8	8.7	16.2	1,135
Mashonaland Central	11.1	8.8	15.3	1,142
Mashonaland East	11.4	6.7	15.4	1,062
Mashonaland West	14.6	8.4	18.8	1,286
Matabeleland North	16.2	13.2	22.3	1,030
Matabeleland South	18.4	10.8	23.2	810
Midlands	12.8	8.5	15.8	1,092
Masvingo	16.7	7.0	20.0	1,144
Harare	7.9	5.3	10.8	1,125
Marital status				
Never married	18.2	11.2	23.1	3,227
Married or living together	9.7	6.3	13.3	6,224
Divorced or separated	9.2	6.0	12.3	701
Widowed	9.8	5.4	12.5	694
Education				
No education	21.0	13.4	25.1	315
Primary	19.1	11.9	24.0	3,203
Secondary	10.2	6.5	13.9	6,621
More than secondary	6.1	3.3	7.9	717
Wealth quintile				
Lowest	16.8	10.5	21.5	2,545
Second	14.2	9.6	19.4	2,283
Middle	13.0	8.8	17.0	2,089
Fourth	9.6	6.0	12.6	1,805
Highest	8.6	4.5	11.5	2,142
Religion				
Traditional	14.9	12.0	21.5	210
Roman Catholic	10.6	6.4	13.9	866
Protestant	9.2	6.2	13.1	1,770
Pentecostal	10.5	6.3	13.9	2,104
Apostolic Sect	13.2	8.6	17.4	3,546
Other Christian	15.0	8.3	18.9	973
Muslim	(11.2)	(8.2)	(13.5)	47
Other	11.7	6.2	14.4	73
None	16.5	10.4	20.9	1,267
Age				
15-19	21.8	13.9	27.6	2,162
20-24	13.0	7.7	16.9	1,622
25-29	8.8	5.7	12.9	1,339
30-34	9.2	6.2	12.4	1,360
35-39	8.3	4.6	10.4	1,146
40-44	7.1	5.5	10.8	966
45-49	7.1	4.3	10.0	683
50-54	8.7	5.8	12.1	575
55-59	15.8	8.0	19.1	550
60-64	15.9	11.7	21.0	461
Total 15-24	17.8	11.1	22.8	3,784
Total 15-49	12.2	7.7	16.2	9,278
Total 15-64	12.4	7.8	16.3	10,864

[1]Relates to Global AIDS Monitoring Indicator 4.1: Discriminatory attitudes towards people living with HIV; [2]Includes only participants who answered both questions.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

17.4 Gaps and Unmet Needs

- Discriminatory attitudes towards people living with HIV were most common in the two provinces with the highest HIV prevalence: Matabeleland North and Matabeleland South. Education and community interventions to decrease stigma could benefit people living with HIV in these areas.
- Discriminatory attitudes were also more common among older adolescents. Interventions to reduce discrimination should target venues where these young people congregate, including schools and youth groups.

17.5 References

1. Joint United Nations Programme on HIV/AIDS. *UNAIDS data tables, 2017.* http://aidsinfo.unaids.org/. Accessed September 18, 2018.

18 Tuberculosis, Syphilis, STI Symptoms, and Cervical Cancer Screening

18.1 Key Findings

- Among self-reported HIV-positive adults (ages 15-64 years), 48.9% (53.7% of men and 46.1% of women) reported that they were screened for TB symptoms during their last HIV clinic visit.
- Among self-reported HIV-positive adults diagnosed with TB, 98.0% were treated.
- Active syphilis infection was higher among HIV-positive adults (2.9%) than among HIV-negative adults (0.4%).
- While 8.7% of men and 9.0% of women ages 15-64 years reported a genital ulcer, only a fraction of those (2.9% and 2.4%, respectively) reported that they had received a clinical diagnosis of a sexually-transmitted infection (STI) in the 12 months before the survey.
- Among HIV-positive women aged 30-49 years, 21.2% reported having screening for cervical cancer.

18.2 Background

People living with HIV are at risk for acquiring other diseases, including TB, syphilis, and other STIs. TB is the leading causes of death in people living with HIV in sub-Saharan Africa. A UNAIDS model estimates there were 4,400 [3,000, 6,100] TB-related deaths among HIV-positive persons in Zimbabwe in 2016.[1] This chapter presents data on HIV/TB collaborative activities: the delivery of HIV testing at TB clinics, and TB symptom screening at HIV clinics. It also describes the TB clinical care cascade for HIV-positive individuals: the proportion receiving care at a TB clinic, TB diagnoses among those receiving care, and treatment among those diagnosed with TB.

Syphilis is a relatively common STI, and untreated syphilis can result in severe morbidity in adults as well as in infants. Providing a syphilis diagnosis in a timely manner allows patients to be treated, thereby reducing morbidity and transmission to sexual partners or vertically to newborn infants. As syphilis has been implicated in increasing transmission and acquisition of HIV, describing syphilis in HIV-positive individuals adds to the understanding of the epidemiology of HIV. This chapter describes syphilis prevalence in adults, by HIV status, age, sex, and socio-economic and demographic characteristics. This chapter also describes prior screening for STIs in both men and women.

Women living with HIV 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.[2] ZIMPHIA provided 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 socio-demographic characteristics.

18.3 Tuberculosis

Among adults who had ever visited a TB clinic, 9.4% already knew their HIV-positive status, 62.1% were tested for HIV during a TB clinic visit, and 28.5% did not know their HIV status and were not tested. The proportion of people tested did not vary greatly by sex; however, almost twice the proportion of women (12.2%) knew their HIV-positive status before the TB clinic visit than men (6.4%) (Table 18.3.A).

Among self-reported HIV-positive adults, 48.9% (53.7% of men and 46.1% of women) reported that they were screened for TB at their last HIV clinic visit (Table 18.3.B). Among self-reported HIV-positive adults, 45.3% of men reported visiting a TB clinic compared to 36.7% of women. Similarly, 54.9% of men who visited a TB clinic were diagnosed with TB compared to 42.0% of women. Among those diagnosed with TB, treatment rates were extremely high with 97.1% of men and 98.8% of women reporting receiving treatment (Table 18.3.C).

Table 18.3.A HIV testing in tuberculosis (TB) clinics

Percent distribution of persons aged 15-64 years who had ever visited a TB clinic by whether they were tested for HIV during a TB clinic visit, by sex, ZIMPHIA 2015-2016

		Not Tested for HIV during a TB clinic visit			
Characteristic	Tested for HIV during a TB clinic visit	Already knew they were HIV positive	Did not know their status	Total	Number
Sex					
Male	63.3	6.4	30.3	100.0	913
Female	60.9	12.2	26.9	100.0	1,317
Total 15-64	62.1	9.4	28.5	100.0	2,230

Table 18.3.B Tuberculosis (TB) symptom screening in HIV clinics

Among self-reported HIV-positive persons in HIV care aged 15-64 years, percentage who were screened for TB symptoms during their last HIV clinic visit, by sex, ZIMPHIA 2015-2016

Characteristic	Percentage who were screened for TB symptoms	Number
Sex		
Male	53.7	799
Female	46.1	1,709
Total 15-64	48.9	2,508

Table 18.3.C Tuberculosis (TB) clinic attendance and services among HIV-positive adults

Among self-reported HIV-positive persons aged 15-64 years, percentage who ever visited a TB clinic; among those who had ever visited a TB clinic, percentage who were diagnosed for TB; and among those diagnosed with TB, percentage who were treated for TB, by sex, ZIMPHIA 2015-2016

	Among HIV-positive persons		Among HIV-positive persons who ever visited a TB clinic		Among HIV-positive persons who were diagnosed with TB	
Characteristic	Percentage who ever visited a TB clinic	Number	Percentage who were diagnosed with TB	Number	Percentage who were treated for TB	Number
Sex						
Male	45.3	856	54.9	371	97.1	211
Female	36.7	1,798	42.0	648	98.8	279
Total 15-64	39.9	2,654	47.6	1,019	98.0	490

18.4 Syphilis

Among adults, 2.7% (2.4% of men and 3.0% of women) were ever infected with syphilis, while 0.8% (0.6% among men and 1.0% among women) had an active syphilis infection. The prevalence of active syphilis infection was higher among HIV-positive (2.9%) than among HIV-negative (0.4%) persons. The prevalence of active syphilis infection ranged from 0.3% among older adolescents aged 15-19 years to 2.0% among adults aged 60-64 years. The prevalence of active syphilis also varied by level of education, ranging from 1.7% among those with no education to 0.2% among those with more than secondary education (Table 18.4.A).

Table 18.4.A Syphilis prevalence

Prevalence of syphilis (ever infected and active infection) among persons aged 15-64 years, by sex, result of PHIA survey HIV test, and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Men			Women			Total		
	Percentage ever infected	Percentage active infection	Number	Percentage ever infected	Percentage active infection	Number	Percentage ever infected	Percentage active infection	Number
Result of PHIA survey HIV test									
HIV positive	8.2	2.8	1,155	6.5	3.0	2,230	7.1	2.9	3,385
HIV negative	1.6	0.3	7,240	2.3	0.6	9,952	1.9	0.4	17,192
Residence									
Urban	2.6	0.6	2,150	2.9	1.0	3,920	2.8	0.9	6,070
Rural	2.3	0.6	6,245	3.0	0.9	8,262	2.6	0.8	14,507
Province									
Bulawayo	3.3	0.8	674	3.3	0.9	1,263	3.3	0.9	1,937
Manicaland	1.9	0.3	942	2.3	0.6	1,296	2.1	0.5	2,238
Mashonaland Central	1.8	0.5	958	3.4	0.5	1,143	2.6	0.5	2,101
Mashonaland East	2.3	0.4	902	1.8	0.6	1,045	2.1	0.5	1,947
Mashonaland West	2.0	0.5	1,137	3.3	1.4	1,328	2.6	0.9	2,465
Matabeleland North	3.7	1.0	784	5.1	1.4	1,190	4.4	1.2	1,974
Matabeleland South	4.1	1.1	631	4.8	2.0	968	4.5	1.6	1,599
Midlands	2.5	0.8	767	2.3	0.9	1,258	2.4	0.9	2,025
Masvingo	1.9	0.5	850	2.9	1.1	1,353	2.5	0.8	2,203
Harare	2.4	0.8	750	2.8	0.9	1,338	2.6	0.9	2,088
Marital status									
Never married	0.7	0.3	3,386	1.3	0.6	2,681	0.9	0.4	6,067
Married or living together	3.4	0.7	4,530	2.7	0.8	7,278	3.0	0.7	11,808
Divorced or separated	5.0	2.7	348	5.3	2.2	1,040	5.2	2.4	1,388
Widowed	3.5	1.0	120	7.2	2.3	1,167	6.8	2.1	1,287
Education									
No education	8.2	1.0	122	10.4	1.8	510	9.9	1.7	632
Primary	3.5	0.9	2,381	4.5	1.4	3,888	4.1	1.2	6,269
Secondary	1.9	0.6	5,250	1.9	0.8	7,165	1.9	0.7	12,415
More than secondary	2.0	0.3	634	2.1	0.1	612	2.1	0.2	1,246
Wealth quintile									
Lowest	2.7	0.7	2,025	3.2	0.9	2,818	3.0	0.8	4,843
Second	2.0	0.4	1,874	3.3	1.0	2,528	2.7	0.7	4,402
Middle	2.3	0.7	1,803	2.7	0.8	2,229	2.5	0.8	4,032
Fourth	2.3	0.8	1,328	3.1	1.5	2,071	2.7	1.2	3,399
Highest	2.5	0.5	1,365	2.6	0.7	2,536	2.6	0.6	3,901
Religion									
Traditional	2.5	1.3	273	4.5	0.0	118	3.0	1.0	391
Roman Catholic	3.0	0.4	721	2.8	1.0	902	2.9	0.7	1,623
Protestant	2.1	0.5	1,234	3.4	1.1	2,115	2.8	0.8	3,349
Pentecostal	1.9	0.4	1,291	2.7	0.8	2,762	2.4	0.7	4,053
Apostolic Sect	2.1	0.4	2,342	2.5	0.8	4,294	2.3	0.7	6,636
Other Christian	1.8	0.3	637	3.0	1.1	1,183	2.5	0.8	1,820
Muslim	(11.2)	(3.7)	40	2.0	0.0	51	6.9	2.0	91
Other	0.0	0.0	68	4.2	1.1	96	2.1	0.5	164
None	3.0	1.1	1,778	6.0	2.4	658	3.7	1.4	2,436
Pregnancy status									
Currently pregnant1	NA	NA	NA	2.7	1.4	608	NA	NA	NA
Not currently pregnant	NA	NA	NA	2.9	0.9	11,363	NA	NA	NA
Age									
15-19	0.3	0.2	1,950	0.8	0.4	2,114	0.5	0.3	4,064
20-24	1.0	0.4	1,220	2.1	1.3	1,817	1.5	0.9	3,037
25-29	1.3	0.4	979	2.4	1.1	1,573	1.9	0.8	2,552
30-34	1.8	0.8	942	2.1	1.0	1,579	2.0	0.9	2,521
35-39	3.8	1.7	843	2.3	0.8	1,326	3.0	1.2	2,169
40-44	4.2	1.0	754	3.9	1.0	1,063	4.0	1.0	1,817
45-49	2.9	0.1	553	4.1	0.6	749	3.5	0.3	1,302
50-54	5.3	0.5	383	7.1	1.0	707	6.3	0.7	1,090
55-59	9.0	0.0	382	9.7	1.2	702	9.4	0.7	1,084
60-64	8.9	2.0	389	9.0	2.0	552	9.0	2.0	941
Total 15-24	0.6	0.3	3,170	1.4	0.8	3,931	1.0	0.6	7,101
Total 15-49	1.8	0.6	7,241	2.2	0.9	10,221	2.0	0.8	17,462
Total 15-64	2.4	0.6	8,395	3.0	1.0	12,182	2.7	0.8	20,577

[1]Relates to Global AIDS Monitoring Indicator 2.4: Syphilis among pregnant women.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

18.5 Self-Reported Symptoms and Diagnosis of Sexually Transmitted Infection

Among men, 8.7% reported a genital ulcer or sore, while 5.7% reported abnormal discharge in the past 12 months. A fraction of those (2.9%) reported a clinical diagnosis of an STI in the 12 months before the survey. There was little difference in the clinical diagnosis of an STI by age group, though there were variations in the proportion reporting STI symptoms. Reports of ulcers ranged from 4.1% among men aged 60-64 years to 11.1% among men aged 30-39 years. Reports of an abnormal discharge ranged from 2.3% among men aged 50-54 years to 7.2% among young men aged 20-24 years (Table 18.5.A).

Among HIV-positive men, 9.3% reported an abnormal discharge, 19.4% reported an ulcer or a sore, and 6.4% reported a clinical diagnosis of an STI. A smaller proportion of their HIV-negative counterparts reported an abnormal discharge, an ulcer or sore, or a clinical diagnosis (5.4%, 7.5%, and 2.5%, respectively) (Table 18.5.A).

Similar to men, a greater percentage of women reported having a genital ulcer or sore (9.0%) than a clinical diagnosis (2.4%) of an STI in the 12 months before the survey. Reports of genital ulcers and clinical diagnosis were also more common in women who were HIV positive compared to those who were HIV negative. One in seven (14.4%) HIV-positive women reported an ulcer compared to one in twelve (8.3%) HIV-negative women. Clinical diagnosis of an STI was reported among 4.5% of HIV-positive women and 2.1% among HIV-negative women (Table 18.5.B).

By age, the proportion of women reporting a genital ulcer in the last 12 months ranged from 10.5% among older adolescents aged 15-19 years to 5.7% among adults aged 60-64 years. The proportion reporting a clinical diagnosis of an STI ranged from 3.2% among adults aged 30-34 years to 0.8% among adults aged 60-64 years (Table 18.5.B).

Table 18.5.A Other sexually transmitted infections: Men

Among men aged 15-64 years, percentage who reported symptoms of a sexually transmitted infection (STI) and percentage who reported clinical diagnosis of a STI in the 12 months before the survey; by HIV status and selected demographic characteristics, ZIMPHIA 2015-2016

	Self-reported symptoms in the past 12 months			Percentage who were diagnosed with an STI in the past 12 months by a doctor, clinical officer, or nurse	
Characteristic	Percentage who had abnormal discharge from the penis[1]	Percentage who had an ulcer or sore on or near the penis	Number		Number
Result of PHIA survey HIV test					
HIV positive	9.3	19.4	1,015	6.4	1,040
HIV negative	5.4	7.5	5,470	2.5	5,550
Not tested	3.0	3.8	667	1.6	675
Residence					
Urban	4.9	8.7	1,828	2.9	1,864
Rural	6.0	8.6	5,324	3.0	5,401
Province					
Bulawayo	6.5	8.0	559	3.2	566
Manicaland	6.5	8.8	785	3.9	802
Mashonaland Central	4.8	8.4	900	2.4	910
Mashonaland East	5.4	10.2	776	2.9	794
Mashonaland West	6.8	8.5	946	4.0	959
Matabeleland North	8.2	7.5	687	2.2	699
Matabeleland South	6.8	7.0	531	4.0	536
Midlands	5.7	9.0	651	2.5	660
Masvingo	5.9	8.7	684	2.9	695
Harare	3.3	8.6	633	1.9	644
Marital status					
Never married	6.7	6.9	1,918	2.4	1,933
Married or living together	4.9	9.0	4,743	3.0	4,818
Divorced or separated	8.4	11.2	372	4.7	381
Widowed	9.4	15.7	108	4.6	122

Table 18.5.A Other sexually transmitted infections: Men (continued)

Among men aged 15-64 years, percentage who reported symptoms of a sexually transmitted infection (STI) and percentage who reported clinical diagnosis of a STI in the 12 months before the survey; by HIV status and selected demographic characteristics, ZIMPHIA 2015-2016

	Self-reported symptoms in the past 12 months			Percentage who were diagnosed with an STI in the past 12 months by a doctor, clinical officer, or nurse	
Characteristic	Percentage who had abnormal discharge from the penis[1]	Percentage who had an ulcer or sore on or near the penis	Number		Number
Education					
No education	2.7	7.2	101	2.6	102
Primary	8.0	8.6	2,071	3.2	2,113
Secondary	5.2	8.9	4,311	3.0	4,374
More than secondary	3.3	7.9	661	2.2	668
Wealth quintile					
Lowest	6.5	9.4	1,714	3.1	1,738
Second	6.3	8.3	1,541	1.9	1,569
Middle	6.3	8.4	1,543	3.4	1,565
Fourth	4.3	9.0	1,167	3.7	1,185
Highest	4.9	8.2	1,187	2.5	1,208
Religion					
Traditional	6.4	9.2	269	5.4	270
Roman Catholic	4.1	8.4	629	2.5	631
Protestant	6.0	7.5	958	2.2	979
Pentecostal	5.0	7.3	1,014	2.5	1,032
Apostolic Sect	5.8	9.2	1,968	3.1	2,020
Other Christian	4.3	5.9	498	1.8	509
Muslim	(4.5)	(15.9)	30	(0.0)	30
Other	3.4	12.4	60	5.4	60
None	6.8	10.1	1,715	3.4	1,724
Age					
15-19	7.0	7.4	665	1.4	678
20-24	7.2	7.4	1,070	2.5	1,083
25-29	6.0	9.4	978	3.2	999
30-34	6.5	11.1	1,021	3.9	1,038
35-39	5.6	11.1	898	3.7	913
40-44	5.0	7.7	790	3.6	800
45-49	3.6	8.8	572	2.4	581
50-54	2.3	5.6	390	1.4	393
55-59	3.2	6.1	383	2.0	388
60-64	3.4	4.1	385	1.7	392
Total 15-24	7.1	7.4	1,735	2.2	1,761
Total 15-49	6.0	9.1	5,994	3.1	6,092
Total 15-64	5.7	8.7	7,152	2.9	7,265

[1]Relates to Global AIDS Monitoring Indicator 10.4: Men with urethral discharge.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

Table 18.5.B Other sexually transmitted infections: Women

Among women aged 15-64 years, percentage who reported symptoms of a sexually transmitted infection (STI) and percentage who reported clinical diagnosis of a STI in the 12 months before the survey; by HIV status and selected demographic characteristics, ZIMPHIA 2015-2016

	Self-reported symptoms in the past 12 months		Percentage who were diagnosed with an STI in the past 12 months by a doctor, clinical officer, or nurse	
Characteristic	Percentage who had an ulcer or sore on or near the vagina	Number		Number
Result of PHIA survey HIV test				
HIV positive	14.4	2,119	4.5	2,128
HIV negative	8.3	8,195	2.1	8,236
Not tested	3.5	865	1.0	869
Residence				
Urban	9.0	3,558	2.0	3,574
Rural	9.0	7,621	2.6	7,659
Province				
Bulawayo	7.4	1,149	1.3	1,153
Manicaland	9.4	1,193	2.6	1,201
Mashonaland Central	11.3	1,131	3.9	1,136

Table 18.5.B Other sexually transmitted infections: Women (continued)

Among women aged 15-64 years, percentage who reported symptoms of a sexually transmitted infection (STI) and percentage who reported clinical diagnosis of a STI in the 12 months before the survey; by HIV status and selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Self-reported symptoms in the past 12 months: Percentage who had an ulcer or sore on or near the vagina	Self-reported symptoms in the past 12 months: Number	Percentage who were diagnosed with an STI in the past 12 months by a doctor, clinical officer, or nurse	Number
Province (cont.)				
Mashonaland East	8.4	965	2.6	971
Mashonaland West	8.9	1,199	1.4	1,206
Matabeleland North	9.1	1,128	2.1	1,137
Matabeleland South	5.5	901	1.8	905
Midlands	7.7	1,146	2.2	1,152
Masvingo	10.6	1,174	3.0	1,176
Harare	9.4	1,193	2.6	1,196
Marital status				
Never married	9.9	1,137	1.5	1,151
Married or living together	8.4	7,730	2.4	7,761
Divorced or separated	12.0	1,105	3.9	1,109
Widowed	9.3	1,194	1.8	1,199
Education				
No education	9.0	446	1.6	451
Primary	9.1	3,878	2.4	3,900
Secondary	9.0	6,250	2.5	6,276
More than secondary	8.2	599	1.5	600
Wealth quintile				
Lowest	8.7	2,615	2.5	2,641
Second	8.8	2,296	2.7	2,299
Middle	9.8	2,088	2.4	2,096
Fourth	9.9	1,933	2.7	1,936
Highest	7.9	2,247	1.7	2,261
Religion				
Traditional	6.4	118	4.1	119
Roman Catholic	7.2	792	1.2	798
Protestant	8.6	1,879	2.2	1,888
Pentecostal	9.7	2,405	2.8	2,416
Apostolic Sect	9.5	4,137	2.5	4,152
Other Christian	8.1	1,070	2.3	1,070
Muslim	(2.3)	48	(5.7)	48
Other	7.1	89	0.7	88
None	8.8	639	2.0	651
Age				
15-19	10.5	847	2.5	851
20-24	9.0	1,724	2.5	1,733
25-29	9.4	1,665	2.2	1,672
30-34	10.2	1,660	3.2	1,663
35-39	8.6	1,411	3.0	1,417
40-44	9.1	1,124	2.5	1,129
45-49	8.8	795	1.9	800
50-54	6.8	709	1.5	715
55-59	6.5	697	1.0	706
60-64	5.7	547	0.8	547
Total 15-24	9.5	2,571	2.5	2,584
Total 15-49	9.4	9,226	2.6	9,265
Total 15-64	9.0	11,179	2.4	11,233

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.
The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

18.6 Cervical Cancer Screening Among HIV-Positive Women

Among HIV-positive women aged 30-49 years, 21.2% report that they had received screening for cervical cancer. The proportion of urban women who reported screening for cervical cancer (30.5%) was nearly twice that of rural women (15.5%). There were lower rates of reported cervical cancer screening among HIV-positive women in the relatively rural provinces of Mashonaland East (12.8%) and Matabeleland South (13.4%) compared to HIV-positive women living in and around the urban areas of Harare (36.0%)

and Bulawayo (27.2%). Self-reported coverage of cervical cancer screening also varied by socio-economic status, ranging from 10.5% among HIV-positive women in the lowest wealth quintile to 33.0% among HIV-positive women in the highest wealth quintile. Coverage of cervical cancer screening also varied by religion with 16.2% of Apostolic women living with HIV reporting that they received screening, while more than double that proportion of Roman Catholic women (34.4%) reported that they had received screening (Table 18.6.A).

Table 18.6.A Cervical cancer screening among women living with HIV

Among HIV-positive women aged 30-49 years, percentage who report being screened for cervical cancer, by selected demographic characteristics, ZIMPHIA 2015-2016

Characteristic	Percentage who report ever having had a screening test for cervical cancer[1]	Number
Residence		
Urban	30.5	456
Rural	15.5	889
Province		
Bulawayo	27.2	165
Manicaland	15.3	108
Mashonaland Central	18.5	120
Mashonaland East	12.8	110
Mashonaland West	17.9	127
Matabeleland North	16.1	162
Matabeleland South	13.4	139
Midlands	15.2	126
Masvingo	23.7	141
Harare	36.0	147
Marital status		
Never married	14.0	73
Married or living together	22.1	762
Divorced or separated	24.3	210
Widowed	18.5	297
Education		
No education	*	24
Primary	14.4	495
Secondary	24.7	787
More than secondary	(34.2)	39
Wealth quintile		
Lowest	10.5	317
Second	12.4	253
Middle	20.9	236
Fourth	27.0	280
Highest	33.0	259
Religion		
Traditional	*	8
Roman Catholic	34.4	84
Protestant	25.6	220
Pentecostal	23.6	305
Apostolic Sect	16.2	502
Other Christian	22.7	134
Muslim	*	6
Other	*	10
None	18.3	76
Age		
30-34	17.4	384
35-39	20.9	386
40-44	25.3	343
45-49	22.9	232
Total 30-49	21.2	1,345

[1]Relates to Global AIDS Monitoring Indicator 10.10: Cervical cancer screening among women living with HIV.

Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

An asterisk indicates that an estimate is based on a very small number (less than 25) of unweighted cases and has been suppressed.

The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable.

18.7 Gaps and Unmet Needs

- Less than half of HIV-positive adults reported receiving screening for TB at their last HIV clinic visit and only about two-thirds of adults visiting a TB clinic were tested for HIV. To better diagnose and treat HIV/TB co-infection, linkages between TB and HIV services should be strengthened.
- Men were twice as likely and women three times as likely to report an STI symptom than to report a clinical diagnosis of an STI. This suggests that STI services may have been unavailable, underutilized, or both.
- Prevalence of cervical cancer screening was low with only one in five HIV-positive women over the age of 30 years reporting that they had received screening for cervical cancer. Routine screening should be offered as part of routine care for this group at high risk for precancerous cervical lesions.

18.8 References

1. Joint United Nations Programme on HIV/AIDS. *UNAIDS data tables,* 2017. http://aidsinfo.unaids.org/. Accessed September 18, 2018.

CONCLUSION

- In ZIMPHIA, the estimated annualized national HIV incidence among adults aged 15-49 years (0.44%, 95% CI: 0.25-0.62) was significantly lower than the modeled estimate reported in 2015 (0.88%, 95% CI: 0.70-1.07), which may suggest progress toward epidemic control (UNAIDS, 2015). However, incidence among women remained unacceptably high.
- Zimbabwe's HIV diagnosis, care, and treatment interventions have resulted in substantial progress toward the UNAIDS targets of 90-90-90, with 77% of people living with HIV reporting awareness of their HIV status, 88% of those diagnosed reporting ART use, and 85% of those on ART having VLS.
- HIV prevalence among children (those aged 0-14 years) was 1.6%. Less than half (45%) of children living with HIV have VLS, suggesting a gap in treatment coverage and/or adherence and/or poor tolerability of pediatric formulations and/or a need for regimen optimization for this age group.
- Among children living with HIV, 68% had a parent or guardian who was aware of their status based on parental-report and laboratory ARV data. Of those whose parent or guardian was aware of their status, 97% were on ART, based on self-report and laboratory ARV data, and 69% of those on ART had suppressed viral loads. There is an urgent need to substantially improve both diagnosis and treatment effectiveness among children. Testing, adherence, and treatment monitoring need strengthening for this age group.
- Across all demographic groups, it is necessary to close the gap in the first 90 goal, awareness of status. Increasing diagnosis of HIV among men and young persons is particularly important.
- It is important to examine the comparatively lower coverage of ART and VLS in Harare to understand how programmatic gaps can be filled to improve treatment coverage in the capital.
- The provinces with the highest HIV prevalence, Matabeleland North and Matabeleland South, had somewhat higher prevalence of VLS. This is encouraging progress towards epidemic control.
- Zimbabwe has also made key steps toward PMTCT of HIV. Nearly all women had at least one contact with the health system during pregnancy and nearly all women living with HIV reported taking ART during their pregnancy.
- Nonetheless, over 6% of infants aged 0-18 months born to HIV-positive mothers were HIV positive. It will be critical to target the small proportion of women not yet receiving testing and ART to eliminate MTCT.
- In ZIMPHIA, HIV-positive mothers who delivered in the 36 months before the survey reported that 53.8% of children had an HIV test within two months of birth and 26.3% had an HIV test within two and 12 months of birth. Coverage needs to be improved to meet the goal of 90% of children tested both at less than two months and a second time between 2 and 12 months of age.
- Early sexual debut, a key risk factor for HIV, was reported more frequently among young people (those aged 15-24 years), who had lower educational attainment (less than secondary school).
- Among people who reported sex with a non-marital, non-cohabitating partner in the 12 months before the survey, only about half reported using a condom, suggesting a need to strengthen prevention behaviors.

- Less than half of young people could answer five basic questions about HIV prevention correctly. There is an urgent need to educate this population about HIV and HIV prevention, particularly as they enter into peak sexual activity and childbearing years.
- Coverage of VMMC remained at a fraction of the 65% target. However, it appeared to be higher among older adolescents and younger men and men in higher-prevalence provinces, both of which have been targeted by programs.
- While the prevalence of active syphilis was relatively low in the general population, it was notably higher among HIV-positive (2.9%) than among HIV-negative (0.4%) persons.
- Stronger linkages for the diagnosis and treatment of key co-infections, including TB, STIs, and cervical cancer will further support the goal of reducing AIDS-related morbidity and mortality.

APPENDIX A SAMPLE DESIGN AND WEIGHTING

Appendix A provides a high-level overview of sampling and weighting procedures for ZIMPHIA 2015-16. In-depth details are provided in the ZIMPHIA 2015-16 Sampling and Weighting Technical Report, which may be found on the PHIA Project website.

A.1 Sample Design

Overview

The sample design for ZIMPHIA 2015-16 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. 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 (i.e., equal probability) samples within each province to the extent feasible.

Within the sampled households, all eligible adults aged 15 years and older were included in the study sample for data collection. All eligible children aged 0-14 years in half of the sampled households were included in the study for data collection.

Population of Inference

The population of inference for ZIMPHIA 2015-16 is comprised of the *de facto* household population. The *de facto* population is comprised of individuals who were present in households (i.e., 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 2015-16:

- The overall sample size was 15,000 (i.e., the number of dwelling units to be selected prior to losses due to vacancy);
- The number of first-stage sampling units (EAs) to be selected was 500, with an average of 30 sampled dwelling units per EA;
- The sample size for each of the 10 strata (provinces) was determined so that 95% confidence bounds around the estimated VLS rate among HIV+ persons aged 15-49 years for each province were approximately equal and no greater than $\pm$ 10%.

- The total sample size had to be sufficient to produce a national annual HIV incidence rate for persons aged 15-49 years with a relative standard error of 30% or less.

The following assumptions were used to develop the sample design for the ZIMPHIA 2015-16:

- An overall HIV prevalence rate of 0.152 (15.2%) that varies by stratum;[1]
- An annual HIV incidence rate for adults aged 15-49 of $P_a = 0.0096$ (0.96%);[2]
- A mean duration of recent infection (MDRI) of 130 days, yielding an annualization rate of 365/130= 2.8077. Hence, the estimated incidence rate for MDRI = 130 days is $P_m = 0.0096/2.8077$=0.0034 (0.34%);
- A VLS rate among HIV+ adults aged 15-49 in stratum h of P_{vh} = 50%;
- An intra-cluster correlation (ICC) of 0.05 for both prevalence and incidence. The ICC provides an average measure of the homogeneity of responses within the first-stage sampling units;
- An occupancy rate of 92.7% for sampled dwellings (Note that this is not nonresponse, but does factor in the calculation of the numbers of dwelling units sampled. A sample of about 15,000 dwelling units yields a sample of about 14,000 occupied dwelling units [households]);[1]
- The average number of persons aged 15-49 years in a household is 1.85;[1]
- The percentage of children in households who are 0-14 is 42.8%;[1]
- The percentage of persons in households who are 50+ is 12.1%;[1]
- Among the individuals in the eligible responding households, a biomarker RR of 67% for persons aged 15 years or older; and
- Among the persons in the eligible responding households, a biomarker response rate of 61% for children aged 0-14 years.

Selection of the Primary Sampling Units

The PSUs for ZIMPHIA 2015-16 were defined as the EAs created for the 2012 Zimbabwe Population Census. The sampling frame consisted of approximately 29,365 EAs containing an estimated 3,059,016 households.

A stratified sample of 500 EAs was selected from the sampling frame. The 10 strata specified for sampling were the 10 provinces of Zimbabwe. The EA samples were selected systematically and with probabilities proportionate to a measure of size (MOS) equal to the number of households in the EA based on the 2012 Zimbabwe Population Census. Prior to selection, the EAs were sorted by type of EA, including urban/rural, district within each urban/rural status, and finally by ward within district. Sorting of the EAs prior to sample selection induces an implicit geographic stratification. To select the sample from a particular stratum, the cumulative MOS was determined for each EA in the ordered list of EAs, and the sample selections were designated using a sampling interval equal to the total MOS of the EAs in the stratum divided by the number of EAs to be selected and a random starting point. The resulting sample had the property that the probability of selecting an EA within a particular stratum was proportional to the MOS of the EA in the stratum.

Details regarding EA substitution and segmentation may be found in the ZIMPHIA 2015-16 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 ZIMPHIA 2015-16 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 2015-16 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 30 households in EAs where the sampling MOS differs from the actual listing count. The ZIMPHIA 2015-16 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 ZIMPHIA 2015-16 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 that met the age and residency requirements of the study. However, only those individuals who slept in the household the night before the household interview (i.e., the de facto population) were retained for subsequent weighting and analysis.

The ZIMPHIA 2015-16 Sampling and Weighting Technical Report provides a brief description of the process for listing and selecting individuals for participation in ZIMPHIA 2015-16, 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 (e.g., 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 2015-16, 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 2015-16 included several steps. Methods and results for each of the steps below are detailed in the ZIMPHIA 2015-16 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 (i.e., weighting up) to 2015 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.

A.3 References

1. Zimbabwe National Statistics Agency and ICF International. *Zimbabwe Demographic and Health Survey 2015: Final Report.* Rockville, Maryland, USA: Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International; 2016.

2. Joint United Nations Programme on HIV/AIDS. *UNAIDS data tables, 2017.* http://aidsinfo.unaids.org/. Accessed September 18, 2018.

APPENDIX B HIV TESTING METHODOLOGY

B.1 Specimen Collection and Handling

Blood was collected by qualified survey staff from consenting participants: 14 mL of venous blood from adults aged 15 years and older; 6 mL from children aged 2-14 years and 1 mL of capillary blood from children aged 0-2 years, using finger-stick for children aged 6-24 months and heel-stick for infants below the age of 6 months.

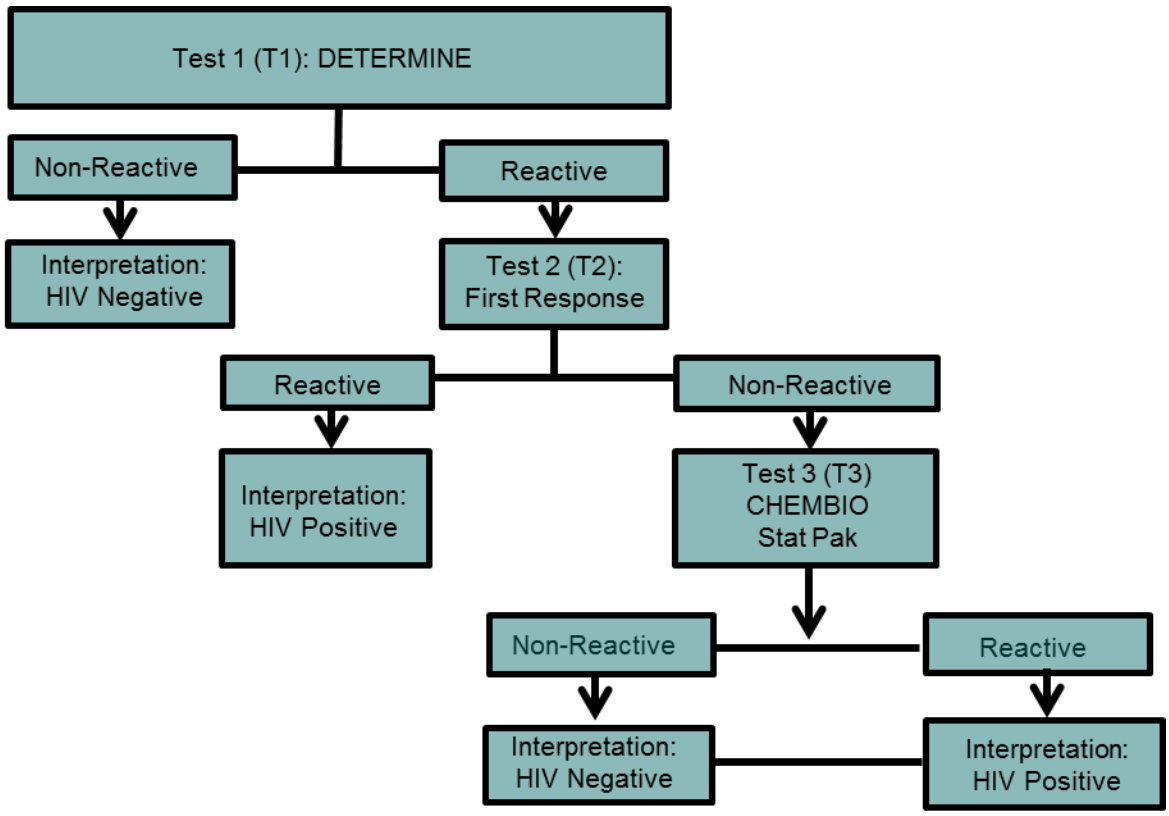
Blood samples were labeled with a unique barcoded participant identification and stored in temperature-controlled cooler boxes. At the end of each day, samples were transported to a satellite laboratory for registration in a laboratory information management system, processing into plasma and DBS, and storage at -20°C within 24 hours of blood collection. Approximately weekly, samples were transported to National Medical Research Laboratories (NMRL) and Lancet Laboratories 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.2.A). 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 who tested HIV negative during the survey, additional testing was conducted at Lancet Laboratories, as described in section B.3. For children below the age of 18 months, only the initial rapid test was performed. If the test was reactive, the sample underwent additional testing at Lancet Laboratories, as described in section B.3.

Figure B.2.A Household-based HIV testing algorithm (participants >18 months of age)



CD4 Testing

All participants who tested HIV positive and a random sample of 5% of participants who tested HIV negative received a CD4 T-cell count measurement in the field by qualified survey staff. The measurement was performed using a Pima™ Analyzer and Pima™ CD4 Cartridge (Abbott Molecular Inc., Chicago, Illinois, USA, formerly Alere).

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. For adults aged 16 years or older, results were communicated directly to the participant, while for minors aged 0-15 years, results were communicated to the participant's parent or guardian. 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 HIV-indeterminate test result were advised to seek repeated testing at the health facility of their choice in four to six weeks. 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 (1) the first 50 samples tested by each field staff member, (2) a random sample of 5% of HIV-negative specimens, and (3) all HIV-indeterminate specimens.

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. However, it is possible that this study did not identify all HIV-exposed infants who would need further PCR testing to verify HIV status. Although the survey used the methodology commonly practiced at the time, in a recent programmatic update, WHO concluded that the use of rapid tests to establish HIV-exposure status may be unreliable in HIV-infected infants.[1]

B.3 Laboratory-Based Procedures

Satellite laboratories were established in existing health facility laboratories across the country. Central laboratories were established at NMRL and Lancet Laboratories in Harare, Zimbabwe.

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, USA) (Figure B.3.A). Testing was conducted at satellite laboratories in accordance with the manufacturer-specified protocol.

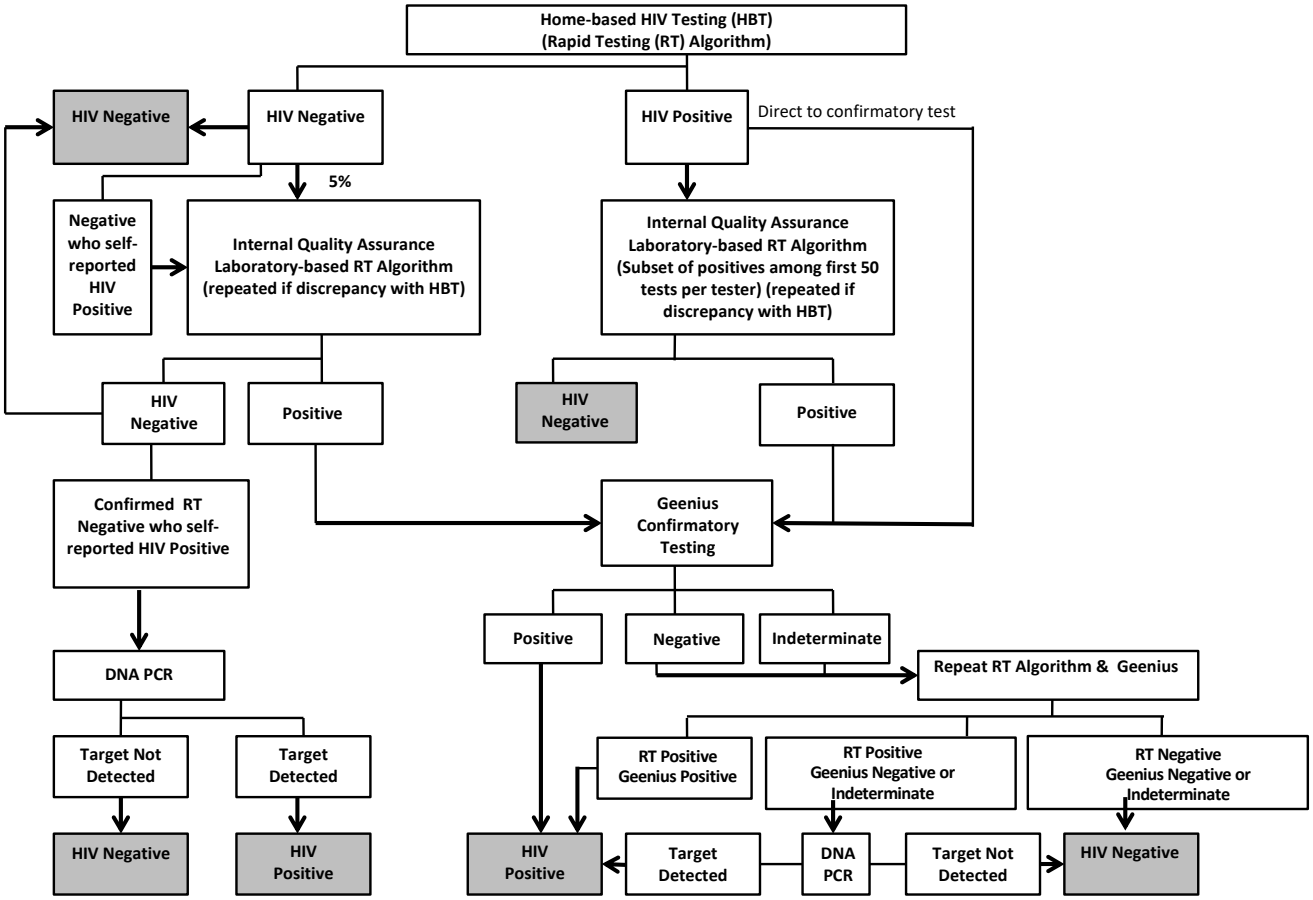
HIV Total Nucleic Acid (TNA) Polymerase Chain Reaction (PCR)

For children below the age of 18 months who had a reactive HIV test result during household-based testing, HIV TNA PCR was conducted (Figure B.3.A). Additionally, 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.3.B). HIV TNA PCR was conducted using the COBAS® AMPLICOR HIV-1 MONITOR Test v1.5 (Roche Molecular Systems, Inc., Branchburg, NJ) at Lancet Laboratories in accordance with the manufacturer-specified protocol.

Classification of Final HIV Status

For participants aged 18 months or older, the algorithm for classification of final HIV status included results from HIV rapid testing, Geenius testing, and HIV deoxyribonucleic acid (DNA) PCR (Figure B.3.A).

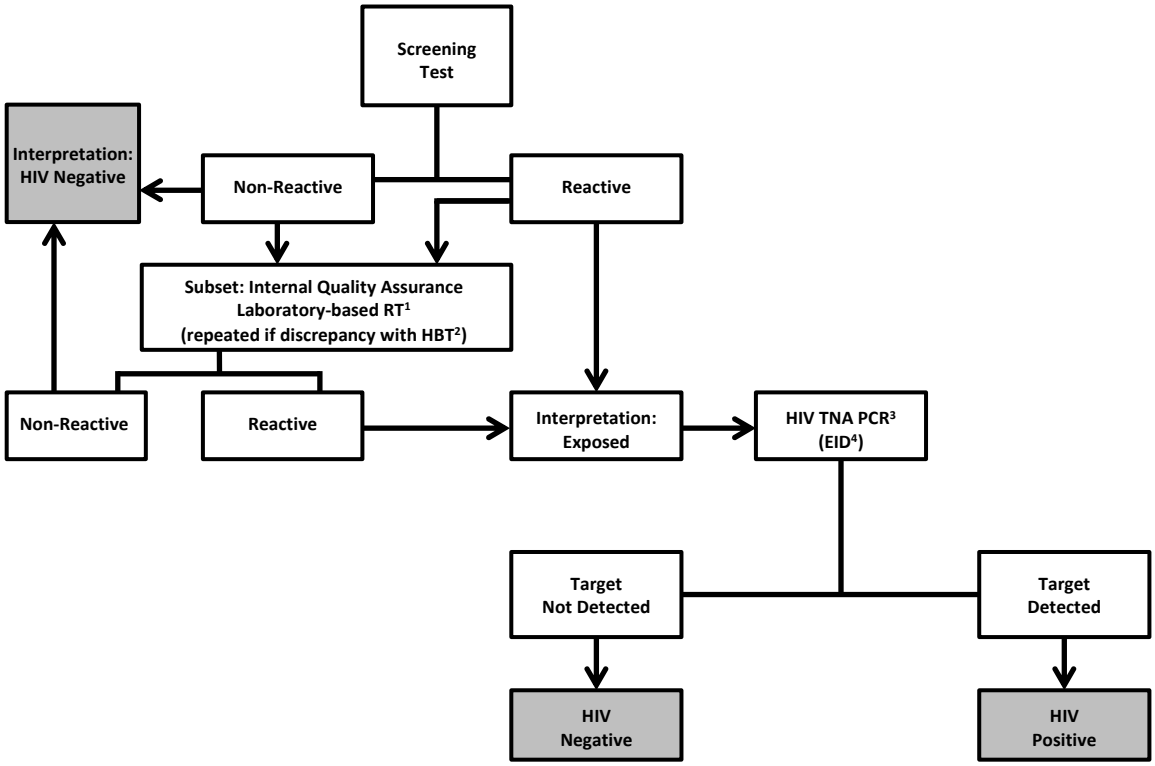
Figure B.3.A Final HIV Status Classification Algorithm (≥18 months of age)



[1]DNA PCR: deoxyribonucleic acid polymerase chain reaction

For participants aged younger than 18 months, the algorithm for classification of final HIV status included results from HIV rapid testing and HIV TNA PCR (Figure B.3.B) (Note: WHO currently recommends that virological testing be performed on all infants who are HIV exposed, as determined by maternal serology, and repeated at the age of 18 months or three months after last breastfeeding, in order to make a final determination of HIV status).[1] Classification of final HIV status was used to determine estimates for HIV prevalence and to inform estimates for HIV incidence.

Figure B.3.B Final HIV Status Classification Algorithm (<18 months)



[1]RT: rapid testing; [2]HBT: home-based testing; [3]TNA PCR: total nucleic acid polymerase chain reaction; [4]EID: early infant diagnosis

Note: Grey boxes indicate a final HIV-status determination

Viral Load (VL) Testing

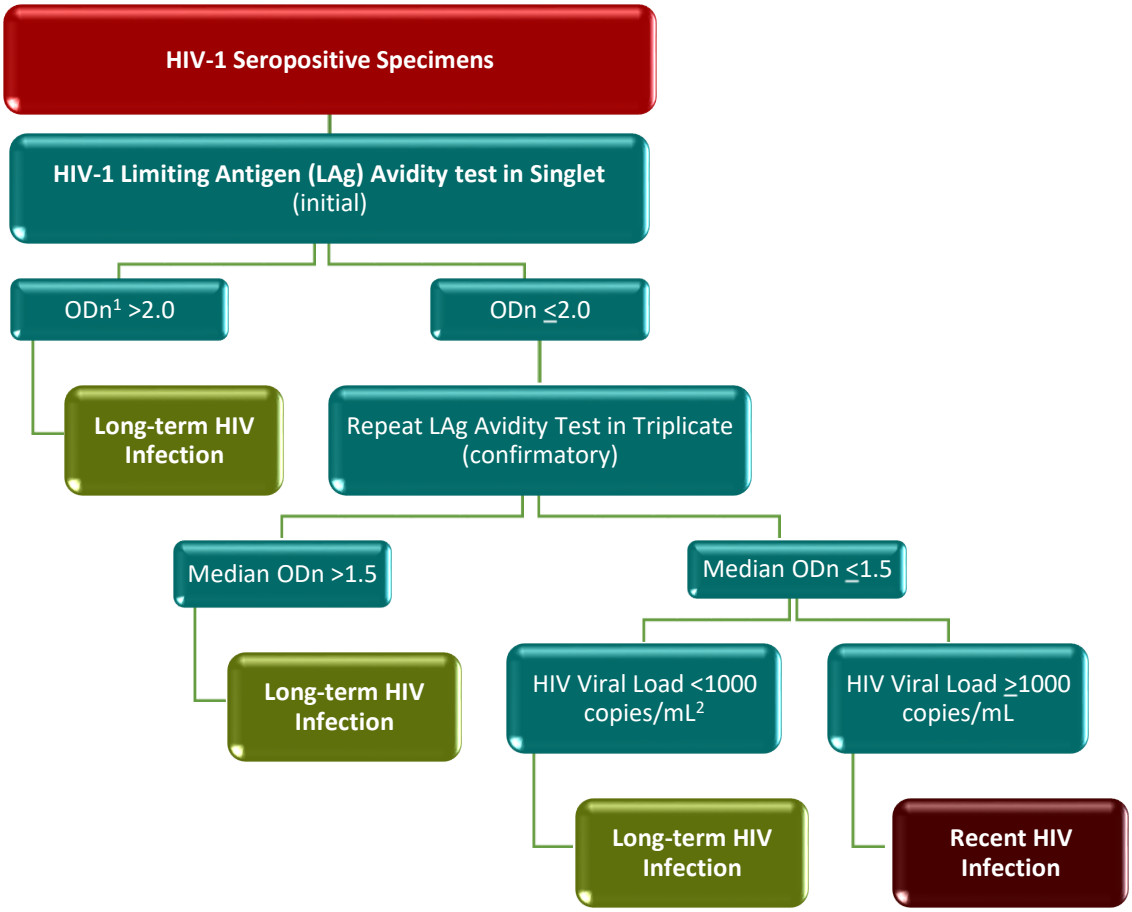
The Abbott m2000sp Instrument was used to prepare plasma samples from confirmed HIV-positive participants for reverse transcription polymerase chain reaction (RT-PCR) using the open-mode protocol for the Abbott RealTime HIV-1 assay (Abbott Molecular Inc., Chicago, Illinois, USA). HIV-1 VL (HIV RNA copies per mL) was then measured using the Abbott m2000 RealTime System. The NucliSENS EasyQ platform (bioMerieux, Marcy l'Etoile, France) was used to measure VL from DBS samples from children and from adults with insufficient volume of plasma.

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. The survey used two laboratory-based testing algorithms to estimate incidence. The first estimate used an algorithm that employed a combination of the HIV-1 LAg-Avidity EIA (Sedia Biosciences Corporation, Portland, Oregon, United States) and VL results (Figure B.3.C).

Figure B.3.C HIV-1 Recent Infection Testing Algorithm



[1]ODn: normalized optical density; [2]mL: milliliter

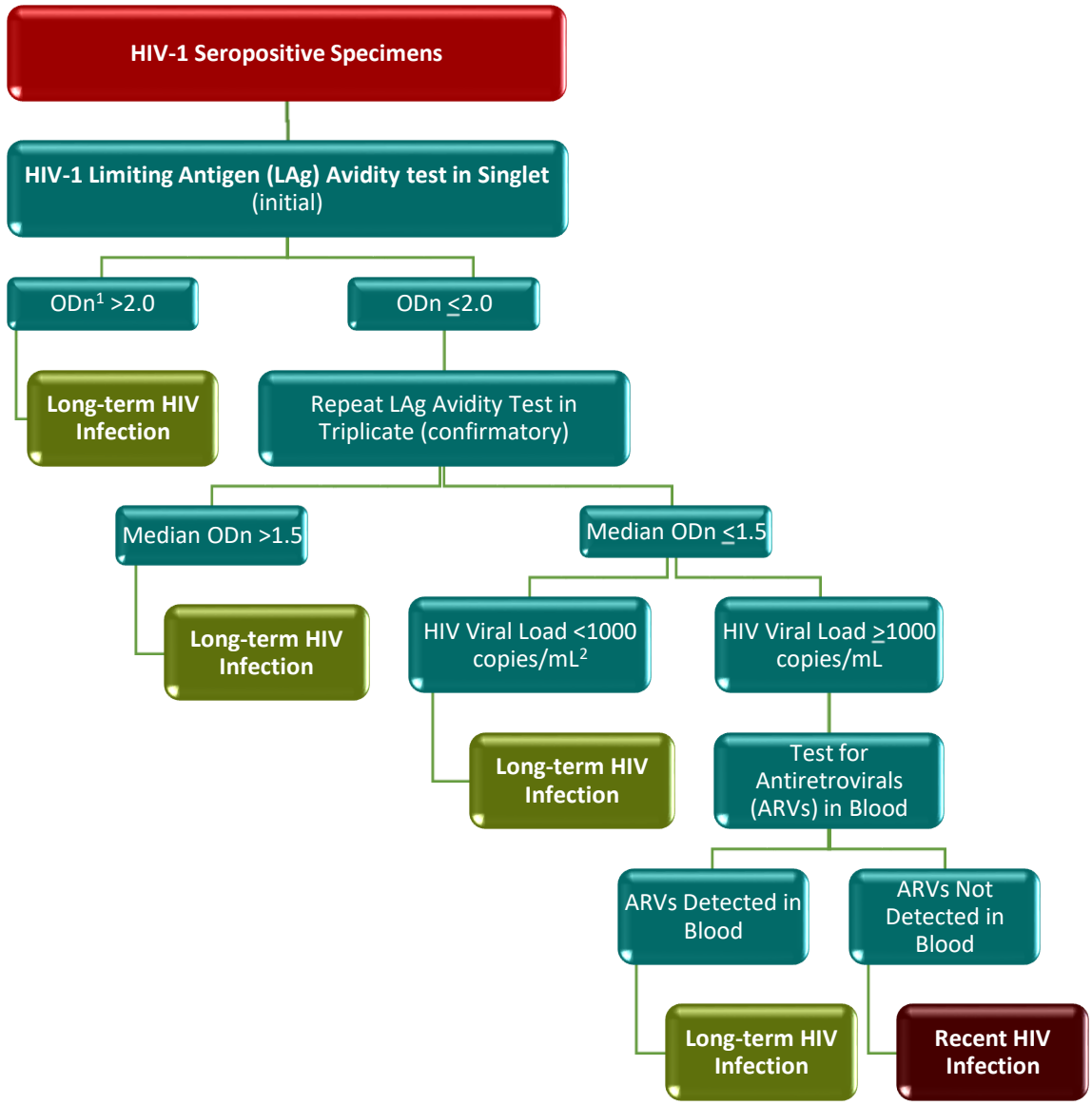
Antiretroviral detection results were added to that algorithm for the second estimate (Figure B.3.D). The HIV recent infection testing algorithms were applied to repository specimens from all confirmed HIV-positive participants aged 18 months and older.

Limiting antigen avidity testing was performed twice, with an initial screening test followed by a confirmatory test. Samples with a $OD_n > 2.0$ during initial testing were classified as long-term infections, while those with $OD_n \leq 2.0$ underwent further testing of the specimen in triplicate. Samples with a median $OD_n > 1.5$ during confirmatory testing were classified as long-term infections. Samples with a median $OD_n < 0.4$ were retested using the HIV diagnostic testing algorithm to confirm HIV-1 positive classification, and samples identified as HIV-1 negative were excluded from the total number of HIV positives and incorporated into the total number of negative specimens for incidence estimation.

Samples with a median $OD_n \leq 1.5$ were classified as potential HIV-recent infections, and their VL results were assessed. For the first incidence testing algorithm, specimens with VL <1,000 copies/mL were classified as long-term infections, while those with VL ≥ 1,000 copies/mL were classified as recent

infections. For the updated incidence algorithm, those classified as recent infections by the first algorithm were reclassified using ARV detection data. Those specimens in which efavirenz, lopinavir, and nevirapine were detected were classified as long-term infections and those in which no ARVs were detected remained classified as recent infections.

Figure B.3.D HIV-1 Recent Infection Testing Algorithm (LAg/VL/ARV algorithm), ZIMPHIA 2015-2016



[1]ODn: normalized optical density; [2]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 Joint United Nations Programme on HIV/AIDS Spectrum models (Tables B.3.A, B.3.B). 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 2.1.X Annual HIV incidence auxiliary data: N, P, Q, R, MDRI, PFR, and T

Annual incidence of HIV among adults aged 15-49 and 15-64 years, by sex and age, ZIMPHIA 2015-2016

Age	Male				Female				Total			
	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg* assay[1] (Q)	Number HIV recent[1] (R)	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg assay[1] (Q)	Number HIV recent[1] (R)	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg assay[1] (Q)	Number HIV recent[1] (R)
15-24	3074.98	95.02	95.02	1.58	3701.02	229.98	228.86	7.00	6785.78	315.22	314.20	8.14
25-34	1740.91	180.09	180.09	2.95	2586.23	565.77	564.44	10.26	4360.50	712.50	711.34	12.54
35-49	1644.37	505.63	504.63	2.23	2255.32	882.68	882.22	3.36	3920.71	1367.29	1365.69	5.57
15-49	6466.26	774.74	773.78	6.92	8600.23	1620.77	1617.80	21.13	15127.12	2334.88	2331.13	26.74
15-64	7388.64	1006.36	1005.00	8.58	10231.07	1950.93	1947.83	22.06	17675.98	2901.02	2896.69	29.54

[1]Weighted number.

*LAg = limiting antigen

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

Table 2.1.X_ARVs Annual HIV incidence auxiliary data incorporating antiretroviral detection into the recent infection algorithm: N, P, Q, R, MDRI, PFR, and T

Annual incidence of HIV among adults aged 15-49 and 15-64 years, by sex and age, using the limiting antigen (LAg) + viral load (VL) + antiretrovirals (ARVs) algorithm, by sex and age, ZIMPHIA 2015-2016

Age	Male				Female				Total			
	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg* assay[1] (Q)	Number HIV recent[1] (R)	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg assay[1] (Q)	Number HIV recent[1] (R)	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg assay[1] (Q)	Number HIV recent[1] (R)
15-24	3074.98	95.02	95.02	1.58	3701.02	229.98	228.86	6.02	6785.78	315.22	314.20	7.25
25-34	1740.91	180.09	180.09	2.95	2586.23	565.77	564.44	8.81	4360.50	712.50	711.34	11.28
35-49	1644.37	505.63	504.63	2.23	2255.32	882.68	882.22	2.14	3920.71	1367.29	1365.69	4.53
15-49	6466.26	774.74	773.78	6.92	8600.23	1620.77	1617.80	17.50	15127.12	2334.88	2331.13	23.53
15-64	7388.64	1006.36	1005.00	8.58	10231.07	1950.93	1947.83	18.27	17675.98	2901.02	2896.69	26.19

[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

Weighted figures calculated using (normalized) btwt0.

Detection of Antiretrovirals

To understand recent exposure to ARVs and hence level of ART coverage, samples from all confirmed HIV-positive participants were evaluated for the presence of selected ARVs, using high-resolution liquid chromatography coupled with tandem mass spectrometry to detect ARVs from DBS specimens.[2] Three ARVs (two NNRTIs and one PI): efavirenz, nevirapine, and lopinavir, were used as markers for both first- and second-line regimens, based on the Zimbabwe's national treatment guidelines. The ARVs were selected based on their long half-lives, allowing for a longer window period from drug exposure to detection.

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 method used a limit of detection of 0.02 µg/ml for each ARV, with a signal-to-noise ratio of at least 5:1 for all ARVs. Samples with concentrations above 0.02 µg/ml were considered positive for each ARV. Testing was conducted at 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 2015-16 samples from confirmed HIV-positive infants below the age of 18 months and HIV-positive participants aged 18 months or older who were classified as recent infections, as well as an equal or greater number of whom were classified as long-term infections, 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).[3,4,5]

The customized ReCALL software program was used to edit raw sequences and generate consensus sequences.[6] Mutations in the protease and reverse transcriptase genes were classified as potentially associated with drug resistance, according to the Stanford University HIV Drug Resistance Database.[7] 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 1000 copies/mL for plasma and DBS.[8] 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.[9,10] 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.

B.4 References

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APPENDIX C ESTIMATES OF SAMPLING ERRORS

Estimates from sample surveys are affected by two types of errors: non-sampling errors and sampling errors. Non-sampling errors result from mistakes made during data collection (e.g., misinterpretation of an HIV test result) and data management (e.g., transcription errors in data entry). While ZIMPHIA 2015-16 implemented numerous QA and control measures minimize non-sampling 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 2015-16 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 (e.g., proportion, mean, rate, count). In turn, the standard error can be used to calculate CIs 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 utilized a multi-stage stratified sample design, which requires complex calculations to obtain sampling errors. Specifically, a variant of the Jackknife replication method was implemented in SAS to estimate variance for proportions (e.g., HIV prevalence), rates (e.g., annual HIV incidence), and counts (e.g., numbers of people living with HIV). Each replication considers all but one cluster in the calculation of the estimates. This creates pseudo-independent replications. In ZIMPHIA 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 248 variance-estimation strata were created by pairing (or occasionally tripling) the sample clusters in the systematic order in which they had been selected . Hence, 248 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 standard error using the given sample design to the standard error 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, are also computed.

Sampling errors for selected variables from ZIMPHIA are presented in tables C.1 through C.8. 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 (LAg/VL/ARV algorithm), ZIMPHIA 2015-2016

Age (years)	Weighted estimate (%)	Design effect	Lower confidence limit (%)	Upper confidence limit (%)
		TOTAL		
15-24	0.30	0.87	0.08	0.52
25-34	0.72	1.08	0.30	1.15
35-49	0.32	1.27	0.02	0.62
15-49	0.44	1.07	0.26	0.62
15-64	0.42	1.09	0.25	0.58
		MALES		
15-24	0.14	0.82	0.00	0.37
25-34	0.48	1.14	0.00	1.01
35-49	0.38	1.12	0.00	0.88
15-49	0.30	1.08	0.08	0.52
15-64	0.33	1.06	0.11	0.54
		FEMALES		
15-24	0.46	0.80	0.09	0.82
25-34	0.95	1.08	0.32	1.58
35-49	0.27	1.32	0.00	0.62
15-49	0.57	1.10	0.30	0.84
15-64	0.50	1.15	0.27	0.73

Table C.2 Sampling errors: HIV prevalence by age, ZIMPHIA 2015-2016

Age	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
			TOTAL		
0-17 months	0.898	589	0.306	0.269	1.527
18-59 months	0.814	1832	0.231	0.337	1.29
5-9	1.746	2365	0.42	0.881	2.61
10-14	2.514	2246	0.353	1.787	3.241
Total 0-4	0.834	2421	0.19	0.442	1.226
Total 0-14	1.617	7032	0.19	1.224	2.009
15-19	3.584	4064	0.326	2.912	4.256
20-24	5.49	3037	0.448	4.566	6.413
25-29	10.857	2552	0.639	9.541	12.173
30-34	17.459	2521	0.817	15.777	19.141
35-39	23.113	2169	1.016	21.021	25.205
40-44	27.545	1817	1.178	25.119	29.971
45-49	28.466	1302	1.449	25.482	31.451
50-54	24.062	1090	1.435	21.107	27.016
55-59	19.912	1084	1.293	17.249	22.576
60-64	14.514	941	1.321	11.795	17.234
Total 15-24	4.439	7101	0.301	3.819	5.059
Total 15-49	13.371	17462	0.332	12.687	14.056
Total 15-64	14.098	20577	0.322	13.436	14.761
			MALE		
0-17 months	1.583	284	0.557	0.436	2.731
18-59 months	0.888	910	0.342	0.184	1.592
5-9	2.158	1168	0.737	0.641	3.676
10-14	2.217	1113	0.369	1.457	2.978
Total 0-4	1.047	1194	0.293	0.443	1.651
Total 0-14	1.748	3475	0.289	1.153	2.343
15-19	3.238	1950	0.462	2.287	4.189
20-24	2.694	1220	0.459	1.748	3.64
25-29	6.641	979	0.807	4.979	8.303
30-34	12.224	942	1.115	9.927	14.52
35-39	19.383	843	1.417	16.465	22.301
40-44	25.447	754	1.708	21.929	28.964
45-49	28.055	553	2.078	23.776	32.334
50-54	27.955	383	2.436	22.938	32.973
55-59	24.375	382	2.388	19.457	29.294
60-64	16.817	389	2.301	12.078	21.555
Total 15-24	2.998	3170	0.329	2.32	3.675
Total 15-49	10.699	7241	0.412	9.85	11.549
Total 15-64	11.988	8395	0.413	11.137	12.839
			FEMALE		
0-17 months	0.297	305	0.296	0.436	2.731
18-59 months	0.738	922	0.309	0.184	1.592
5-9	1.339	1197	0.342	0.641	3.676
10-14	2.808	1133	0.558	1.457	2.978
Total 0-4	0.626	1227	0.243	0.443	1.651
Total 0-14	1.487	3557	0.224	1.153	2.343
15-19	3.931	2114	0.439	2.287	4.189
20-24	8.148	1817	0.718	1.748	3.64
25-29	14.298	1573	0.889	4.979	8.303
30-34	21.95	1579	1.083	9.927	14.52
35-39	26.605	1326	1.289	16.465	22.301
40-44	29.595	1063	1.479	21.929	28.964
45-49	28.89	749	1.685	23.776	32.334
50-54	20.977	707	1.644	22.938	32.973
55-59	17.021	702	1.509	19.457	29.294
60-64	12.604	552	1.359	12.078	21.555
Total 15-24	5.85	3931	0.431	2.32	3.675
Total 15-49	15.857	10221	0.385	9.85	11.549
Total 15-64	16.015	12182	0.357	11.137	12.839

Table C.3 Sampling errors: HIV prevalence by residence and Province, ages 15-64 years, ZIMPHIA 2015-2016

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
		TOTAL			
Residence					
Urban	14.5	6070	0.6	13.4	15.7
Rural	13.8	14507	0.4	13.0	14.7
Province					
Bulawayo	17.9	1937	0.8	16.3	19.5
Manicaland	11.0	2238	0.8	9.5	12.6
Mashonaland Central	13.0	2101	1.0	10.9	15.1
Mashonaland East	13.5	1947	1.0	11.3	15.6
Mashonaland West	12.3	2465	1.1	10.1	14.6
Matabeleland North	19.5	1974	1.2	17.0	21.9
Matabeleland South	21.7	1599	1.2	19.2	24.2
Midlands	13.5	2025	1.0	11.4	15.5
Masvingo	14.5	2203	1.1	12.2	16.8
Harare	13.7	2088	0.8	12.0	15.3
		MALE			
Residence					
Urban	12.3	2150	0.8	10.7	14.0
Rural	11.8	6245	0.5	10.8	12.8
Province					
Bulawayo	16.1	674	1.3	13.3	18.8
Manicaland	9.2	942	1.0	7.2	11.3
Mashonaland Central	10.6	958	1.0	8.5	12.6
Mashonaland East	12.1	902	1.2	9.6	14.6
Mashonaland West	11.0	1137	1.2	8.4	13.5
Matabeleland North	15.7	784	1.7	12.2	19.3
Matabeleland South	19.4	631	2.1	15.2	23.7
Midlands	11.7	767	1.2	9.2	14.3
Masvingo	12.3	850	1.3	9.6	14.9
Harare	11.1	750	1.2	8.7	13.6
		FEMALE			
Residence					
Urban	16.4	3920	0.6	15.1	17.6
Rural	15.8	8262	0.4	14.9	16.7
Province					
Bulawayo	19.3	1263	1.0	17.3	21.3
Manicaland	12.6	1296	0.8	10.9	14.3
Mashonaland Central	15.7	1143	1.3	12.9	18.4
Mashonaland East	14.9	1045	1.2	12.4	17.4
Mashonaland West	13.9	1328	1.3	11.2	16.5
Matabeleland North	22.5	1190	1.3	19.9	25.1
Matabeleland South	23.5	968	1.1	21.2	25.8
Midlands	14.9	1258	1.3	12.3	17.5
Masvingo	16.3	1353	1.3	13.5	19.0
Harare	15.8	1338	0.8	14.2	17.5

Table C.4 Sampling errors: Viral load suppression by age, ZIMPHIA 2015-2016

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
			TOTAL		
0-14	45.0	119	5.8	33.1	56.9
15-24	45.3	344	3.0	39.1	51.5
25-34	48.7	849	1.9	44.7	52.7
35-44	61.5	1127	1.6	58.2	64.8
45-54	73.4	684	1.8	69.7	77.2
55-64	75.5	376	2.6	70.3	80.8
Total 15-24	45.3	344	3.0	39.1	51.5
Total 15-49	56.4	2726	1.1	54.1	58.8
Total 15-64	59.6	3380	1.1	57.4	61.8
			MALE		
0-14	34.4	59	8.0	18.0	50.9
15-24	40.1	98	5.5	28.8	51.3
25-34	36.2	207	3.4	29.1	43.3
35-44	51.9	391	2.8	46.1	57.7
45-54	68.3	291	2.9	62.3	74.2
55-64	72.2	166	3.9	64.1	80.2
Total 15-24	47.9	246	5.5	28.8	51.3
Total 15-49	61.2	1857	1.9	45.0	52.7
Total 15-64	63.7	2227	1.7	50.2	57.0
			FEMALE		
0-14	57.0	60	6.7	43.2	70.8
15-24	47.9	246	3.3	41.0	54.7
25-34	54.2	642	2.0	50.0	58.4
35-44	68.7	736	1.9	64.9	72.5
45-54	78.7	393	2.2	74.2	83.1
55-64	78.9	210	3.1	72.4	85.3
Total 15-24	40.1	98	3.3	41.0	54.7
Total 15-49	48.9	869	1.2	58.6	63.7
Total 15-64	53.6	1153	1.1	61.3	66.0

Table C.5 Sampling errors: Viral load suppression by residence and Province, ages 15-64 years, ZIMPHIA 2015-2016

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
		TOTAL			
Residence					
Urban	58.1	1047	1.9	54.1	62.1
Rural	60.5	2333	1.3	57.9	63.1
Province					
Bulawayo	62.8	388	3.1	56.4	69.2
Manicaland	60.5	274	4.4	51.4	69.7
Mashonaland Central	59.1	307	2.4	54.1	64.1
Mashonaland East	53.7	294	3.8	45.9	61.6
Mashonaland West	58.1	327	2.5	52.9	63.3
Matabeleland North	65.3	423	2.5	60.2	70.4
Matabeleland South	63.9	382	2.8	58.2	69.7
Midlands	59.4	301	3.8	51.6	67.1
Masvingo	61.0	358	3.1	54.6	67.4
Harare	57.4	326	3.2	50.8	64.1
		MALE			
Residence					
Urban	53.6	304	3.5	46.5	60.8
Rural	53.6	849	1.8	50.0	57.2
Province					
Bulawayo	61.4	114	4.6	51.9	70.8
Manicaland	50.4	96	5.2	39.7	61.1
Mashonaland Central	53.0	115	4.7	43.4	62.6
Mashonaland East	43.5	119	4.3	34.7	52.4
Mashonaland West	50.8	128	3.3	44.0	57.7
Matabeleland North	58.0	134	4.2	49.3	66.7
Matabeleland South	61.5	138	4.9	51.4	71.6
Midlands	52.6	99	4.9	42.4	62.7
Masvingo	56.8	118	5.4	45.7	67.9
Harare	54.9	92	6.6	41.4	68.4
		FEMALE			
Residence					
Urban	60.9	743	1.9	56.9	64.8
Rural	65.4	1484	1.4	62.5	68.3
Province					
Bulawayo	63.7	274	3.4	56.7	70.8
Manicaland	67.2	178	5.0	56.8	77.6
Mashonaland Central	63.6	192	3.8	55.7	71.4
Mashonaland East	62.7	175	4.6	53.3	72.0
Mashonaland West	64.4	199	2.9	58.5	70.3
Matabeleland North	69.5	289	3.0	63.3	75.7
Matabeleland South	65.6	244	3.5	58.3	72.9
Midlands	63.7	202	4.2	55.1	72.3
Masvingo	63.5	240	3.1	57.1	69.9
Harare	58.9	234	2.5	53.7	64.1

Table C.6 Sampling errors: ARV-adjusted 90-90-90 by age (conditional percentages), ZIMPHIA 2015-2016

Age (years)	Diagnosed					On Treatment					Viral Load Suppression				
	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL															
15-24	60.3	345	3.0	54.2	66.4	86.9	210	2.6	81.5	92.4	82.4	185	2.9	76.4	88.5
25-34	70.0	849	1.7	66.6	73.4	82.1	627	1.5	79.0	85.3	81.5	521	2.0	77.3	85.6
35-49	82.8	1,535	1.1	80.5	85.2	89.0	1,304	0.8	87.2	90.7	84.8	1,164	1.4	81.9	87.6
15-49	75.6	2,729	1.0	73.5	77.7	86.7	2,141	0.7	85.2	88.2	83.6	1,870	1.0	81.4	85.7
15-64	76.8	3,383	0.9	74.9	78.7	88.4	2,699	0.6	87.1	89.7	85.3	2,407	0.9	83.4	87.1
MALE															
15-24	64.5	98	5.1	51.0	65.3	82.6	63	5.5	71.2	94.0	75.2	54	6.1	62.6	87.8
25-34	56.6	206	3.4	72.3	79.3	80.5	125	3.7	72.8	88.2	77.0	101	4.6	67.6	86.4
35-49	76.4	565	2.1	85.7	90.6	87.3	441	1.6	84.1	90.5	81.0	386	2.4	76.0	85.9
15-49	69.9	869	1.8	77.0	81.3	85.4	629	1.5	82.3	88.5	79.6	541	2.0	75.4	83.7
15-64	72.1	1,153	1.6	78.1	82.0	88.0	866	1.2	85.5	90.5	82.5	770	1.6	79.1	85.8
FEMALE															
15-24	58.2	247	3.5	54.1	75.0	89.3	147	2.6	83.9	94.7	86.1	131	3.0	80.0	92.3
25-34	75.8	643	1.7	49.6	63.6	82.7	502	1.7	79.1	86.2	82.9	420	2.1	78.6	87.1
35-49	88.1	970	1.2	72.1	80.6	90.1	863	1.1	87.9	92.3	87.4	778	1.3	84.7	90.1
15-49	79.2	1,860	1.0	66.2	73.6	87.4	1,512	0.9	85.5	89.3	85.7	1,329	1.0	83.6	87.9
15-64	80.1	2,230	0.9	68.9	75.3	88.6	1,833	0.8	87.0	90.3	87.0	1,637	0.9	85.1	88.8

Table C.7 Sampling errors: ARV-adjusted 90-90-90 by age (unconditional percentages), ZIMPHIA 2015-2016

Age (years)	Diagnosed					On Treatment					Viral Load Suppression				
	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL															
15-24	60.3	345	3.0	54.2	66.4	52.4	345	3.0	46.1	58.7	43.2	345	3.0	37.1	49.3
25-34	70.0	849	1.7	66.6	73.4	57.5	849	1.7	53.9	61.1	46.8	849	1.9	42.9	50.7
35-49	82.8	1,535	1.1	80.5	85.2	73.7	1,535	1.2	71.2	76.2	62.5	1,535	1.3	59.7	65.3
15-49	75.6	2,729	1.0	73.5	77.7	65.5	2,729	1.1	63.3	67.7	54.8	2,729	1.1	52.5	57.1
15-64	76.8	3,383	0.9	74.9	78.7	67.9	3,383	1.0	65.9	70.0	57.9	3,383	1.0	55.8	60.0
MALE															
15-24	64.5	98	5.1	51.0	65.3	53.3	98	5.3	42.3	64.3	40.1	98	5.5	28.8	51.3
25-34	56.6	206	3.4	72.3	79.3	45.5	206	3.5	38.4	52.7	35.0	206	3.4	28.0	42.1
35-49	76.4	565	2.1	85.7	90.6	66.7	565	2.1	62.4	70.9	54.0	565	2.3	49.3	58.6
15-49	69.9	869	1.8	77.0	81.3	59.7	869	1.8	56.0	63.4	47.5	869	1.8	43.7	51.3
15-64	72.1	1,153	1.6	78.1	82.0	63.4	1,153	1.6	60.2	66.7	52.3	1,153	1.6	48.9	55.7
FEMALE															
15-24	58.2	247	3.5	54.1	75.0	52.0	247	3.6	44.7	59.3	44.8	247	3.4	37.9	51.7
25-34	75.8	643	1.7	49.6	63.6	62.7	643	1.9	58.8	66.6	51.9	643	2.0	47.7	56.1
35-49	88.1	970	1.2	72.1	80.6	79.4	970	1.4	76.5	82.4	69.4	970	1.6	66.1	72.7
15-49	79.2	1,860	1.0	66.2	73.6	69.2	1,860	1.2	66.8	71.6	59.3	1,860	1.2	56.8	61.9
15-64	80.1	2,230	0.9	68.9	75.3	71.0	2,230	1.1	68.8	73.2	61.7	2,230	1.1	59.4	64.1

Table C.8 Sampling errors: Number of new infections annually and number of people living with HIV, ages 15-64 years, ZIMPHIA 2015-2016

	Weighted estimate	Standard error	Lower confidence limit	Upper confidence limit
Number of new infections annually	29,194	5,831	17,162	41,226
Number of people living with HIV	1,152,520	26,474	1,097,997	1,207,004

APPENDIX D SURVEY PERSONNEL

Ministry of Health

Getrude Ncube
Gibson Mhlanga
Mutsa Mhangara
Owen Mugurungi
Tapuwa Magure
Tsitsi Apollo

ICAP at Columbia University- New York

Andrea Low
Allison George
Bereket Alemayehu
David Hoos
Elizabeth Radin
Jessica Justman
Joanne Mantell
Joseph Elias
Hannah Chung
Kiwon Lee
Larkin Callaghan
Melissa Metz
Nahima Ahmed
Neena Philip
Noelle Esquire
Oren Mayer
Rita Sondengam
Ruby Fayorsey
Sally Findley
Stephen Delgado
Steven Wynn
Suzue Saito
Yen Pottinger
Theo Smart

ICAP at Columbia University- Zimbabwe

Fungai Matanga
Lavert Remunga
Godfrey Musuka
Hazel Dube
Hilary Mandaza
Desmond Maminimini
Givemore Chundu
Rosemary Muchengeti
Sandra Nkonde
Julius Manjengwa
Fanuel Wamambo
Vusumusi Maliwa

ICAP at Columbia University- South Africa

Blanche Pitt
Bright Phiri
Charles Wentzl
Herbert Longwe
Oliver Murangandi
Pule Mphole
Takura Kupamupindi

CDC Atlanta

Anindya De
Avi Hakim
Bharat Parekh
Chris Murrill
Drew Voetsch
Eddas Bennet
Hetal Patel
Janet Burnett
John Macom
Kat Sleeman
Katina Pappas-Deluca
Keisha Jackson
Kristin Brown
Laura Porter
Meade Morgan
Naomi Bock
Paul Stupp

CDC Atlanta (cont.)
Trudy Dobbs
Sarah Guagliardo
Steve Gutreuter
Steve Kinchen
Steve McCracken
Tom Spira
Wolfgang Hladik
William Levine

CDC Zimbabwe
Amy Herman-Roloff
Beth A. Tippett Barr
Elizabeth Gonese
Evonne Amaka Nwankwo-Igomu
John Rogers
Laurie Fuller
Leala Ruangtragool
Norah Sukutayi Vere
Paula Morgan
Peter Kilmarx
Sheetal Patel

National AIDS Council of Zimbabwe
Amon Mpofu

Biomedical Research & Training Institute
Abrams Rhett
Antonio Fortunate
Antonio Moreblessing
Banda Edgar
Bote Ngoni
Buzuzi Stephen
Buzuzi Victoria
Bvumbamera Ephraim
Chabarika Tanatsiwa
Chapoterera Herbert
Chapoterera Justin
Chari Andrew
Chawatama Monica
Chemhere Samson
Cheza Alexander
Chibanda Costain
Chidyamakono Simbarashe
Chifambi Tafadzwa
Chifeya Kelvin
Chigeza Simon
Chiguri Gibson
Chigwanda Crispen
Chihota Phanuel
Chikara Rex
Chikono Beauty
Chikonyora Owen
Chikova Taruvona
Chimunhu Chipo
Chinembiri Virginia
Chinoko Farai
Chirimumvura Shylock
Chirisa Michael
Chirodzero Godfrey
Chironga David
Chisirimunhu Blessed
Chitongo Maud
Chiunda Harriet
Chiuswa Davidzo
Choga Ivy
Daki-Mahlungwa Ottilia
Dauka Alleta
Deredza Lindiwe
Donga Thula
Donhwe Tinashe
Dowerowe John
Dube Brighton
Dube Linderrose
Dube Mbekezeli
Dube Remember
Dube Sithabile
Dzamatira Freedom
Dzinamarira Tafadzwa
Elijah Paul
Farayi Gift
Ganyani Catherine
Gatsi Vanessa
Gomo Exnevia
Gonda Rufaro
Gore Oliver
Govere Gloria
Gozhora Perpetua

Biomedical Research & Training Institute (cont.)

Gutsire Nesbert
Gwandira Tapiwa
Gwanzura Prof Lovemore
Gwanzura Tapiwa
Hamandawana Tatenda
Handina Tafadzwa
Hove Evans
Jaya Webster
John Smart
Kaja Amos
Kamba Simbarashe
Kaparipari Tendai
Kapfumvuti Julian
Kaseke Mawonei
Katsande Desirie
Khembo Warwick
Kokera Sandra
Kufakwatenzi Noel
Kundeya Margaret
Kutadza Romeo
Kwembeya Shadreck
Machikopa Tatenda
Madamombe Vongai
Madanha Anderson
Madanhire Tafadzwa
Magama Happy
Maganga Alvinah
Mahohoma Totonga
Majoni Kudzai
Makaingainganwa Shuvai
Makazhu Thomas
Makiwa Sakhile
Makoni Kudakwashe
Makwati Phathisani
Maliwa Vusi
Malunga Washington
Mancitshana Mlindelwa
Manda Lionel
Mandaza Hillary
Mandisekwe Nyasha
Mandisodza Topsy
Mandizvidza Wilfred
Manjengwa Chenjerai
Manoah Tracey
Manyani Charmaine
Manyau Salome
Manyengavana Auther
Manzero Josphat
Mapondera Prichard
Marabada Anna
Maregere Dorothy
Marira Ottilia
Marufu Addmore
Mashanyare Tapson
Mashavave Grace
Mashiri Tendai
Mason Prof Petre
Matanhire Angela
Matarise Fungai
Matarise Victor
Mataruse Tendaishe
Matemavi Dzidzai
Matibini Victor
Matsveru Vimbainashe
Maworera Robson
Mayini Justin
Mazodze Betserai
Mbegabolawe Maria
Mbiva Frederick
Mhaka Jessca
Mhangami Felina
Mhangara Parkins
Mhindu Violet
Mhishi Collen
Mhlanga Thabani
Mhungu Nathan
Mhungu Tavonga
Mhuru Tatenda
Mleya Polite
Motsi Taina
Moyo Gladman
Moyo Kudzanayi
Moyo Lucky
Moyo Nesisa
Moyo Ntandoyenkosi
Moyo Thembekile

Biomedical Research & Training Institute (cont.)

Moyo Zvipozvashe
Mpandaguta Chipo
Mpandaguta Edith
Mpofu Owen
Mpofu Sibonisiwe
Msimanga Bekezela
Mtero Blessing
Mubvuta Clement
Mucheche Patricia
Muchinah Varaidzo
Mudiwa Ruramai
Mugodhi Faith
Mugwati Norman
Mukuwapasi Waraidzo
Mundodzi Caroline
Munetsi Primrose
Munhende Kudzai
Munkuli Judith
Munotyaani Michael
Munyati Dr Shungu
Mupande Oscar
Mushamba Norah
Mushangwe Jeremiah
Mushonga Brian
Mushore Paradzai
Musindo Tracey
Mususa Lilian
Mutayanga Samantha
Mutenherwa Farirai
Mutetwa Peter
Mutevedzi Florence
Mutsvangwa Junior
Mutukwa Norest
Mvududu Edgar
Mwanza Christina
Mzeche Sunga
Ncube Karen
Ncube Sibusiso
Ndebvu Tandiwe
Ndewere Mark
Ndhlovu Nothando
Ndhlovu Thembelihle
Ndlela Thandekile
Ndlovu Bhekisipho
Ndlovu Bornwell
Ndlovu Lillian
Ngirande Lucky
Ngwenya Charlene
Ngwenya Cleopatra
Njagu Freeman
Nkomazana Thembelani
Nkomboni Sylvester
Nkonde-Nyakurimwa Sandra
Noise-Baudi Tinashe
Nyakuhwa Tichaona
Nyakura Olivia
Nyamukapa Rosemary
Nyarugwe Cryton
Nyauzame Brian
Nyauzame Shelter
Nyede Simangele
Nyoni Sufficient
Nyume Sally
Nzarayapenga Ashley
Perekwa Masimba
Phakathi Siphathisiwe
Phiri Ernest
Phiri Priscilla
Pikayi Abigail
Pike Rita
Ramjee Herculena
Rimau Fadzai
Rondozai Precious
Rupiya Sunboy
Rusike Andrew
Rwafa Luke
Samaneka Lydia
Saungweme Patience
Shinda Tsepiso
Shumba Stanley
Sibanda Anitha
Sibanda Labour
Sibanda Mlungisi
Siqo Precious
Sithole Kenny
Sithole Maria

Biomedical Research & Training Institute (cont.)

Sithole Viola
Takaedza Kurawone
Tandi Macdonald
Tekere Sabina
Tshaka Matilda
Tshuma Morris
Vuta Christine
Watyoka Naume
Wazara Faith
Zenda Brian
Zhou Juster
Ziso Ruramai
Lori Andrews
Malinda Karunaratne
Mamadou Diallo
Marie Alexander
Monica Tolentino
Ratha Soumphontphakdy
Rick Mitchell
Roberto Miglietti
Ron Klinger
Sarah Woodruff
Sean Byrne
Thuzar Myo Myint
Vivian Wu
Weijia Ren

Lancet Laboratories

Charles Muronda
Grace Ramehwa
Joshila Nagar
Rabelani Kaela

Westat

Adam Chu
Amanda Fournier
Baifan Li
Bhumika Pakai
Brandyn Fauble
Charisse McBride
Emily J. Hudak
Graham Kalton
Harold Bobbitt
Jackie Varenne
Jason Ives
Joy Curvan
Julia Shpigenur
Jyothi Pabbaraju
Karin Wilson
Karla Richie
Katherine Aronson Emmanuel Aluko
Kenneth Marshall
Kiersten Johnson
Laura Alvarez Rojas
Lesa Houser
Lisa Bowser

APPENDIX E HOUSEHOLD QUESTIONNAIRE

ENGLISH

ZIMBABWE MINISTRY OF HEALTH
AND CHILD CARE
HIV IMPACT ASSESSMENT
HOUSEHOLD QUESTIONNAIRE

CONFIDENTIAL

TICK IF HOUSEHOLD SELECTED FOR CHILDREN'S SURVEY ☐

HOUSEHOLD IDENTIFICATION

PROVINCE NAME: _____	**PROVINCE CODE**	☐☐
REGION NAME: _____	**REGION CODE**	☐☐
DISTRICT NAME: _____	**DISTRICT CODE**	☐☐
CLUSTER NAME: _____	**CLUSTER NUMBER**	☐☐
NAME OF HOUSEHOLD HEAD: _____	**HH NUMBER**	☐☐

TOTAL PERSONS IN HOUSEHOLD:	TOTAL ELIGIBLE WOMEN:	TOTAL ELIGIBLE MEN:	TOTAL ELIGIBLE CHILDREN:	LINE NO. OF RESPONDENT TO HOUSEHOLD QUESTIONNAIRE
☐☐	☐☐	☐☐	☐☐	☐☐

LANGUAGE OF INTERVIEW: ☐☐

LANGUAGE CODES:
(01) ENGLISH
(02) SHONA
(03) NDEBELE

SUPERVISOR: _____
DATE: _____

SUPERVISOR CODE: ☐☐☐☐
OFFICE EDITOR: ☐☐
KEYED BY: ☐☐

*** RESULTS CODES:**

(1) COMPLETED
(2) NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT AT HOME AT TIME OF VISIT
(3) ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD OF TIME
(4) POSTPONED
(5) REFUSED
(6) DWELLING VACANT OR ADDRESS NOT A DWELLING
(7) DWELLING DESTROYED
(8) DWELLING NOT FOUND
(9) PARTLY COMPLETED
(10) OTHER (SPECIFY)

START TIME

START — Record the start time.

USE 24 HOUR TIME.

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

HOUR: ☐☐

MINUTES: ☐☐

HOUSEHOLD SCHEDULE

LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	
	Please give me the names of the persons who usually lives in your household or guests of the household who stayed here last night, starting with the head of the household. 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**)?	IF LESS THAN 2 YEARS, RECORD IN MONTHS. 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 ☐

☐ TICK HERE IF CONTINUATION SHEET USED

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-LAW
08 = BROTHER/SISTER
09 = CO-WIFE
10 = OTHER RELATIVE
11 = ADOPTED/ FOSTER/STEPCHILD
12 = NOT RELATED
98 = DON'T KNOW

2A) 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 ☐

2B) Are there any other people who may not be members of your household such as domestic servants, lodgers, of friends who usually live here? YES ☐ NO ☐

2C) Are there any guests or temporary visitors staying here, or anyone else who stayed here last night who we have not seen? YES ☐ NO ☐

ADD TO SCHEDULE

HOUSEHOLD SCHEDULE

LINE NO.	IF (NAME) IS **0-17 YEARS**				IF (NAME) IS 0-14 YEARS		
	EMANC STATUS	ORPHAN STATUS/PARENT OR GUARDIAN					
	Is (**NAME**) emancipated ?	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 WILL FILL OUT CHILDREN'S MODULE FOR **(NAME)**	DO NOT READ: IS (**NAME**) ELIGIBLE FOR SURVEY?
(1)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1	Y N	Y N DK → 12		Y N DK → 14			Y N
2	Y N	Y N DK → 12		Y N DK → 14			Y N
3	Y N	Y N DK → 12		Y N DK → 14			Y N

4	Y N	Y N DK → 12		Y N DK → 14			Y N	
5	Y N	Y N DK → 12		Y N DK → 14			Y N	
6	Y N	Y N DK → 12		Y N DK → 14			Y N	
7	Y N	Y N DK → 12		Y N DK → 14			Y N	
8	Y N	Y N DK → 12		Y N DK → 14			Y N	
9	Y N	Y N DK → 12		Y N DK → 14			Y N	
10	Y N	Y N DK → 12		Y N DK → 14			Y N	

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

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

TOTAL ELIGIBLE CHILDREN (10 TO 14 YEARS) ☐☐

TOTAL ELIGIBLE CHILDREN (0 MONTHS TO 9 YEARS) ☐☐

HOUSEHOLD SCHEDULE

LINE NO.	IF (**NAME**) is 18-64 years	IF (**NAME**) is 0-17 years				**MOTHER DEAD OR SICK**	**FATHER DEAD OR SICK**
	SICK PERSON	SICKNESS AND RESIDENCE OF BIOLOGICAL PARENTS					
	CHECK COLUMNS 7 AND 8, IF UNDER 18 → 17	CHECK COLUMN 10, IF COLUMN 10 'N' OR 'DK' → 21		CHECK COLUMN 12, IF COLUMN 12 'N' OR 'DK' → 23			
	IF 18 YEARS OR MORE: 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?	IF COLUMN 10 '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?*	IF COLUMN 12 '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 10 'N') OR BEEN SICK (COLUMN 18 'Y'), SELECT Y.	IF CHILD'S NATURAL FATHER HAS DIED (COLUMN 12'N') OR BEEN SICK (COLUMN 20 'Y'), SELECT Y.
(1)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N
2	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N
3	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N
4	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N
5	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N
6	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N
7	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N
8	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N
9	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N
10	Y N	Y N DK → 19	Y N DK	Y N DK → 21	Y N DK	Y N	Y N

HOUSEHOLD SCHEDULE

LINE NO.	SPOUSES AND CO-HABITATING PARTNERS					
	Record the LINE NUMBER (**NAME**)'s of spouse or partner. If no spouse or partner leave blank.	Record the LINE NUMBER (**NAME**)'s of spouse or partner. If no spouse or partner leave blank.	Record the LINE NUMBER (**NAME**)'s of spouse or partner. If no spouse or partner leave blank.	Record the LINE NUMBER (**NAME**)'s of spouse or partner. If no spouse or partner leave blank.	Record the LINE NUMBER (**NAME**)'s of spouse or partner. If no spouse or partner leave blank.	Record the LINE NUMBER (**NAME**)'s of spouse or partner. If no spouse or partner leave blank.
(1)	(23a)	(23b)	(23c)	(23d)	(23e)	(23f)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

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**?	NUMBER OF CHILDREN 0-17 YRS: ☐☐	NONE→114
102	DO NOT READ: CHECK COLUMN 16 IN THE HOUSEHOLD SCHEDULE. **ANY SICK ADULT AGE 18+YEARS?**	YES……1 NO……2	YES → 105
103	DO NOT READ: CHECK COLUMN 21 IN THE HOUSEHOLD SCHEDULE. **ANY CHILD WHOSE MOTHER HAS DIED OR IS VERY SICK?**	YES……1 NO……2	YES→ 105
104	DO NOT READ: CHECK COLUMN 22 IN THE HOUSEHOLD SCHEDULE. **ANY CHILD WHOSE FATHER HAS DIED OR IS VERY SICK?**	YES……1 NO……2	NO→ 114

105 **Record names, line numbers, and ages of all children 0-17 who are identified in columns 16, 21, and 22 as having a sick adult in their household or having a mother and/or father who has died or has been very sick.**

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

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES		SKIP
	➢ **INTERVIEWER SAYS: "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."**			
106	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	YES……1 NO……2 DON'T KNOW……..8	YES……1 NO……2 DON'T KNOW……..8
107	In the last 12 months, has your household received any emotional or psychological support for (**NAME**), 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 NO, DK→ 109	YES……1 NO……2 DON'T KNOW……..8 NO, DK→ 109	YES……1 NO……2 DON'T KNOW……..8 NO, DK→ 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	YES……1 NO……2 DON'T KNOW……..8	YES……1 NO……2 DON'T KNOW……..8
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 NO, DK → 111	YES……1 NO……2 DON'T KNOW……..8 NO, DK→ 111	YES……1 NO……2 DON'T KNOW……..8 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	YES……1 NO……2 DON'T KNOW……..8	YES……1 NO……2 DON'T KNOW……..8

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 NO, DK → 113	YES……1 NO……..2 DON'T KNOW……..8 NO, DK → 113	YES……1 NO……..2 DON'T KNOW……..8 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	YES……1 NO……..2 DON'T KNOW……..8	YES……1 NO……..2 DON'T KNOW……..8
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 SKIP IF CHILD<5 YEARS	YES……1 NO, DID NOT RECEIVE SUPPORT……..2 NO, CHILD DOES NOT ATTEND SCHOOL……..3 DON'T KNOW……..8 SKIP IF CHILD<5 YEARS	YES……1 NO, DID NOT RECEIVE SUPPORT……..2 NO, CHILD DOES NOT ATTEND SCHOOL……..3 DON'T KNOW……..8 SKIP IF CHILD<5 YEARS

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 2013?	YES……1 NO……2	NO → 201
115	How many usual household residents died since 2013?	NUMBER OF DEATHS……. ☐☐	
	ASK 116-120 AS APPROPRIATE FOR EACH PERSON WHO DIED. IF THERE WERE MORE THAN 3 DEATHS USE ADDITIONAL QUESTIONNAIRES.		
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 ☐☐ (1ST) DAY ☐☐ MONTH ☐☐ YEAR ☐☐ (2ND) DAY ☐☐ MONTH ☐☐ YEAR ☐☐ (3RD)	
118	Was (NAME) male or female?	MALE ……1 FEMALE……2 (1ST) MALE ……1 FEMALE……2 (2ND) MALE ……1 FEMALE……2 (3RD)	
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 ☐☐ (1ST) DAYS ☐☐ MONTHS ☐☐ YEARS ☐☐ (2ND) DAYS ☐☐ MONTHS ☐☐ YEARS ☐☐ (3RD)	

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		
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……96 _____ (SPECIFY)	
202	Did you do anything to the water to make it safer to drink?	YES……1 NO……2 DON'T KNOW……8	NO, DK→204
203	What do you do to make your water safe for drinking? RECORD ALL MENTIONED.	BOIL……A ADD BLEACH/CHLORINE ……B STRAIN THROUGH A CLOTH……C USE A WATER FILTER……D SOLAR DISINFECTION……E LET IT STAND AND SETTLE……F OTHER……X _____ (SPECIFY) DON'T KNOW ……Z	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
	HOUSEHOLD CHARACTERISTICS (continued)		
204	What kind of toilet facility do members of your household usually use?	**FLUSH OR POUR FLUSH TOILET** FLUSH TO PIPED SEWER SYSTEM……11 FLUSH TO SEPTIC TANK……12 FLUSH TO PIT LATRINE……13 FLUSH TO SOMEWHERE ELSE……14 FLUSH, DON'T KNOW WHERE……15 **PIT LATRINE** VENTILATED IMPROVED PIT LATRINE (VIP)/BLAIR TOILET……21 PIT LATRINE WITH SLAB……22 PIT LATRINE WITHOUT SLAB/ OPEN PIT……23 **BUCKET TOILET**……41 **NO FACILITY/BUSH/FIELD**……61 OTHER……96 _____ (SPECIFY)	NO FACILITY, OTHER → 207
205	Do you share this toilet facility with other households?	YES……1 NO……2	
206	How many households use this toilet facility?	NO. OF HOUSEHOLDS IF LESS THAN 10 _____ 10 OR MORE HOUSEHOLDS ……96 DON'T KNOW ……98	
PREFACE BEFORE QUESTIONS 207-215: Does your dwelling unit / household have:			
207	Electricity that is connected??	YES……1 NO……2	
208	A radio in working condition?	YES……1 NO……2	
209	A television in working condition?	YES……1 NO……2	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
	HOUSEHOLD CHARACTERISTICS (continued)		
210	A mobile telephone in working condition?	YES.....1 NO.....2	
211	A non-mobile telephone?	YES.....1 NO.....2	
212	A refrigerator in working condition?	YES.....1 NO.....2	
213	A battery or generator for power?	YES.....1 NO.....2	
214	A solar panel for power?	YES.....1 NO.....2	
215	A computer in working condition?	YES.....1 NO.....2	
216	What type of fuel/energy does your household mainly use for cooking?	ELECTRICITY.....1 LIQUID PRONAME GAS (LPG).....2 NATURAL GAS.....3 BIOGAS.....4 PARAFFIN / KEROSENE.....5 JELLY.....6 COAL, LIGNITE.....7 CHARCOAL .....8 WOOD.....9 STRAW/SHRUBS/GRASS.....10 MAIZE/AGRICULTURAL CROP WASTE.....11 ANIMAL DUNG.....12 NO FOOD COOKED IN HOUSEHOLD.....95 OTHER.....96 _____ (SPECIFY)	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
	HOUSEHOLD CHARACTERISTICS (continued)		
217	MAIN MATERIAL OF FLOOR RECORD OBSERVATION.	**NATURAL FLOOR** EARTH / SAND……11 DUNG……12 **RUDIMENTARY FLOOR** WOOD PLANKS……21 **FINISHED FLOOR** PARQUET OR POLISHED WOOD……31 VINYL OR ASPHALT STRIP……32 CERAMIC TILES……33 CEMENT ……34 CARPET……35 OTHER……96 _____ (SPECIFY)	
218	MAIN MATERIAL OF THE ROOF RECORD OBSERVATION.	**NATURAL ROOFING** NO ROOF……11 THATCH ……12 **RUDIMENTARY ROOFING** RUSTIC MAT……21 WOOD PLANKS……23 **FINISHED ROOFING** METAL……31 WOOD……32 ASBESTOS……33 TILES……34 CEMENT……35 OTHER……96 _____ (SPECIFY)	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
	HOUSEHOLD CHARACTERISTICS (continued)		
219	MAIN MATERIAL OF THE EXTERIOR WALLS RECORD OBSERVATION.	**NATURAL WALLS** CANE/TRUNKS.....12 MUD.....13 **RUDIMENTARY WALLS** STONE WITH MUD.....22 PLYWOOD/ .....24 CARTON.....25 REUSED WOOD.....26 **FINISHED WALLS** CEMENT.....31 STONE WITH LIME / CEMENT.....32 BRICKS.....33 CEMENT BLOCKS.....34 WOOD PLANKS / SHINGLES.....35 OTHER.....96 _____ (SPECIFY)	
220	How many rooms are used for sleeping?	NUMBER OF ROOMS: ☐☐	
	PREFACE BEFORE QUESTIONS 221-228: Does any member of your household own:		
221	A bicycle?	YES.....1 NO.....2	
222	A motorcycle or motor scooter?	YES.....1 NO.....2	
223	A car or truck?	YES.....1 NO.....2	
224	A boat with a motor?	YES.....1 NO.....2	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
225	A watch?	YES.....1 NO.....2	

HOUSEHOLD CHARACTERISTICS (continued)

226	An animal-drawn cart?	YES.....1 NO.....2	
227	A tractor?	YES.....1 NO.....2	
228	A wheelbarrow?	YES.....1 NO.....2	
PREFACE BEFORE QUESTIONS 229-236: Does any member of your household own:			
229	Cattle?	YES.....1 NO.....2	
230	Goats?	YES.....1 NO.....2	
231	Sheep?	YES.....1 NO.....2	
232	Chicken or other poultry?	YES.....1 NO.....2	
233	Horses?	YES.....1 NO.....2	
234	Donkeys/Mules?	YES.....1 NO.....2	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
235	Rabbits?	YES……1 NO……2	
236	Pigs?	YES……1 NO……2	
	ECONOMIC SUPPORT		
301	Has your household received any of the following forms of external economic support in the last 12 months? SELECT ALL THAT APPLY.	NOTHING ……A CASH TRANSFER (E.G. PENSIONS, DISABILITY GRANTS, CHILD GRANT)….B ASSISTANCE FOR SCHOOL FEES……C MATERIAL SUPPORT FOR EDUCATION (E.G. UNIFORMS, SCHOOL BOOKS, EDUCATION, TUITION SUPPORT, BURSARIES)……D INCOME GENERATION SUPPORT IN CASH OR KIND (E.G. AGRIGULTURAL INPUTS)……E FOOD ASSISTANCE PROVIDED AT THE HOUSEHOLD OR EXTERNAL INSTITUTION……F MATERIAL OR FINANCIAL SUPPORT FOR SHELTER……G SOCIAL PENSION……H OTHER……X _____ (SPECIFY) DON'T KNOW ……Z	NOTHING →END OF SECTION

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
	ECONOMIC SUPPORT (continued)		
302	Has your household received any of the following forms of external economic support in the last 3 months? SELECT ALL THAT APPLY.	NOTHING ……..A CASH TRANSFER (E.G. PENSIONS, DISABILITY GRANTS, CHILD GRANT)……..B ASSISTANCE FOR SCHOOL FEES……..C MATERIAL SUPPORT FOR EDUCATION (E.G. UNIFORMS, SCHOOL BOOKS, EDUCATION, TUITION SUPPORT, BURSARIES)……D INCOME GENERATION SUPPORT IN CASH OR KIND (E.G. AGRIGULTURAL INPUTS)……..E FOOD ASSISTANCE PROVIDED AT THE HOUSEHOLD OR EXTERNAL INSTITUTION……..F MATERIAL OR FINANCIAL SUPPORT FOR SHELTER……..G SOCIAL PENSION……H OTHER……X _____ (SPECIFY) DON'T KNOW ……..Z	

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."**

END TIME

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	SKIPS
MODULE 1: 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	IS THE RESPONDENT MALE OR FEMALE?	MALE = 1 FEMALE = 2	
102	How old were you at your last birthday?	AGE IN COMPLETED YEARS _ _ DON'T KNOW AGE = -8 REFUSED = -9	
103	Have you ever attended school?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →107
104	Are you enrolled in school?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	DK, REFUSED →107
105	What is the highest level of school you attended: primary, secondary or higher?	PRIMARY = 1 SECONDARY = 2 HIGHER = 3 DON'T KNOW = -8 REFUSED = -9	ADAPT RESPONSES TO COUNTRY CONTEXT.
106	What is the highest[class/form/year] you completed at that level?	CLASS/FORM/YEAR _____ DON'T KNOW = -8 REFUSED = -9	
107	In the last 12 months, how many times have you been away from home for one or more nights? CODE '00' IF NONE.	NUMBER OF TRIPS _ _ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED→109
108	In the last 12 months, have you been away from home for more than one month at a time?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
109	Have you done any work in the last 12 months for which you received a paycheck, cash or goods as payment?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
110	What is your religion?	TRADITIONAL = 1 ROMAN CATHOLIC = 2 PROTESTANT = 3 PENTECOSTAL = 4 APOSTOLIC SECT. = 5 OTHER CHRISTIAN = 6 MUSLIM =7 NONE = 8 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	

MODULE 2: 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	NO, DK, REFUSED → 301
202	How old were you the first time you married or started living with a [man/woman] as if married?	AGE IN YEARS ___ ___ DON'T KNOW = -8 REFUSED = -9	
203	Have you ever been widowed? That is, did a spouse ever die while you were still married or living with [him/her]?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSE TO ANSWER = -9	
204	What is your marital status now: are you married, living together with someone as if married, widowed, divorced, or separated?	MARRIED = 1 LIVING TOGETHER = 2 WIDOWED = 3 DIVORCED = 4 SEPARATED = 5 DON'T KNOW = -8 REFUSED = -9	WIDOWED, DIVORCED, SEPARATED, DK, REFUSED → 301
Interviewer says: "The next several questions are about your current spouse or partner(s)."			
205	Altogether, how many wives or live-in partners do you have?	NUMBER ___ ___ DON'T KNOW = -8 REFUSED = -9	YES →208 DK, REFUSED →301 SKIP IF FEMALE
206	The household schedule listed [count] members as your wives/partners. Please review the list below. Are all of the listed household members your wives/partners who live in the household?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	STAYING ELSEWHERE, DK, REFUSED →301 SKIP IF FEMALE

NO	QUESTIONS	CODING CATEGORIES	SKIPS
207	Is [NAME] your wife/partner?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REF → 209 SKIP IF FEMALE
208	Does [NAME] live in the household?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF FEMALE
209	Do you have additional spouse(s)/partner(s) that live with you?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REF→ 212 SKIP IF FEMALE
210	How many additional spouses(s)/partner(s) live with you?	NUMBER OF ADDITIONAL PARTNERS ____ DON'T KNOW = -8 REFUSED = -9	ALL → 301 SKIP IF FEMALE
211	Please enter name of your spouse/partner that lives with you.	NAME OF SPOUSE/PARTNER ____ DON'T KNOW = -8 REFUSED = 9	SKIP IF FEMALE
212	How many wives/partners do you have who live elsewhere?	NUMBER OF ADDITIONAL SPOUSE(S)/PARTNERS_____ DON'TKNOW = -8 REFUSED = -9	ALL → 301 SKIP IF FEMALE
213	Is your husband or partner living with you now or is he staying elsewhere?	LIVING TOGETHER = 1 STAYING ELSEWHERE = 2 DON'T KNOW = -8 REFUSE TO ANSWER = -9	STAYING ELSEWHERE, DK, REFUSED →212
214	The household schedule listed [NAME OF HUSBAND/PARTNER] as your husband/partner who is living here. Is that correct?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
215	Please select the spouse/partner that lives with you.		
216	Please enter the name of your spouse/partner that lives with you.	NAME OF SPOUSE/PARTNER ____ DON'T KNOW = -8 REFUSED = 9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
217	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 REFUSE TO ANSWER = -9	NO, DK, REFUSED→ 301
218	Including yourself, in total, how many wives or live-in partners does your husband or partner have?	NUMBER OF WIVES OR LIVE-IN PARTNERS _ _ DON'T KNOW = -8 REFUSE TO ANSWER = -9	

MODULE 3: REPRODUCTION			
Interviewer says: "Now I would like to ask you questions about your pregnancies and your children."			IF MALE SKIP TO 351
301	How many times have you been pregnant including a current pregnancy? CODE '00' IF NONE.	NUMBER OF TIME(S) ____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED → 351
302	Have you ever 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.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →349
303	How many children have you given birth to since **2012**? These include children who were born alive but later died. They could have been children who have lived with you or have not lived with you. CODE '00' IF NONE.	NUMBER OF CHILDREN ____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED →349
Interviewer says: "Now i would like to ask you some questions about the last pregnancy that resulted in a live birth since 2012."			
304	Did your last pregnancy result in birth to twins or more?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
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. IF MULTIPLE BIRTH, LIST ALL NAMES. IF THE CHILD (CHILDREN) WAS NOT NAMED BEFORE DEATH, INPUT BIRTH 1.	NAME _____	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
306	When you were pregnant with (NAME), did you visit a health facility for antenatal care?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES →308 DK, REFUSED →323
307	What is the main reason you did not visit a clinic for antenatal care when you were pregnant with (NAME)?	CLINIC WAS TOO FAR AWAY = 1 COULD NOT TAKE TIME OFF WORK/TOO BUSY = 2 COULD NOT AFFORD TO PAY FOR THE VISIT = 3 DID NOT TRUST THE CLINIC STAFF = 4 RECEIVED CARE AT HOME = 5 DID NOT WANT AN HIV TEST DONE = 6 HUSBAND/FAMILY WOULD NOT LET ME GO = 7 USED TRADITIONAL BIRTH ATTENDANT/HEALER = 8 COST OF TRANSPORT = 9 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	SKIP TO 323
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."			
308	Have you ever tested for HIV before your pregnancy with (NAME)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 311
309	Did you test positive for HIV before your pregnancy with **(NAME)**?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 311
310	At the time of your first antenatal care visit when you were pregnant with (NAME), were you taking ARVs, that is, antiretroviral medications to treat HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → 319 NO, DK, REFUSED → 316 SHOW ELECTRONIC AID IF DON'T KNOW
311	During any of your visits to the antenatal care clinic when you were pregnant with (**NAME**), were you <u>offered</u> an HIV test?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
312	Were you <u>tested</u> for HIV during any of your antenatal care clinic visits when you were pregnant with **(NAME)**?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES →314 DK, REFUSED → 319

NO	QUESTIONS	CODING CATEGORIES	SKIPS
313	What is the main reason you were not tested for HIV during antenatal care with **(NAME)**?	DID NOT WANT AN HIV TEST DONE / DID NOT WANT TO KNOW MY STATUS = 1 DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY = 2 AFRAID OTHERS WOULD KNOW ABOUT TEST RESULTS = 3 DID NOT NEED TEST/LOW RISK = 4 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	ALL→SKIP TO 319
314	How many times did you test for HIV during your pregnancy with (NAME)?	NUMBER OF TIMES _____ DON'T KNOW = -8 REFUSED = -9	
315	What was the result of your last HIV test during your pregnancy with (NAME)?	POSITIVE = 1 NEGATIVE = 2 UNKNOWN/INDETERMINATE = 3 DID NOT RECEIVE RESULTS = 4 DON'T KNOW = -8 REFUSED = -9	NEG, UNK/INDET, NO RESULTS, DK, REFUSED→ 319
316	Did you take ARVs during your pregnancy with (NAME) to stop (NAME) from getting HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → 318 DK, REFUSED → 319
317	What was the main reason you did not take ARVs while you were pregnant with (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 = 96 DON'T KNOW = -8 REFUSED = -9	ALL SKIP TO 319
318	How many months pregnant were you when you started taking ARVs?	MONTHS 1-3/1ST TRIMESTER = 1 MONTHS 4-6/2ND TRIMESTER = 2 MONTHS 7-9/3RD TRIMESTER = 3 DON'T KNOW = -8 REFUSED = -9	SHOW ELECTRONIC AID IF DON'T KNOW

NO	QUESTIONS	CODING CATEGORIES	SKIPS
319	When you were pregnant with (NAME), were you offered a test for syphilis?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
320	When you were pregnant with (NAME), were you tested for syphilis?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 323
321	Did you test positive for syphilis during your pregnancy with (NAME)?	YES = 1 NO = 2 DID NOT GET RESULT = 3 DON'T KNOW = -8 REFUSED = -9	NO, NO RESULT, DK, REFUSED → 323
322	Did you get treatment for syphilis during your pregnancy with (NAME)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
323	Where did you give birth to (NAME)?	AT HOME = 1 AT A HEALTH FACILITY = 2 IN TRANSIT = 3 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	HOME, TRANSIT, OTHER, DK, REFUSED →329
324	Were you offered an HIV test during labor?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
325	Did you test for HIV during labor?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF HIV POSITIVE NO, DK, REFUSED →329
326	What was the result of that test?	POSITIVE = 1 NEGATIVE = 2 UNKNOWN/INDETERMINATE = 3 DID NOT RECEIVE RESULTS = 4 DON'T KNOW = -8 REFUSED = -9	NEGATIVE, UNKNOWN, DID NOT RECEIVE RESULTS, DON'T KNOW, REFUSED →329 SKIP IF HIV POSITIVE
327	During labor, did you take ARVs to protect (NAME) against HIV?	YES = 1 NO,OFFERED BUT DID NOT TAKE = 2 NO, NOT OFFERED = 3 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →329 INCLUDE GRAPHIC OF ARVS.
328	Did you continue to take the ARVs after delivery?	YES = 1 NO= 2 DON'T KNOW =-8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
329	When did you give birth to (NAME)? Please give your best guess.	DAY __ __ DON'T KNOW DAY = -8 REFUSED DAY = -9 MONTH __ __ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR __ __ __ __ DON'T KNOW YEAR =-8 REFUSED YEAR = -9	
330	Is (NAME) still alive?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES, DK, REFUSED →332 IF MULTIPLE BIRTH ASK 330-347 FOR EACH CHILD.
331	When did (NAME) die?	DAY _____ DON'T KNOW DAY = -8 REFUSED DAY = -9 MONTH _____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR _____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	ALL→334
332	Is (NAME) living with you?	YES = 1 NO = 2	NO →334
333	RECORD HOUSEHOLD LINE NUMBER OF CHILD RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD	HOUSEHOLD LINE NUMBER ___	
334	Did **(NAME)** take any ARVs to stop him/her from getting HIV infection? This would be before (**NAME**)'s first HIV test.	YES = 1 NO, DID NOT TAKE ARVS = 2 NO, CHILD NOT ALIVE = 3 DON'T KNOW = -8 REFUSED = -9	NO, DID NOT TAKE ARVS, NO, CHILD NO ALIVE, DK, REFUSED → 336 INSERT GRAPHIC OF ARVS. SKIP IF MOTHER IS HIV NEGATIVE.
335	For how long did **(NAME**) take the ARVs to stop him/her from getting HIV? ONLY ONE OPTION MAY BE SELECTED. FOR EXAMPLE, ANSWER ONLY IN WEEKS OR IN MONTHS. CODE '00' IF LESS THAN ONE WEEK.	WEEKS_____ MONTHS_____ ARVs TAKEN ONCE = 96 STILL TAKING ARVs = 97 DON'T KNOW = -8 REFUSED = -9	SKIP IF MOTHER IS HIV NEGATIVE.

NO	QUESTIONS	CODING CATEGORIES	SKIPS
336	Did (NAME) take Septrin or cotrimoxazole? This would be before (NAME)'s first HIV test. Septrin or cotrimoxazole is a medicine recommended for people with HIV, even if they have not started treatment for HIV. It helps prevent certain infections but it is not treatment for HIV.	YES = 1 NO, DID NOT TAKE COTRIM = 2 NO, CHILD NOT ALIVE = 3 DON'T KNOW = -8 REFUSED = -9	NO, DID NOT TAKE COTRIM, NO, CHILD NO ALIVE, DK, REFUSED → 338 ELECTRONIC AID IF DON'T KNOW SKIP IF MOTHER IS HIV NEGATIVE
337	For how long did (NAME) take Septrin or cotrimoxazole? ONLY ONE OPTION MAY BE SELECTED. FOR EXAMPLE, ANSWER ONLY IN WEEKS OR IN MONTHS CODE '00' IF LESS THAN ONE WEEK	WEEKS ____ MONTHS ____ STILL TAKING COTRIMOXAZOLE = 97 DON'T KNOW = -8 REFUSED = -9	SKIP IF MOTHER IS HIV NEGATIVE
338	Did you ever breastfeed (NAME)?	YES = 1 NO, NEVER BREASTFED = 2 NO, CHILD NOT ALIVE = 3 DON'T KNOW = -8 REFUSED = -9	NO, NEVER BREASTFED, NO, CHILD NO ALIVE, DK, REFUSED → 342
339	Are you still breastfeeding (NAME)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → 341 DK, REFUSED → 342
340	For how long did you breastfeed **(NAME)**? ONLY ONE OPTION MAY BE SELECTED. FOR EXAMPLE, ANSWER ONLY IN WEEKS OR IN MONTHS. CODE '00" WEEKS IF LESS THAN 1 WEEK.	WEEKS ____ MONTHS ____ DON'T KNOW = -8 REFUSED = -9	CANNOT BE MORE THAN CHILD'S AGE
341	How old was (**NAME**) when you started giving (**NAME**) cow's/goat's milk, powdered milk, water, or any other foods or liquid? ONLY ONE OPTION MAY BE SELECTED. FOR EXAMPLE, ANSWER ONLY IN MONTHS OR IN YEARS. CODE '00' IF LESS THAN 1 MONTH	MONTHS __ __ YEARS __ __ NEVER = 96 DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
342	After (**NAME**) was born, was he/she tested for HIV?	YES = 1 NO, NOT TESTED FOR HIV = 2 NO, CHILD NOT ALIVE = 3 DON'T KNOW = -8 REFUSED = -9	YES → 344 NO, DID NOT TESTED FOR HIV, NO, CHILD NOT ALIVE, DK, REFUSED →348 SKIP IF MOTHER IS HIV NEGATIVE. SKIP IF EVER BREASTFED.
343	While you were breastfeeding, was **(NAME)** tested for HIV?	YES = 1 NO, NOT TESTED FOR HIV = 2 NO, CHILD NOT ALIVE = 3 DON'T KNOW = -8 REFUSED = -9	NO, NOT TESTED FOR HIV, NO, CHILD NOT ALIVE, DK, REFUSED → 346 SKIP IF MOTHER IS HIV NEGATIVE.
344	How old was **(NAME)** when he/she first tested for HIV? ONLY ONE OPTION MAY BE SELECTED. FOR EXAMPLE, ANSWER ONLY IN WEEKS, MONTHS OR IN YEARS. CODE '00' IF LESS THAN 1 WEEK.	WEEKS ____ MONTHS _____ YEARS _____ DON'T KNOW = -8 REFUSED = -9	CANNOT BE MORE THAN BREASTFEEDING MONTHS. SKIP IF MOTHER IS HIV NEGATIVE.
345	What was the result of **(NAME)**'s first HIV test?	POSITIVE, **CHILD** HAS HIV = 1 NEGATIVE, **CHILD** DOES NOT HAVE HIV = 2 UNKNOWN/INDETERMINATE = 3 DID NOT RECEIVE RESULTS = 4 DON'T KNOW = -8 REFUSED = -9	SKIP IF MOTHER IS HIV NEGATIVE.
346	After you stopped breastfeeding, was **(NAME)** tested for HIV?	YES = 1 NO, NOT TESTED FOR HIV = 2 NO, CHILD NOT ALIVE = 3 DON'T KNOW = -8 REFUSED = -9	NO, NOT TESTED FOR HIV, NO, CHILD NOT ALIVE, DK, REFUSED → 348 SKIP IF MOTHER IS HIV NEGATIVE. SKIP IF CHILD ALREADY HIV POSITIVE. SKIP IF NEVER BF OR STILL BF
347	What was the result of **(NAME)**'s HIV test?	POSITIVE, **CHILD** HAS HIV = 1 NEGATIVE, **CHILD** DOES NOT HAVE HIV = 2 UNKNOWN/INDETERMINATE = 3 DID NOT RECEIVE RESULTS = 4 DON'T KNOW = -8 REFUSED = -9	SKIP IF MOTHER IS HIV NEGATIVE. SKIP IF CHILD ALREADY HIV POSITIVE SKIP IF NEVER BF OR STILL BF

NO	QUESTIONS	CODING CATEGORIES	SKIPS
348	Thank you for the information regarding (name). DID THE RESPONDENT HAVE MORE THAN ONE CHILD (I.E. TWINS, TRIPLETS)?	YES = 1 NO = 2	YES, RETURN TO 330 FOR MULTIPLES
Interviewer says: "I will now ask about current pregnancies."			SKIP TO 351 IF MALE
349	Are you pregnant now?	YES = 1 NO = 2 DON'T KNOW/UNSURE = -8 REFUSED = -9	NO, DK, REFUSED →351
350	How many months pregnant are you?	MONTHS _ _ DON'T KNOW / UNSURE = -8 REFUSED = -9	NOT MORE THAN 10 MONTHS.
Inverviewer says: "I will now ask you about family planning."			SKIP TO 353 IF CURRENTLY PREGNANT.
351	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	NO, DK, REFUSED → 353
352	Which method are you or your partner using? SELECT ALL THAT APPLY.	FEMALE STERILIZATION = A MALE STERILIZATION = B PILL = C IUD/"COIL" = D INJECTIONS = E IMPLANT = F CONDOM = G FEMALE CONDOM = H RHYTHM/NATURAL METHODS = I WITHDRAWAL = J NOT HAVING SEX = K OTHER = X DON'T KNOW = Y REFUSED = Z	
353	While receiving HIV care, has a health care provider or outreach worker spoken to you about family planning methods or contraceptives?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IN HIV CARE ONLY.

MODULE 3A: CHILDREN

Interviewer says: "I am going to ask you a number of questions about your child/children regarding their health and where they get their health services. We will ask you about these children:

[LIST OF CHILDREN]
[LINE NUMBER] [CHILD'S NAME]"

THE HOUSEHOLD SCHEDULE NOTED THAT [NAME OF RESPONDENT] WILL FILL OUT THE CHILDREN'S MODULE FOR [NUMBER OF CHILDREN].

NO	QUESTIONS	CODING CATEGORIES	SKIPS
3001	CHECK HOUSEHOLD SCHEDULE TO GET NUMBER OF CHILDREN 0-14 YEARS. IF NONE RECORD '00'	NUMBER OF CHILDREN __ __	IF 00 → SKIP TO NEXT MODULE
3002	ENTER THE LINE NUMBER OF THE CHILD FROM THE HOUSEHOLD LISTING	LINE NUMBER _____	
3003	Now I am going to ask you questions for [NAME]		
3004	How old was (NAME) at his/her last birthday? ONLY ONE OPTION MAY BE SELECTED. FOR EXAMPLE, ANSWER ONLY IN YEARS OR IN MONTHS. CODE '00' IF LESS THAN ONE MONTH.	MONTHS ___ YEARS ___ DON'T KNOW = -8 REFUSED = -9	
3005	Is (**NAME**) a boy or girl?	BOY = 1 GIRL = 2 DON'T KNOW = -8 REFUSED = -9	
3006	Is **(NAME)** currently enrolled in school?	YES = 1 NO, CURRENTLY NOT IN SCHOOL = 2 NO, TOO YOUNG TO BE IN SCHOOL = 3 DON'T KNOW = -8 REFUSED = -9	NO, CURR → 3010 NO, TOO YOUNG, DK, REFUSED →3013
3007	During the last school week, did **(NAME)** miss any school days for any reason?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
3008	Why did (NAME) miss school? SELECT ALL THAT APPLY.	NO MONEY FOR SCHOOL MATERIALS, TRANSPORT = A CHILD WAS TOO SICK TO ATTEND SCHOOL = B SCHOOL IS TOO FAR AWAY/NO SCHOOL = C CHILD HAS TO WORK = D CHILD HAS TO CARE FOR HOUSEHOLD MEMBERS = E CHILD DOES NOT LIKE/WANT TO GO TO SCHOOL = F SCHOOL WAS NOT IN SESSION = G OTHER = X DON'T' KNOW = Y REFUSED = Z	
3009	What grade/form/year is (NAME) in now?	GRADE/FORM/YEAR _____ DON'T KNOW = -8 REFUSED = -9	ALL → 3013
3010	Was (NAME) enrolled in school during the previous school year?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO →3012 DK, REFUSED →3013
3011	What grade/form/year was (NAME) during the previous school year?	GRADE/FORM/YEAR _____ DON'T KNOW = -8 REFUSED = -9	ALL→3013
3012	What is the highest grade/form/year that (NAME) has completed?	GRADE/FORM/YEAR _____ DON'T KNOW = -8 REFUSED = -9	
3013	Is (NAME) circumcised? Circumcision is the complete removal of the foreskin from the penis. I have a picture to show you what a completely circumcised penis looks like.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO → 3016 IF DK, REFUSED → 3017 SKIP IF FEMALE CHILD. SHOW PICTURE OF CIRCUMCISED PENIS.

NO	QUESTIONS	CODING CATEGORIES	SKIPS
3014	How old was (**NAME**) when he was circumcised? Please give your best guess. ONLY ONE OPTION MAY BE SELECTED. FOR EXAMPLE, ANSWER ONLY IN YEARS OR IN MONTHS. CODE '00' IF LESS THAN ONE MONTH.	MONTHS ____ YEARS ____ DON'T KNOW= - 8 REFUSED= - 9	SKIP IF FEMALE CHILD.
3015	Who circumcised (**NAME**)?	DOCTOR, CLINICAL OFFICER, OR NURSE = 1 TRADITIONAL PRACTITIONER / CIRCUMCISER =2 MIDWIFE = 3 OTHER = 96 DON'T KNOW = -8 REFUSE TO ANSWER=-9	ALL→3017 SKIP IF FEMALE CHILD.
3016	Are you planning to have (**NAME**) circumcised in the future?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF FEMALE CHILD.
3017	Has (**NAME**) ever been tested for HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES→3019 DK, REFUSED →3040
3018	Why has **(NAME)** never been tested for HIV? SELECT ALL THAT APPLY.	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 CHILD HAS HIV = I CANNOT GET TREATMENT FOR HIV = J TEST KITS NOT AVAILABLE = K RELIGIOUS REASONS = L OTHER = X DON'T KNOW = Y REFUSED = Z	ALL-→ 3044

NO	QUESTIONS	CODING CATEGORIES	SKIPS
3019	You said earlier that **(NAME)** had been tested for HIV. Was that the last time **(NAME)** was tested for HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 3022 SKIP IF NOT CHILD FROM REPRO MODULE,. SKIP IF NOT TESTED FOR HIV IN REPRO MODULE.
3020	What month and year was **(NAME)'s** most recent HIV test done?	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ___ ___ ___ ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	SKIP IF NOT CHILD FROM REPRO MODULE,. SKIP IF NOT TESTED FOR HIV IN REPRO MODULE.
3021	You mentioned earlier that **(NAME)** received an HIV positive result. What was the month and year of his/her first HIV positive test result? Please give your best guess. This will be the very first HIV positive test result that (NAME) had received. PROBE TO VERIFY DATE.	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ___ ___ ___ ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	ALL → 3025 SKIP IF NOT CHILD FROM REPRO MODULE,. SKIP IF NOT TESTED FOR HIV IN REPRO MODULE. SKIP IF NOT HIV POSITIVE FROM REPRO MODULE
3022	What month and year was (NAME)'s most recent HIV test done?	MONTH____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
3023	What was (**NAME**)'s <u>last</u> HIV test result?	POSITIVE = 1 NEGATIVE = 2 UNKNOWN/INDETERMINATE = 3 DID NOT RECEIVE RESULTS = 4 DON'T KNOW = -8 REFUSED = -9	IF NEG, UNK/INDET, DID NOT RECEIVE, DK, REFUSED→ 3040
3024	Has (NAME) ever received HIV medical care from a doctor, clinical officer, or nurse?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES → 3026 DK, REFUSED → 3029

NO	QUESTIONS	CODING CATEGORIES	SKIPS
3025	What is the main reason why (NAME) has never seen a doctor, clinical officer, or nurse for HIV medical care?	FACILITY IS TOO FAR AWAY = 1 I DON'T KNOW WHERE TO GET HIV MEDICAL CARE FOR CHILD = 2 COST OF CARE = 3 COST OF TRANSPORT = 4 I DON'T THINK CHILD NEEDS IT, HE/SHE IS NOT SICK = 5 I FEAR PEOPLE WILL KNOW THAT CHILD HAS HIV IF I TAKE HIM/HER TO A CLINIC = 6 RELIGIOUS REASONS = 7 CHILD IS TAKING TRADITIONAL MEDICINE = 8 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	SKIP TO 3029
3026	What month and year did (NAME) first see a doctor, clinical officer, or nurse for HIV medical care? PROBE TO VERIFY DATE.	MONTH _____ DON'T KNOW MONTH = -8 REFUSED MONTH= -9 YEAR _____ DON'T KNOW YEAR =-8 REFUSED YEAR = -9	
3027	What month and year did (NAME) last see a doctor, clinical officer, or nurse for HIV medical care?	MONTH _____ DON'T KNOW MONTH = -8 REFUSED MONTH= -9 YEAR _____ DON'T KNOW YEAR =-8 REFUSED YEAR = -9	< 7 MONTHS, DK,REF, MISSING DATE → 3029

NO	QUESTIONS	CODING CATEGORIES	SKIPS
3032	What is the main reason (**NAME**) has never taken ARVs?	CHILD IS NOT ELIGIBLE FOR TREATMENT=1 WAS NOT PRESCRIBED = 2 HIV MEDICINES NOT AVAILABLE= 3 DO NOT THINK CHILD NEEDS IT, HE/SHE IS NOT SICK = 4 COST OF MEDICATIONS = 5 COST OF TRANSPORT = 6 RELIGIOUS REASONS = 7 CHILD IS TAKING TRADITIONAL MEDICATIONS = 8 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	ALL→SKIP TO 3038
3033	What month and year did (NAME) first start taking ARVs? PROBE TO VERIFY DATE.	MONTH = ____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR = ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
3034	What month and year did (NAME) last receive ARVs?	MONTH = ____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR = ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
3035	Is (**NAME**) currently taking ARVs, that is, antiretroviral medications? By currently, I mean that (NAME) may have missed some doses but (NAME) is still taking ARVs.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES → 3037 DK, REFUSED → 3038

NO	QUESTIONS	CODING CATEGORIES	SKIPS
3036	Can you tell me the main reason why (**NAME**) is not currently taking ARVs?	I HAVE TROUBLE GIVING CHILD A TABLET EVERYDAY = 1 CHILD HAD SIDE EFFECTS/RASH = 2 FACILITY/PHARMACY TOO FAR AWAY TO GET MEDICATION REGULARLY = 3 COST OF MEDICATIONS = 4 COST OF TRANSPORT = 5 CHILD IS HEALTHY/, HE/SHE IS NOT SICK = 6 FACILITY WAS OUT OF STOCK = 7 RELIGIOUS REASONS= 8 **CHILD** IS TAKING TRADITIONAL MEDICATIONS = 9 OTHER =96 DON'T KNOW = -8 REFUSED = -9	SKIP TO 3038
3037	People sometimes forget to take all their ARVs every day. In the last 30 days, how many days has (**NAME**) missed taking any ARV pills? CODE '00' IF NONE.	DAYS ___ ___ DON'T KNOW = -8 REFUSED = -9	
3038	Is (**NAME**) currently taking Septrin or cotrimoxazole? Septrin or cotrimoxazole is a medicine recommended for people with HIV, even if they have not started treatment for HIV. It helps prevent certain infections but it is not treatment for HIV. By currently, I mean that (NAME) may have missed some doses but is still taking Septrin or cotrimoxazole.	YES = 1 NO = 2 I DON'T KNOW WHAT IT IS = 3 REFUSED = -9	IF YES, IDK, DK, REFUSED → 3040 ADAPT BASED ON COUNTRY CONTEXT. SHOW GRAPHIC OF SEPTRIN OR COTRIMOXAZOLE..

NO	QUESTIONS	CODING CATEGORIES	SKIPS
3039	Can you tell me the main reason why (**NAME**) is not currently taking Septrin or Cotrimoxazole daily?	WAS NOT PRESCRIBED = 1 I HAVE TROUBLE GIVING CHILD A TABLET EVERYDAY = 2 CHILD HAD SIDE EFFECTS/RASH = 3 FACILITY/PHARMACY TOO FAR AWAY TO GET SEPTRIN OR COTROMOXIAZOLE REGULARLY = 4 CHILD DOES NOT NEED IT, HE/SHE IS NOT SICK = 5 PHARMACY/ FACILITY WAS OUT OF STOCK = 6 COST OF MEDICATIONS = 7 COST OF TRANSPORT = 8 DOCTOR SAID NO LONGER NEEDED = 9 OTHER =96 I DON'T KNOW = -8 REFUSED = -9	
3040	In the last 12 months, how often did a doctor, clinical officer, or nurse weigh (**NAME**)?	EVERY VISIT = 1 SOME VISITS = 2 NEVER = 3 DON'T KNOW = -8 REFUSED = -9	
3041	At the last HIV medical care visit , did a doctor, clinical officer, or nurse ask if: (**NAME**) had any of the following tuberculosis or TB symptoms: cough, fever, night sweats, and weight loss OR if (**NAME**) had contact with someone who had tuberculosis or TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF NOT IN HIV CARE
3042	In the last 12 months, has (NAME) experienced these TB symptoms or had contact with someone with TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →3044 SKIP IF NOT IN HIV CARE
3043	In the last 12 months, did (NAME) receive a chest x-ray or sputum test to look for TB? A sputum test is when the patient has to cough and collect the sample in a cup. SELECT ALL THAT APPLY.	CHEST X-RAY = A SPUTUM TEST = B NONE OF THESE = C DON'T KNOW = Y REFUSED = Z	SKIP IF NOT IN HIV CARE

NO	QUESTIONS	CODING CATEGORIES	SKIPS
3044	Has (NAME) ever visited a tuberculosis or TB clinic for TB diagnosis or treatment?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 3045
3045	Was (NAME) tested for HIV at the TB clinic?	YES = 1 NO, WAS NOT TESTED FOR HIV = 2 NO, WAS ALREADY HIV POSITIVE = 3 DON'T KNOW = -8 REFUSED = -9	
3046	Have you ever been told by a doctor or clinical officer that (NAME) had TB?	YES = 1 NO=2 DON'T KNOW = -8 REFUSED = -9	IF NO,DK, REFUSED → 3050
3047	What month and year did a doctor or clinical officer diagnose (NAME) with TB? RECORD THE MOST RECENT TIME IF DIAGNOSED WITH TB MORE THAN ONCE.	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR __ __ __ __ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
3048	Was (NAME) ever treated for TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 3050
3049	The last time (NAME) was treated for TB, did (NAME) complete at least 6 months of treatment for TB?	YES = 1 NO, THE MEDICINE WAS STOPPED IN LESS THAN 6 MONTHS = 2 NO, CHILD IS STILL ON TREATMENT = 3 DON'T KNOW = -8 REFUSED = -9	
3050	Thank you for this information about (NAME). DOES RESPONDENT HAVE ANOTHER CHILD AGED 0-14 YEARS?	Yes = 1 no = 2	YES = RETURN TO 3002

NO	QUESTIONS	CODING CATEGORIES	SKIPS
MODULE 4: MALE CIRCUMCISION			
Interviewer says: "I will be asking a few questions about circumcision. Circumcision is the complete removal of the foreskin from the penis. I have a picture to show you what a completely circumcised penis looks like."			
401	Does male circumcision alone reduce the risk, or chance, of a man getting HIV completely, somewhat or not at all?	PROTECTS COMPLETELY = 1 PROTECTS SOMEWHAT = 2 NOT AT ALL = 3 DON'T KNOW = 4 REFUSED = -9	
402	Do you agree or disagree with the following statement: Men who are circumcised do not need to use condoms to protect themselves from HIV.	AGREE = 1 DISAGREE = 2 UNSURE/DON'T KNOW = 3 REFUSED = -9	
403	Do you agree or disagree with the following statement: Men who are circumcised can have multiple sexual partners and not be at risk for HIV.	AGREE = 1 DISAGREE = 2 UNSURE/DON'T KNOW = 3 REFUSED = -9	SKIP TO 501 IF FEMALE.
404	Many men do not want to talk about circumcision, but it is important for us to have this information. Some men are circumcised. Are you circumcised?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED= -9	YES → 406 DK, REFUSED → 501 USE PICTURES/GRAPHICS TO SHOW CIRCUMCISION.
405	Are you planning to get circumcised?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED= -9	ALL → 501
406	How old were you when you were circumcised? Please give your best guess. IF LESS THAN ONE YEAR, CODE '00'	AGE IN YEARS ____ DON'T KNOW = -8 REFUSED=-9	
407	Who did the circumcision?	DOCTOR, CLINICAL OFFICER, OR NURSE = 1 TRADITIONAL PRACTITIONER / CIRCUMCISER =2 MIDWIFE = 3 OTHER = 96 DON'T KNOW = -8 REFUSED= -9	

MODULE 5: SEXUAL ACTIVITY

Interviewer says: "In this part of the interview, I will be asking questions about your sexual relationships and practices. These questions will help us have a better understanding of how they may affect your life and risk for HIV.

Let me assure you again 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.

By sex, I mean vaginal or anal sex. Vaginal sex is when a penis enters a vagina. Anal sex is when a penis enters an anus."

NO	QUESTIONS	CODING CATEGORIES	SKIPS
501	If you wanted a condom, would it be easy for you to get one?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
502	How old were you when you had sex for the very <u>first</u> time?	AGE IN YEARS _ _ NEVER HAD SEX = 96 DON'T KNOW = -8 REFUSED = -9	NEVER, DK, REF → 601
503	The <u>first</u> time you had sex, was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
504	The first time you had sex, was it because you wanted to or because you were you forced?	WANTED TO = 1 FORCED = 2 DON'T KNOW = -8 REFUSED = -9	WANTED, DK, REF →505
505	The first time you had sex, were you physically forced or were you pressured into having sex through harassment, threats or tricks?	PHYSICALLY FORCED = 1 PRESSURED = 2 DON'T KNOW = -8 REFUSED = -9	
506	People often have sex with different partners over their lifetime. In total, with how many different people have you had sex in the last 12 months? IF NONE CODE '00'. IF NUMBER OF PARTNERS IS GREATER THAN 100, WRITE ' 100'.	NUMBER OF PARTNERS IN LAST 12 MONTHS __ __ __ DON'T KNOW = -8 REFUSED = -9	IF 00 PARTNERS IN LAST 12 MONTHS → 601

Interviewer says: "Now I would like to ask you some questions about the partners 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 your most recent partner."

507	I would like to ask you for the initials of your partner so I can keep track. They do not have to be the actual initials of your partner.	INITIALS ____ ____	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
508	Does (INITIALS) live in this household?	YES = 1 NO = 2 NO→510	
509	HOUSEHOLD LINE NO. for (INITIALS) CODE '00' IF NOT LISTED IN HOUSEHOLD ROSTER	LINE NO_____	
510	What is your relationship with (INITIALS)?	HUSBAND/WIFE = 1 LIVE-IN PARTNER = 2 PARTNER, NOT LIVING WITH RESPONDENT = 3 EX-SPOUSE/EX-PARTNER = 4 FRIEND/ACQUAINTANCE = 5 SEX WORKER = 6 SEX WORKER CLIENT =7 STRANGER = 8 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	
511	How long has it been since you last had sex with (INITIALS)? IF LESS THAN ONE WEEK RECORD IN DAYS, IF LESS THAN ONE MONTH, RECORD IN WEEKS, OTHERWISE RECORD IN MONTHS.	DAYS _ _ WEEKS =_ _ MONTHS _ _ DON'T KNOW = -8 REFUSED = -9	
512	How long has it been since you <u>first</u> had sex with (INITIALS)? IF LESS THAN ONE WEEK RECORD IN DAYS, IF LESS THAN ONE MONTH, RECORD IN WEEKS. IF LESS THAN ONE YEAR, RECORD IN MONTHS. OTHERWISE RECORD IN YEARS	DAYS _ _ WEEKS _ _ MONTHS _ _ YEARS_ _ DON'T KNOW = -8 REFUSED = -9	
513	Is (INITIALS) male or female?	MALE = 1 FEMALE = 2 DON'T KNOW = -8 REFUSED = -9	
514	How old is (INITIALS)? Please give your best guess.	AGE IN YEARS ____ DON'T KNOW =-8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
515	The last time you had sex with (INITIALS) was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
516	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	
517	Did you enter into a sexual relationship with (INITIALS) because (INITIALS) provided or you expected that (INITIALS) would provide you with material support in other ways? Material support means helping you to pay for things, or giving you gifts or other items you needed or requested.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9 NO, DK, REFUSED → 519 SKIP IF SEX WORKER OR CLIENT	
518	In the last 12 months, what all did you receive? SELECT ALL THAT APPLY.	DID NOT RECEIVE ANYTHING = A MONEY = B FOOD = C SCHOOL FEES = D EMPLOYMENT = E GIFTS/FAVORS = F TRANSPORT = G SHELTER/RENT = H PROTECTION = I OTHER = X DON'T KNOW = Y REFUSED = Z SKIP IF SPOUSE, LIVE-IN PARTNER, SEX WORKER OR CLIENT	
519	Was (INITIALS) circumcised?	YES =1 NO =2 DON'T KNOW = -8 REFUSED = -9 SKIP IF PARTNER NOT MALE. SHOW PICTURE OF CIRCUMCISED PENIS.	
520	Do you expect to have sex with (INITIALS) again?	YES =1 NO =2 DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
521	Have you ever taken an HIV test with (INITIALS)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9 YES →523	
522	What is the main reason you have never tested for HIV with (INITIALS) as a couple? READ RESPONSES ALOUD.	NOT A PARTNER OR COUPLE=1 NEVER DISCUSSED = 2 WE ARE NOT AT RISK FOR HIV = 3 PARTNER REFUSED = 4 I REFUSED = 5 WE KNOW OUR STATUS = 6 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	
523	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	
524	What is the HIV status of (INITIALS)? READ RESPONSE ALOUD.	I THINK (INITIALS) IS POSITIVE = 1 (INITIALS) TOLD ME HE/SHE IS POSITIVE = 2 POSITIVE, TESTED TOGETHER = 3 I THINK (INITIALS IS NEGATIVE) = 4 (INITIALS) TOLD ME HE/SHE IS NEGATIVE = 5 NEGATIVE, TESTED TOGETHER = 6 DON'T KNOW STATUS = 7 REFUSED = -9	
525	DOES THE RESPONDENT HAVE ANOTHER PARTNER IN THE LAST 12 MONTHS?	YES = 1 NO = 2 YES → RETURN TO 507 I WILL NOW ASK ABOUT YOUR SECOND TO LAST PARTNER.	
Interviewer says: "Now I am going to ask you some additional questions about your sexual activities. Again, I am asking that you answer these questions honestly. Let me assure you again that your answers are completely confidential and will not be shared with anyone."			
526	In the last 12 months, have you <u>sold</u> sex for money?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →528
527	The last time you sold sex for money, was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
528	In the last 12-months, have you paid money for sex?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →NEXT MODULE
529	The last time you paid money for sex, was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

MODULE 6: HIV/AIDS KNOWLEDGE AND ATTITUDES

Interviewer says: "Now I will ask you questions on your knowledge of HIV."

601	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
602	Can a person get HIV from mosquito bites?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
603	Can a person reduce their risk of getting HIV by using a condom every time they have sex?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
604	Can a person get HIV by sharing food with someone who has HIV?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
605	Can a healthy-looking person have HIV?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	

Interviewer says: "Now I would like to ask you some questions about people's attitudes towards people living with HIV."

606	Would you buy fresh vegetables from a shop keeper or vendor if you knew the person had HIV?	YES = 1 NO = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9	
607	Do you think children living with HIV should be allowed to attend school with children who do not have HIV?	YES = 1 NO = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
608	Do you think people hesitate to take an HIV test because they are afraid of how other people will react if the test result is positive for HIV?	YES = 1 NO = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9	
609	Do people talk badly about people who are living with HIV or who are thought to be living with HIV?	YES = 1 NO = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9	
610	Do people living with HIV, or thought to be living with HIV, lose the respect of other people?	YES = 1 NO = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9	
611	Do you fear that you could get HIV if you come into contact with the saliva of a person living with HIV?	YES = 1 NO =2 ALREADY HAS HIV = 3 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9	POSSIBLY SKIP IF ALREADY HIV+
612	Do you agree or disagree with the following statement: I would be ashamed if someone in my family had HIV.	AGREE = 1 DISAGREE = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9	

MODULE 7: HIV TESTING			
Interviewer says: "I would now like to ask you some questions about HIV testing."			
701	Have you seen a doctor, clinical officer, or nurse in a health facility in the last 12 months?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED→ 703
702	During any of your visits to the health facility in the last 12 months, did a doctor, clinical officer, or nurse offer you an HIV test?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
703	Have you <u>ever</u> **tested** for HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES → 705 DK, REFUSED → 801

NO	QUESTIONS	CODING CATEGORIES	SKIPS
704	Why have you never been tested for HIV? SELECT ALL THAT APPLY.	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 DON'T KNOW = y REFUSED = Z	SKIP TO 801
705	Have you had an HIV test since giving birth to (NAME)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 713 SKIP IF NOT TESTED FOR HIV IN REPRO MODULE. SKIP IF NO LAST BIRTH IN THE LAST 3 YEARS. SKIP IF MALE
706	What month and year did you last test for HIV while you were pregnant with **(NAME)**?	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ___ ___ ___ ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	SKIP IF NO LAST BIRTH IN THE LAST 3 YEARS. SKIP IF NOT TESTED FOR HIV IN REPRO MODULE. SKIP IF MALE.

NO	QUESTIONS	CODING CATEGORIES	SKIPS
707	You mentioned earlier you received an HIV positive result while you were pregnant with **(NAME).** What was the month and year of your first HIV positive test result? Please give your best guess. This will be the very first HIV positive test result that you have received PROBE TO VERIFY DATE.	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH =-9 YEAR ___ ___ ___ ____ DON'T KNOW YEAR = -8 REFUSED YEAR =-9	ALL→712 SKIP IF HIV NEGATIVE DURING PREGNANCY WITH (NAME). SKIP IF NO LAST BIRTH IN THE LAST 3 YEARS. SKIP IF MALE.
708	What month and year was your last HIV test?	MONTHS _____ _____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
709	Where was the last test done?	VCT FACILITY = 1 MOBILE VCT = 2 AT HOME = 3 HEALTH CLINIC / FACIITY = 4 HOSPITAL OUTPATIENT CLINIC = 5 TB CLINIC = 6 STI CLINIC = 7 HOSPITAL INPATIENT WARDS = 8 BLOOD DONATING CENTER = 9 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	
710	What was the result of that HIV test?	POSITIVE = 1 NEGATIVE = 2 UNCERTAIN/INDETERMINATE = 3 DID NOT RECEIVE THE RESULT = 4 DON'T KNOW = 8 REFUSED = -9	NEGATIVE, UNCERTAIN, DK, REFUSED → 801

NO	QUESTIONS	CODING CATEGORIES	SKIPS
711	What was the month and year of your first HIV positive test result? Please give your best guess. This will be the very first HIV positive test result that you have received PROBE TO VERIFY DATE.	MONTH ___ ___ don't know month = -8 REFUSED MONTH = -9 YEAR ___ ___ ___ ____ don't know YEAR = -8 REFUSED YEAR = -9	
712	Of the following people, who have you told that you are HIV positive? CHECK ALL THAT APPLY.	NO ONE = A SPOUSE/SEX PARTNER = B DOCTOR = C FRIEND = D FAMILY MEMBER = E OTHER = X DON'T KNOW = Y REFUSED = Z	NO ONE→ 801 SKIP IF HIV NEGATIVE
Interviewer says: "Now I would like to ask you questions about your experiences with health care providers."			SKIP TO NEXT MODULE IF HIV NEGATIVE.
713	In the last 12 months, have health care providers talked badly about you because of your HIV status?	YES = 1 NO = 2 NO ONE KNOWS MY STATUS = 3 DON'T KNOW = -8 REFUSED = -9	
714	In the last 12 months, when you sought health care in a facility where your HIV status is not known, did you feel you needed to hide your HIV status?	YES = 1 NO, NO NEED TO HIDE = 2 NO, DID NOT ATTEND HEALTH FACILITY IN LAST 12 MONTHS = 3 DON'T KNOW = -8 REFUSED = -9	
715	In the last 12 months, have you been denied health services including dental care, because of your HIV status?	YES = 1 NO = 2 NO ONE KNOWS MY STATUS = 3 DON'T KNOW = -8 REFUSED = -9	
I would now like to ask you some questions about discrimination you may have experienced because you are HIV positive.			SKIP TO NEXT MODULE IF NO ONE KNOWS STATUS
716	In the last 12 months, have you been verbally insulted, harassed and/or threatened because of your HIV status?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
717	In the last 12 months, has your child/children been dismissed, suspended or prevented from attending an educational institution because of your or his/her HIV status?	YES = 1 NO, NOT DISMISSED, SUSPENDED OR PREVENTED = 2 NO, DO NOT HAVE CHILDREN = 3 DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
MODULE 8: HIV STATUS, CARE AND TREATMENT			
Interviewer says: "Now I'm going to ask you more about your experience with HIV support, care and treatment."			SKIP TO 901 IF NOT HIV POSITIVE
801	After learning you had HIV, have you ever received HIV medical care from a doctor, clinical officer or nurse?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES → 803 DK, REFUSED → 901
802	What is the <u>main</u> reason why you have never received HIV medical care from a doctor, clinical officer or nurse?	THE FACILITY 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 DOT NEED IT/I FEEL HEALTHY/NOT SICK 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 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	SKIP TO 806
803	What month and year did you <u>first</u> see a doctor, clinical officer or nurse for HIV medical care? PROBE TO VERIFY DATE.	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ___ ___ ___ ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
804	What month and year did you <u>last</u> see a doctor, clinical officer or nurse for HIV medical care?	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ___ ___ ___ ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	IF <7 MONTHS, DK, REFUSED →806

NO	QUESTIONS	CODING CATEGORIES	SKIPS
805	What is the main reason for not seeing a doctor, clinical officer or nurse for HIV medical care for more than 6 months?	THE FACILITY 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/I FEEL HEALTHY/NOT SICK = 5 I FEAR PEOPLE WILL KNOW THAT I HAVE HIV IF I GO TO A CLINIC = 6 I'M TAKING TRADITIONAL MEDICINE= 7 RELIGIOUS REASONS = 8 NO APPOINTMENT SCHEDULED/DID NOT MISS MOST RECENT APPOINTMENT = 9 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	
806	Have you ever had a CD4 count test? The CD4 count tells you how sick you are with HIV and if you need to take ARVs or other HIV medications.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 808 NO, DK, REFUSED, & NEVER IN CARE → 901
807	What month and year were you last tested for your CD4 count?	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ___ ___ ___ ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	SKIP TO 901 IF NEVER IN CARE
808	Have you ever taken ARVs, that is, antiretroviral medications to treat HIV infection?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES→ 810 DK, REFUSED → 815

NO	QUESTIONS	CODING CATEGORIES	SKIPS
809	What is the main reason you have never taken ARVs?	NOT ELIGIBLE FOR TREATMENT=1 HEALTH CARE PROVIDER DID NOT PRESCRIBE = 2 HIV MEDICINES NOT AVAILABLE = 3 I FEEL HEALTHY/NOT SICK = 4 COST OF MEDICATIONS = 5 COST OF TRANSPORT = 6 RELIGIOUS REASONS = 7 TAKING TRADITIONAL MEDICATIONS = 8 NOT ATTENDING HIV CLINIC = 9 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	ALL→815
810	What month and year did you <u>first</u> start taking ARVs? PROBE TO VERIFY DATE.	MONTH _____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR _____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
811	What month and year did you last receive ARVs?	MONTH _____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR _____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
812	Are you <u>currently</u> 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 →814 DK, REFUSED → 815

NO	QUESTIONS	CODING CATEGORIES	SKIPS
813	Can you tell me the main reason why you are not currently taking ARVs, antiretroviral medications?	I HAVE TROUBLE TAKING A TABLET EVERYDAY = 1 I HAD SIDE EFFECTS/RASH = 2 FACILITY TOO FAR AWAY FOR ME TO GET MEDICINE REGULARLY = 3 COST OF MEDICATIONS = 4 COST OF TRANSPORT = 5 I FEEL HEALTHY/NOT SICK =6 FACILITY WAS OUT OF STOCK = 7 RELIGIOUS REASONS = 8 TAKING TRADITIONAL MEDICATIONS = 9 OTHER=96 DON' T KNOW = -8 REFUSED = -9	ALL → 815
814	People sometimes forget to take all their ARVs every day. In the last 30 days, how many days have you missed taking any of your ARV pills? CODE '00' IF NONE.	NUMBER OF DAYS _____ DON'T KNOW = -8 REFUSED = -9	
815	Are you currently taking Septrin or Cotrimoxazole? Septrin or cotrimoxazole is a medicine recommended for people with HIV, even if they have not started treatment for HIV. It helps prevent certain infections but it is not treatment for HIV. By currently, I mean that you may have missed some doses but you are still taking Septrin or Cotrimoxazole	YES = 1 NO=2 DON'T KNOW = -8 REFUSED = -9	IF YES, DK, REFUSED → 817 ADAPT TERM 'SEPTRIN" TO COUNTRY CONTEXT. SHOW GRAPHIC.

NO	QUESTIONS	CODING CATEGORIES	SKIPS
816	Can you tell me the main reason why you are not currently taking Septrin or Cotrimoxazole?	WAS NOT PRESCRIBED= 1 I HAVE TROUBLE TAKING A TABLET EVERYDAY = 2 I HAD SIDE EFFECTS/RASH = 3 FACILITY TOO FAR AWAY FOR ME TO GET SEPTRIN OR COTRIMOXAZOLE REGULARLY = 4 COST OF MEDICATIONS = 5 COST OF TRANSPORT = 6 FEEL HEALTHY/NOT SICK = FACILITY WAS OUT OF STOCK = 7 DOCTOR SAID NO LONGER NEEDED = 8 OTHER=96 DON' T KNOW = -8 REFUSED = -9	
817	While receiving HIV care, has a health care provider or outreach worker spoken to you about family planning methods or contraceptives?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
818	Have you ever attended a support group for people living with HIV?	YES= 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 821
819	In the last 12 months, how many times did you attend a support group? CODE '00' IF NONE.	NUMBER OF TIMES ____ DON'T KNOW = -8 REFUSED = -9	IF 00, DK, REFUSED → 821
820	Which of the following do you receive from the support group related to your HIV infection? READ EACH RESPONSE. SELECT ALL THAT APPLY.	NOTHING = A COUNSELING/HEALTHY LIVING MESSAGES = B REMINDERS OF IMPORTANCE OF TAKING ARV REGULARLY = C REMINDERS TO KEEP HIV APPOINTMENTS = D REFILLS OR PICKING UP OF ARV MEDICATIONS = E PSYCHOSOCIAL SUPPORT = F LIVELIHOOD/MATERIAL SUPPORT = G DON'T KNOW = Y REFUSED = Z	IF NOTHING →821

NO	QUESTIONS	CODING CATEGORIES	SKIPS
Interviewer says: "Now I will ask you about HIV care and Tuberculosis or TB."			SKIP TO 901 IF NOT IN HIV CARE
821	At your last HIV medical care visit, were you asked if you had any of the following TB symptoms: cough, fever, night sweats and weight loss?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
822	In the last 12 months, have you experienced any of the following TB symptoms: cough, fever, night sweats and weight loss?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 901
823	In the last 12 months, did you receive a chest x-ray or sputum test to look for TB? A sputum test is when the patient has to cough and collect the sample in a cup. SELECT ALL THAT APPLY.	CHEST X-RAY = A SPUTUM TEST = B NONE OF THESE = C DON'T KNOW = Y REFUSED = Z	NONE, DK, REF → 901

MODULE 9: TUBERCULOSIS AND OTHER HEALTH ISSUES			
Interviewer says: "Now I will ask you about Tuberculosis or TB."			
901	Can TB be cured in people living with HIV?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
902	Have you <u>ever</u> visited a TB clinic for TB diagnosis or treatment?	YES = 1 NO=2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 908
903	Were you tested for HIV at the TB clinic?	YES = 1 NO, WAS NOT TESTED FOR HIV =2 NO, ALREADY HIV POSITIVE = 3 DON'T KNOW = -8 REFUSED = -9	
904	Have you ever been told by a doctor, clinical officer, or nurse that you had TB?	YES = 1 NO=2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 908

NO	QUESTIONS	CODING CATEGORIES	SKIPS
905	What month and year did a doctor, clinical officer, or nurse tell you that you have (had) TB? RECORD THE MOST RECENT TIME IF DIAGNOSED WITH TB MORE THAN ONCE	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR __ __ __ __ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
906	Were you ever treated for TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 908
907	The last time you were treated for TB, did you complete at least 6 months of treatment for TB?	YES = 1 NO, MEDICINE WAS STOPPED IN LESS THAN 6 MONTHS = 2 NO, BUT I AM STILL ON TREATMENT = 3 DON'T KNOW = -8 REFUSED = -9	
908	Have you ever taken a medicine called Isoniazid, IPT or INH to prevent developing TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SHOW GRAPHIC OF ISONIAZID
909	During the past 12 months, did you attend a health facility and receive both HIV and reproductive health services on the same day? HIV services can include HIV testing and counselling, ARVs to treat HIV, CD4 testing, or prevention and treatment of opportunistic infections, like oral thrush. Sexual and reproductive health services can include family planning, infertility services, maternal and newborn health, prevention of unsafe abortion and post-abortion care, prevention of mother-to-child transmission of HIV, diagnosis and treatment of sexually transmitted infections, cervical cancer screening and treatment, promotion of sexual health, and prevention and management of gender-based violence.	YES = 1 NO=2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 912

NO	QUESTIONS	CODING CATEGORIES	SKIPS
910	During the last visit that you received both HIV and reproductive health services, did you receive the services from the same or different providers?	SAME PROVIDER = 1 DIFFERENT PROVIDERS = 2 DON'T KNOW = -8 REFUSED = -9	
911	How satisfied were you with the services you received that day? Would you say you were very satisfied, satisfied, dissatisfied, or very dissatisfied?	VERY SATISFIED = 1 SATISFIED = 2 DISSATISFIED = 3 VERY DISSATISFIED = 4 DON'T KNOW = -8 REFUSED = -9	
912	Would you prefer to receive sexual and reproductive health and HIV services together at the same clinic or separately at different clinics?	PREFER SAME CLINIC = 1 PREFER DIFFERENT CLINICS = 2 NO PREFERENCE = 3 DON'T KNOW = -8 REFUSED =-9	
Interviewer says: "Now I'm 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 health care provider can do to check for cervical cancer are called a Pap smear, HPV 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 health care provider puts vinegar on the cervix and looks to see if the cervix changes color."**			SKIP TO 918 MALE.
913	Have you ever been tested for cervical cancer?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK → 918 USE GRAPHIC TO SHOW CERVIX.
914	What month and year was your last test for cervical cancer?	MONTH ___ ___ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ___ ___ ___ ___ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	
915	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	NORMAL, UNCLEAR, DID NOT RECEIVE, DK, REFUSED → 918

NO	QUESTIONS	CODING CATEGORIES	SKIPS
916	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	
917	Did you have any follow up visits because of your test results?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
Interviewer says: "Now I would like to ask you questions about sexual health."			SKIP TO NEXT MODULE IF NEVER HAD SEX.
918	During the last 12 months, have you had an ulcer or sore on or near your vagina?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF MALE.
919	During the last 12 months, have you had an abnormal discharge from your penis?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF FEMALE.
920	During the last 12 months, have you had an ulcer or sore on or near your penis?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF FEMALE.
921	During the last 12 months, have you had pain on urination?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF FEMALE.
922	Did you see a doctor, clinical officer, or nurse because of these problems?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF NO TO QUESTIONS ABOVE
923	In the last 12 months, did a doctor, clinical officer, or nurse tell you that you had a sexually transmitted disease other than HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
924	Did you get treatment for these problems?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → END MODULE ONLY YES TO SYMPTOMS; YES TO STD
925	Where did you go to get treatment? Did you go to a public facility, a private facility or a pharmacy? SELECT ALL THAT APPLY.	PUBLIC CLINIC/HOSPITAL= A PRIVATE CLINIC/HOSPITAL = B PHARMACY = C OTHER = X DON'T KNOW = Y REFUSED = Z	ONLY YES TO SYMPTOMS, YES TO STD
MODULE 10: ALCOHOL USE			
Interviewer says: "The next few questions will be on your use of alcohol. Remember, all the answers you provide will be kept confidential."			
1001	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	NEVER, DK, REFUSED→ NEXT MODULE SHOW GRAPHIC OF COMMON DRINKS FROM COUNTRY.
1002	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	
1003	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	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
MODULE 11: GENDER NORMS			
Interviewer says: "Now I would like to ask you questions on decision-making in your home."			
1101	Who usually makes decisions about health care for yourself: you, your (spouse/partner), you and your (spouse/partner) together, or someone else?	I DO = 1 SPOUSE/PARTNER = 2 WE BOTH DO = 3 SOMEONE ELSE = 4 DON'T KNOW = -8 REFUSED = -9	SKIP IF NOT MARRIED/LIVING TOGETHER
1102	Who generally decides about how the money you receive is spent: you, your (spouse/partner), you and your (spouse/partner) together, or someone else?	I DO = 1 SPOUSE/PARTNER = 2 WE BOTH DO = 3 SOMEONE ELSE = 4 DON'T KNOW = -8 REFUSED = -9	SKIP IF NOT MARRIED/LIVING TOGETHER
1103	Do you believe it is right for a man to hit or beat his wife if she refuses to have sex with him?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
1104	Do you believe a person should tolerate violence to keep the family together?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
1105	Who should decide when to have sex—men, women or together?	MEN ONLY = 1 WOMEN ONLY = 2 TOGETHER = 3 DON'T KNOW = -8 REFUSED = -9	
1106	Do you believe married men need to have sex with women they are not married to, even if they have good relationships with their wives?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
1107	Do you believe women who carry condoms have sex with a lot of men?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
MODULE 12: VIOLENCE			
	Interviewer says: "You have been selected to be asked questions on other important aspects of a person's life. I know that some of these questions are very personal. However, your answers are important for helping to understand the condition of men and women in Zimbabwe. Let me assure you that your answers are completely confidential and will not be told to anyone and no one in your household will know that you were asked these questions. **By sex, I mean vaginal, anal, oral sex, or the insertion of an object into your vagina or anus. Vaginal sex is when a penis enters a vagina. Anal sex is when a penis enters an anus (butt). Oral sex is when a partner puts his/her mouth on his/her partner's penis or vagina.** **I'm going to start by asking you some questions about your experience with physical violence."**		SELECT ONLY 1 WOMAN PER HOUSEHOLD
1201	Has anyone ever done any of these things to you: - Punched, kicked, whipped, or beat you with an object - Slapped you, threw something at you that could hurt you, pushed you or shoved you - Choked, smothered, tried to drown you, or burned you intentionally - Used or threatened you with a knife, gun or other weapon?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 1207
1202	How old were you the first time one of these things happened to you?	AGE IN YEARS _____ DON'T KNOW = -8 REFUSED = -9	
1203	In the last 12 months, how many times did someone: - Punch, kick, whip, or beat you with an object - Slapped you, threw something at you that could hurt you, pushed you or shoved you - Choke smother, try to drown you or burn you intentionally - Use or threaten you with a knife, gun or other weapon?	NOT IN LAST 12 MONTHS = 1 ONCE = 2 FEW = 3 MANY = 4 DON'T KNOW = -8 REFUSED = -9	not IN LAST 12 MONTHS, DK, REFUSED → 1205

NO	QUESTIONS	CODING CATEGORIES	SKIPS
1204	In the last 12 months, did a partner do any of these things to you? By partner, I mean a live-in partner whether or not you were married at the time.	YES =1 NO, PARTNER DID NOT = 2 NO, DID NOT HAVE A LIVE-IN PARTNER IN THE LAST 12 MONTHS = 3 DON'T KNOW = -8 REFUSED = -9	
1205	Thinking about all these experiences that I just discussed, whether someone has done the following: - Punched, kicked whipped or beat you with an object - Slapped you, threw something at you that could hurt you, pushed you or shoved you - Choked, smothered, tried to drown you or burned you intentionally - Used or threatened you with a knife, gun or other weapon Did you try to seek professional help or services for any of these incidents from any of the following? SELECT ALL THAT APPLY.	I DID NOT TRY TO SEEK HELP = A HEALTHCARE PROFESSIONAL = B POLICE OR OTHER SECURITY PERSONNEL = C SOCIAL WORKER, COUNSELOR OR NON-GOVERNMENTAL ORGANIZATION = D RELIGIOUS LEADER = E OTHER = X DON'T KNOW = Y REFUSED = Z	DID NOT TRY TO SEEK HELP →1206 ELSE →1207 SKIP IF NEVER EXPERIENCED.

NO	QUESTIONS	CODING CATEGORIES	SKIPS
1206	What was the main reason that you did not try to seek professional help or services?	DID NOT KNOW SERVICES WERE AVAILABLE = 1 SERVICES NOT AVAILABLE = 2 AFRAID OF GETTING IN TROUBLE = 3 ASHAMED FOR SELF/FAMILY = 4 COULD NOT AFFORD SERVICES = 5 DID NOT THINK IT WAS A PROBLEM = 6 FELT IT WAS MY FAULT = 7 AFRAID OF BEING ABANDONED = 8 DID NOT NEED/WANT SERVICES = 9 AFRAID OF MAKING SITUATION WORSE = 10 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	SKIP IF NEVER EXPERIENCED.
1207	How many times has anyone ever touched you in a sexual way without your permission, but did not try and force you to have sex? Touching in a sexual way without permission includes fondling, pinching, grabbing, or touching you on or around your sexual body parts. CODE '00' IF NONE.	NUMBER OF TIMES____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED→1210
1208	How old were you the first time this happened?	AGE IN YEARS ____ DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
1209	The first time this happened, what was your relationship to the person who did this? If it was more than one person, what was your relationship with the person you knew the best?	BOYFRIEND/GIRLFRIEND/LIV E-IN PARTNER/SPOUSE = 1 EX-BOYFRIEND/GIRLFRIEND/ PARTNER/SPOUSE = 2 RELATIVE/FAMILY MEMBER = 3 CLASSMATE/SCHOOLMATE = 4 TEACHER = 5 POLICE/SECURITY OFFICER/MILITARY= 6 EMPLOYER = 7 NEIGHBOR = 8 COMMUNITY/ RELIGIOUS LEADER = 9 FRIEND = 10 STRANGER = 11 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	
1210	How many times in your life has anyone tried to make you have sex against your will but did not succeed? This includes someone using harassment, threats, tricks, or physical force. CODE '00' IF NONE.	NUMBER OF TIMES ____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED→1212
1211	How old were you the first time someone tried to make you have sex against your will but did not succeed?	AGE IN YEARS ____ DON'T KNOW = -8 REFUSED = -9	
1212	How many times in your life have you been physically forced to have sex? CODE '00' IF NONE.	NUMBER OF TIMES ____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED→1217
1213	How old were you the first time someone physically forced you to have sex?	AGE IN YEARS _____ DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
1214	What was this person's relationship to you? If it was more than one person, what was the relationship with the person you knew the best?	BOYFRIEND/GIRLFRIEND/LIVE -IN PARTNER/SPOUSE = 1 EX-BOYFRIEND/GIRLFRIEND/ PARTNER/SPOUSE = 2 RELATIVE/FAMILY MEMBER = 3 CLASSMATE/SCHOOLMATE = 4 TEACHER = 5 POLICE/SECURITY OFFICER/MILITARY= 6 EMPLOYER = 7 NEIGHBOR = 8 COMMUNITY/ RELIGIOUS LEADER = 9 FRIEND = 10 STRANGER = 11 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	
1215	In the last 12 months, did someone physically force you to have sex?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →1217
1216	In the last 12 months, did a partner physically force you to have sex? By partner, I mean a live-in partner whether or not you were married at the time.	YES =1 NO, DID NOT FORCE = 2 NO, DID NOT HAVE A PARTNER LIVE-IN PARTNER IN THE LAST 12 MONTHS= 3 DON'T KNOW = -8 REFUSED = -9	
1217	How many times in your life has someone pressured you to have sex through harassment, threats and tricks and did succeed? CODE '00' IF NONE. Being pressured can include being worn down by someone who repeatedly asks for sex, feeling pressured by being lied to, being told promises that were untrue, having someone threaten to end a relationship or spread rumors or sexual pressure due to someone using their influence or authority.	NUMBER OF TIMES ____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED→1222

NO	QUESTIONS	CODING CATEGORIES	SKIPS
1218	How old were you the first time someone pressured you to have sex and succeeded?	AGE IN YEARS ____ DON'T KNOW = -8 REFUSED = -9	
1219	What was this person's relationship to you? If it was more than one person, what was your relationship with the person you knew the best?	BOYFRIEND/GIRLFRIEND/LIVE -IN PARTNER/SPOUSE = 1 EX-BOYFRIEND/GIRLFRIEND/ PARTNER/SPOUSE = 2 RELATIVE/FAMILY MEMBER = 3 CLASSMATE/SCHOOLMATE = 4 TEACHER = 5 POLICE/SECURITY OFFICER/MILITARY= 6 EMPLOYER = 7 NEIGHBOR = 8 COMMUNITY/ RELIGIOUS LEADER = 9 FRIEND = 10 STRANGER = 11 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	
1220	In the last 12 months, did someone pressure you to have sex and did succeed?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →1222
1221	In the last 12 months, did a partner pressure you to have sex and did succeed? By partner, I mean a live-in partner whether or not you were married at the time.	YES =1 NO, DID NOT PRESSURE AND SUCCEED = 2 NO, DID NOT HAVE LIVE-IN PARTNER IN THE LAST 12 MONTHS= 3 DON'T KNOW = -8 REFUSED = -9	

NO	QUESTIONS	CODING CATEGORIES	SKIPS
1222	After any of these unwanted sexual experiences, did you try to seek professional help or services from any of the following? SELECT ALL THAT APPLY.	I DID NOT TRY TO SEEK HELP = A HEALTHCARE PROFESSIONAL = B POLICE OR OTHER SECURITY PERSONNEL = C SOCIAL WORKER, COUNSELOR OR NON-GOVERNMENTAL ORGANIZATION = D RELIGIOUS LEADER = E OTHER = X DON'T KNOW = Y REFUSED = Z	DID NOT TRY TO SEEK HELP →1223 ELSE→1224 SKIP IF NEVER EXPERIENCED.
1223	What was the main reason that you did not try to seek professional help or services?	DID NOT KNOW SERVICES WERE AVAILABLE = 1 SERVICES NOT AVAILABLE = 2 AFRAID OF GETTING IN TROUBLE = 3 ASHAMED FOR SELF/FAMILY = 4 COULD NOT AFFORD SERVICES = 5 DID NOT THINK IT WAS A PROBLEM = 6 FELT IT WAS MY FAULT = 7 AFRAID OF BEING ABANDONED = 8 DID NOT NEED/WANT SERVICES = 9 AFRAID OF MAKING SITUATION WORSE = 10 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	SKIP IF NEVER EXPERIENCED.

NO	QUESTIONS	CODING CATEGORIES	SKIPS
Interviewer says: "Thank you for sharing your personal experiences with me. I know it may have been difficult for you to talk about your experiences with me. If you would like to talk further about these experiences, I can refer you to a place that can provide you with help. " **PROVIDE PARTICIPANT WITH LIST OF ORGANIZATIONS.**			
1224	You mentioned earlier that you have sold sex for money. Thank you for sharing your personal experiences with me. If you want to talk further about these experiences, I can refer you to a place that can provide you with help. FILL OUT REFERRAL FORM FOR CHILDREN IDENTIFIED AS TRAFFICKED MINORS. FILL OUT SUMMARY OF REFERRED TRAFFICKED MINORS. PROVIDE PARTICIPANT WITH LIST OF ORGANIZATIONS, IF NOT ALREADY GIVEN.		SKIP IF >18 YEARS OLD SKIP IF NEVER SOLD SEX
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 ADOLESCENT QUESTIONNAIRE

THIS QUESTIONNAIRE IS ADMINISTERED TO ELIGIBLE YOUNG ADOLESCENTS AGED BETWEEN 10-14 YEARS AFTER INFORMED PARENTAL/GUARDIAN CONSENT AND MINOR ASSENT.

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
MODULE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS			
101	IS THE RESPONDENT MALE OR FEMALE?	MALE = 1 FEMALE = 2	
102	How old were you at your last birthday?	AGE IN COMPLETED YEARS __ __ DON'T KNOW AGE = -8 REFUSED = -9	
103	Are you currently enrolled in school?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 108
104	During the last school week, did you miss any school days for any reason?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →106
105	Why did you miss school?	I HAVE BEEN SICK = 1 I DON'T FEEL SAFE TRAVELING TO SCHOOL = 2 I DON'T FEEL SAFE WHILE IN SCHOOL = 3 I DON'T LIKE SCHOOL = 4 I HAVE TO LOOK AFTER MY FAMILY= 5 THERE'S NOT ENOUGH MONEY TO SEND ME TO SCHOOL = 6 SCHOOL IS TOO FAR AWAY = 7 I HAVE TO WORK = 8 I HAVE A CHILD OR I AM PREGNANT(GIRLS ONLY) = 9 I MISSED TOO MUCH SCHOOL BECAUSE OF MY PERIOD (MENSTRUATION) (GIRLS ONLY) = 10 OTHER = -6 DON'T KNOW = -8 REFUSED = -9	

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
106	What grade/form/year are you in now?	GRADE/FORM/YEAR ____	
107	What grade/form/year were you in last year?	GRADE/FORM/YEAR ____	ALL → 201
108	Why do you NOT go to school?	I HAVE BEEN SICK = 1 I DON'T FEEL SAFE TRAVELING TO SCHOOL = 2 I DON'T FEEL SAFE WHILE IN SCHOOL = 3 I DON'T LIKE SCHOOL = 4 I HAVE TO LOOK AFTER MY FAMILY= 5 THERE'S NOT ENOUGH MONEY TO SEND ME TO SCHOOL = 6 SCHOOL IS TOO FAR AWAY = 7 I HAVE TO WORK = 8 I HAVE A CHILD OR I AM PREGNANT(GIRLS ONLY) = 9 I MISSED TOO MUCH SCHOOL BECAUSE OF MY PERIOD (MENSTRUATION) (GIRLS ONLY) = 10 OTHER = -6 DON'T KNOW = -8 REFUSED = -9	
109	Have you ever attended school?	YES = 1 NO = 2 DON'T KNOW =-8 REFUSED = -9	NO, DK, REFUSED → 201
110	When was the last time you regularly attended school? Would you say it was less than a year ago or more than a year ago?	LESS THAN 1 YEAR = 1 1 YEAR OR LONGER = 2 DON'T KNOW =-8 REFUSED = -9	
111	What is the highest grade/form/year that you have completed?	NURSERY/KINDERGARTEN = 1 LEVEL 1 (GRADE 1-7)= 2 LEVEL 2 (FORM 1-6) = 3 OTHER = -6 DON'T KNOW = -8 REFUSED = -9	
MODULE 2: HIV KNOWLEDGE			
201	Have you ***ever*** heard of HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 301

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
202	From where have you heard about HIV? PROBE: Anywhere else? RECORD ALL MENTIONED	SCHOOLS/TEACHERS = A PARENTS/GUARDIAN/FAMILY = B FRIENDS = C RELIGIOUS LEADERS = D INTERNET = E MOBILE PHONE = F HEALTH PROVIDERS/DOCTORS/NURSES/ CLINICAL OFFICERS = G TELEVISION/FILM = H RADIO = I COMMUNITY HEALTH WORKERS = J OTHER = X DON'T KNOW = Y REFUSED = Z	
203	Have you ever discussed HIV with your parents or guardian?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
204	Can a person reduce their chance of getting HIV by not having sex?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
205	Can a person reduce their chance of getting HIV by using condoms when having sex?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
206	Can a healthy-looking person have HIV or AIDS?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
207	Can a mother with HIV or AIDS pass HIV to her unborn baby?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
208	Are there medicines that people with HIV or AIDS can take to help them live longer?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
209	Can male circumcision help prevent HIV infection? Circumcision is the removal of the foreskin from a penis.	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	
MODULE 3: HIV PREVENTION INTERVENTIONS			
301	Have you taken part in any of the following HIV prevention programs? SHOW CHILD LOGO FOR EACH PROGRAM SELECT ALL THAT APPLY	FAMILIES MATTER PROGRAM = A SISTER TO SISTER = B YOUTH FOR YOU = C YOUTH FOR REAL = D POSITIVE TALK = E AIDS ACTION CLUB = F OTHER = X DON'T KNOW = Y REFUSED = Z	
302	Do you know where to get a condom?	YES = 1 NO = 2 DON'T KNOW WHAT A CONDOM IS= 3 REFUSED = -9	NO, REFUSED → 306 DK → 401
303	Where can a person go to get a condom? SELECT ALL THAT APPLY	CLINIC/HOSPITAL = A KIOSK/SHOP = B PHARMACY = C LOCAL FREE DISPENSER = D FRIENDS/PEERS = E BOYFRIEND/GIRLFRIEND = F OTHER = X DON'T KNOW = Y REFUSED = Z	
304	If you wanted to, could you yourself get a condom?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	YES, DK, REFUSED → 306
305	Why is it not easy for you to get a condom? SELECT ALL THAT APPLY.	TOO FAR = A COSTS TOO MUCH = B DO NOT WANT OTHERS TO KNOW = C OTHER = X DON'T KNOW = Y REFUSED = Z	

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
306	Have you ever seen a male condom demonstration? By a condom demonstration, I mean someone like a nurse, other adult, or peer showing people how a male condom is correctly used.	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	

MODULE 4: SEXUAL BEHAVIOR

Interviewer says: "The next questions ask about sexual behavior. There is no right or wrong answer. Your responses will not be linked to you in any way or shared with anyone, including your parents."

NOTE TO THE INTERVIEWER: PLEASE LOOK OUT FOR SIGNS OF DISTRESS IN CHILD WHEN ASKING THE FOLLOWING SEXUAL BEHAVIOR QUESTIONS. IF THE CHILD SEEMS DISTRESSED, ASK CHILD IF HE/SHE WANTS TO STOP THE INTERVIEW.

401	Do you know what sex is?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF AGE <13 & RESPONSE = NO, DK, REFUSED →415
402	Have you ever had sex? By sex, we mean vaginal sex. With vaginal sex, we mean a penis enters a vagina.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →414
403	How old were you when you had sex for the first time?	AGE IN YEARS __ __ DON'T KNOW = -8 REFUSED = -9	
404	The first time you had sex, was it because you wanted to or because you were forced?	WANTED TO = 1 FORCED = 2 DON'T KNOW = -8 REFUSED = -9	WANTED, DK, REFUSED → 406
405	The first time you had sex, were you physically forced or were you pressured into having sex through harassment, threats or tricks?	PHYSICALLY FORCED= 1 PRESSURED = 2 DON'T KNOW = -8 REFUSED = -9	ALL → 407

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
406	What was the **main** reason that you had sex for the first time?	IT JUST HAPPENED = 1 MY FRIENDS PRESSURED ME TO HAVE SEX = 2 TO SHOW MY LOVE/TO FEEL LOVED = 3 I WANTED TO HAVE SEX = 4 MY BOYFRIEND/GIRLFRIEND WANTED TO HAVE SEX = 5 FOR MONEY / GIFTS = 6 I WANTED TO HAVE A BABY = 7 OTHER= -6 DON'T KNOW = -8 REFUSED = -9	
407	How old was the person you first had sex with? Please give your best guess.	AGE IN YEARS _____ DON'T KNOW = -8 REFUSED = -9	
408	The first time you had sex, was a condom used?	YES = 1 NO = 2 DON'T KNOW WHAT CONDOM IS = 3 DON'T KNOW = -8 REFUSED = -9	
409	In total, how many different people have you had sex with? Please give your best guess.	NUMBER OF PARTNERS __ __ DON'T KNOW = -8 REFUSED = -9	
410	The last time you had sex was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
411	How often do you use a condom during sex?	ALWAYS = 1 SOMETIMES = 2 NEVER = 3 DON'T REMEMBER = 4 DON'T KNOW = -8 REFUSED = -9	

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
412	Sometimes people have sex to get material support. Material support means helping you to pay for things or giving you gifts or things. Have you ever had sex with someone because you expected material support?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
413	Have you ever been pregnant?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
414	Have you ever had oral sex? Oral sex is when a person puts his/her mouth on the penis or vagina of another person	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
415	Have you ever talked with a parent or guardian about sex?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
MODULE 5: HIV RISK PERCEPTION			
501	How likely do you think it is for you to get HIV?	VERY LIKELY = 1 SOMEWHAT LIKELY = 2 NOT LIKELY = 3 I ALREADY HAVE HIV = 4 DON'T KNOW = -8 REFUSED = -9	IF NOT LIKELY, I HAVE HIV, DK, REFUSED → 503 SKIP IF 201=NO, DK, REFUSED
502	What is the main reason you think you are likely to get HIV?	I HAVE HAD SEX WITHOUT A CONDOM = 1 I HAVE OR HAD MANY BOY/GIRL FRIEND = 2 I HAVE HAD BLOOD TRANSFUSIONS = 3 MY MOTHER/FATHER/CLOSE RELATIVE HAS HIV = 4 I DON'T TRUST MY BOY/GIRLFRIEND = 5 I AM SICK = 6 MY BOY/GIRL FRIEND IS SICK OR HAS DIED= 7 I DESERVE IT/I AM A BAD PERSON = 8 OTHER = 96 DON'T KNOW = -8 REFUSED = -9	SKIP IF 201=NO, DK, REFUSED ALL → NEXT MODULE

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
503	What is the main reason you think you are not likely to get HIV?	I am abstinent = 1 I will wait until marriage to have sex = 2 I always use condoms = 3 i trust my partner = 4 i have only one partner = 5 I go to church = 6 i am a good person = 7 OTHER = -6 DON'T KNOW = -8 REFUSED = -9	SKIP IF 201= NO, DK, REFUSED

MODULE 6: SOCIAL NORMS, INTENTION TO ABSTAIN, SELF-EFFICACY AND ASSERTIVENESS			
Interviewer says: "Now I would like to ask you some questions about the future."			
601	Do you think all, many, some, a few or none of your friends are having sex?	ALL = 1 MOST = 2 SOME = 3 A FEW = 4 NONE = 5 DON'T KNOW/DON'T KNOW WHAT SEX IS = -8 REFUSED = -9	
602	Do you feel pressured by your friends or boy/girl friend to have sex?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
603	If you did not want to have sex with someone, could you tell them that you do not want to have sex with them?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

MODULE 7: HIV TESTING			
Interviewer says: "I would now like to ask you some questions about HIV testing."			
701	Have you ever been tested for HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 801 SKIP IF 201=NO, DK, REFUSED
702	Did you receive the results of any of your HIV tests?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 801 SKIP IF 201=NO, DK, REFUSED

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
703	What was the result of that HIV test?	HIV POSITIVE = 1 HIV NEGATIVE = 2 UNKNOWN = 3 REFUSED = -9	IF HIV NEGATIVE, UNKNOWN, REFUSED → 801 SKIP IF 201=NO, DK, REFUSED
704	Are you currently on treatment for HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF 201=NO, DK, REFUSED

MODULE 8: ALCOHOL AND DRUGS			
Interviewer says: "I would like to ask you some questions about alcohol and drugs or substances that you may have taken that were not given to you by doctor. Your answers will not be told to anyone, even your parents."			
801	Have you ever had alcohol, for example beer or zed?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 803 SHOW GRAPHIC OF COMMON ALCOHOLIC BEVERAGES.
802	During the past 1 month, on how many days did you have at least one drink containing alcohol?	NUMBER OF DAYS ____ DON'T KNOW = -8 REFUSED = -9	
803	Have you ever tried drugs such as Miraa, Bhang, Glue, Kuber, Mandrax, Cocaine, Heroin, or others?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 901
804	What drugs have you ever tried? DO NOT READ RESPONSES. PROBE FOR MULTIPLE RESPONSES.	MORAA = A BHANG = B GLUE = C KUBER = D MANDRAZ = E COCAINE = F HEROIN = G OTHER = X DON'T KNOW = Y REFUSED = Z	

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
MODULE 9: HIV STIGMA			
901	Would you be willing to share food with someone who has HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
902	Would you play with someone who has HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
MODULE 10: PARENTAL SUPPORT			
1001	Do your parents/guardians understand your problems and worries?	ALWAYS = 1 MOST OF THE TIME = 2 SOMETIMES = 3 RARELY = 4 NEVER = 5 DON'T KNOW = -8 REFUSED = -9	
1002	Do your parents/guardians really know what you were doing with your free time when you were not at school or work?	ALWAYS = 1 MOST OF THE TIME = 2 SOMETIMES = 3 RARELY = 4 NEVER = 5 DON'T KNOW = -8 REFUSED = -9	
MODULE 11: VIOLENCE			
	Interviewer says: "Now I would like to ask you questions about some other important aspects of a person's life. I know that some of these questions are very personal. However, your answers are important for helping to understand the condition of children in [INSERT COUNTRY]. Let me assure you that your answers are completely confidential and will not be told to anyone."		
1101	Has anyone ever done any of these things to you: - Punched, kicked, whipped, or beat you with an object - Choked smothered, tried to drown you, or burned you intentionally - Used or threatened you with a knife, gun or other weapon?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
1102	Has anyone ever touched your [penis or buttock / vagina, buttock, or breast when you did not want them to? This could be pinching, grabbing, or touching you on or around your [penis or buttock / vagina, buttock, or breast].	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
1103	Has anyone ever touched you in a sexual way without your permission, but did not try and force you to have sex? Touching in a sexual way without permission includes fondling, pinching, grabbing, or touching you on or around your sexual body parts.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → 1105
1104	The first time this happened, what was your relationship to the person who did this? If it was more than one person, what was your relationship with the person you knew the best?	BOYFRIEND/GIRLFRIEND/ SPOUSE = 1 RELATIVE/FAMILY MEMBER = 2 CLASSMATE/SCHOOLMATE = 3 TEACHER = 4 POLICE/SECURITY OFFICER/MILITARY= 5 EMPLOYER = 6 NEIGHBOR = 7 COMMUNITY RELIGIOUS LEADER = 8 FRIEND = 9 STRANGER = 10 OTHER = -6 DON'T KNOW = -8 REFUSED = -9	
1105	Has anyone ever <u>tried</u> to make you have sex against your will but did not succeed?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
1106	Has anyone ever pressured you to have sex, through harassment, threats or tricks and did succeed?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
1107	Has anyone ever physically forced you to have sex and did succeed?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
CHECK 1106, 1107: **IF ALL ARE NO "2", DON'T KNOW "-8", OR REFUSED "-9" → 1109** **IF YES FOR ONE OR BOTH → 1108**			
1108	The first time you were pressured or forced to have sex, what was your relationship to the person who did this?	BOYFRIEND/GIRLFRIEND/ SPOUSE = 1 RELATIVE/FAMILY MEMBER = 2 CLASSMATE/SCHOOLMATE = 3 TEACHER = 4 POLICE/SECURITY OFFICER/MILITARY= 5 EMPLOYER = 6 NEIGHBOR = 7 COMMUNITY RELIGIOUS LEADER = 8 FRIEND = 9 STRANGER = 10 OTHER = -6 DON'T KNOW = -8 REFUSED = -9	
CHECK 1101, 1103, 1105, 1106, 1107: **IF ALL ARE NO "2", DON'T KNOW "-8", OR REFUSED "-9" → REFERAL FOR SERVICES** **IF YES FOR ONE OR MORE → 1109**			
1109	After any of these unwanted sexual experiences, did you try to seek professional help or services from any of the following? SELECT ALL THAT APPLY.	I DID NOT TRY TO SEEK HELP = A HEALTHCARE PROFESSIONAL = B POLICE OR OTHER SECURITY PERSONNEL = C SOCIAL WORKER, COUNSELOR OR NGO = D RELIGIOUS LEADER = E OTHER = X DON'T KNOW = Y REFUSED = Z	

NO.	QUESTIONS	CODING CATEGORIES	SKIPS
1110	What was the main reason that you did not try to seek professional help or services?	DID NOT KNOW SERVICES WERE AVAILABLE = 1 SERVICES NOT AVAILABLE = 2 AFRAID OF GETTING IN TROUBLE = 1 ASHAMED FOR SELF/FAMILY = 2 COULD NOT AFFORD SERVICES = 3 DID NOT THINK IT WAS A PROBLEM = 5 FELT IT WAS MY FAULT = 6 AFRAID OF BEING ABANDONED = 7 DID NOT NEED/WANT SERVICES = 8 OTHER = -6 DON'T KNOW = -8 REFUSED = -9	
1111	After any of these unwanted sexual experiences, did you tell anyone about it?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →END
1112	Which of the following describes who you told about any of these unwanted sexual experience? SELECT ALL THAT APPLY	PARENT/GUARDIAN = A SIBLING = B TEACHER = C FRIEND/CLASSMATE = D OTHER FAMILY MEMBER = E RELIGIOUS LEADER = F OTHER = X DON'T KNOW = Y REFUSED = Z	

CHECK 1101, 1102, 1103, 1105, 1106, 1107:
IF ALL ARE NO "2", DON'T KNOW "-8", OR REFUSED "-9" → END
IF YES FOR ONE OR MORE → REFERAL FOR SERVICES

REFERAL TO SERVICES
Interviewer says: "Thank you for sharing your personal experiences with me. I know it may have been difficult for you to talk about your experiences with me. If you would like to talk further about these experiences, I can refer you to a place that can provide you with help.

PROVIDE PARTICIPANT WITH LIST OF ORGANIZATIONS.

END

APPENDIX H SURVEY CONSENT FORMS

Interviewer reads:

What language do you prefer for our discussion today?

___English

___Shona

___Ndebele

___Other Language

Interviewer reads:

Hello. My name is_____. I would like to invite you to take part in this research study/survey about HIV in Zimbabwe. The Government of Zimbabwe through the Ministry of Health and Child Care is leading this survey in collaboration with the Centers for Disease Control and Prevention and ICAP at Columbia University and the Biomedical Research and Training Institute (BRTI).

Title of Survey: Zimbabwe Population-Based HIV Impact Assessment (ZIMPHIA)

Purpose of survey
This survey will help us know how many people in Zimbabwe have HIV and need health services. It will also tell us about people's risk for HIV. About 15,000 households will participate in this survey. We would like to invite your household to participate in the survey too. What you tell us will help the Ministry of Health and Child Care make HIV prevention and treatment services better in your community and 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 or have questions about.

Survey Procedures
There are two types of questionnaires: a household interview and individual interview. In the household interview, we would like to ask you some questions about the people living in your household. We will ask how many people live here, their relationship to you, their gender, and their age. We will also ask you about some of the items you have in your household. The interview about your household will take less than 20 minutes.

After completing the household interview, we would like to invite you and others staying in your household to participate in the second part of this survey: individual interviews. Before asking any questions to other people in your household, we will ask each person to give his or her written permission to participate. The interview(s) will take place in private here in your house or an area around your house. We will also offer HIV testing.

Right to refuse or withdraw
Your participation in this household interview is entirely voluntary. If you choose to take part in the interview, you may change your mind at any time and stop participating. If you decide not to take part, now or later, it will not affect your healthcare in any way, and you will experience no negative effects.

Risks
The risks to participating in the household interview are small. We will do everything we can to keep your information private. However we cannot promise complete confidentiality.

You may feel uncomfortable about some of the questions we will ask. You can refuse to answer any question and move on to the next one.

Benefits
There may be no direct benefit to you but the information you provide to us will be used to improve the health of Zimbabweans and your community. Your responses will help the Ministry of Health and Child Care to develop more effective programs to prevent and treat HIV.

Alternatives to participation
You do not have to participate in this survey.

Confidentiality and Access to Your Health Information
Only people working on the survey will have access to the information we collect during the survey, and we will do everything we can to keep your answers private. What we talk about with you and your household members will be kept private. Your name and signed informed consent form will be kept separate from your answers to the questions. Your answers to the questions will be identified only by a number. When we share survey results, neither your name nor anything that could identify you or your household will be shared.

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

- Survey staff and survey monitors
- The U.S. 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 participant in this survey.

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a participant. These include the Medical Research Council of Zimbabwe (MRCZ), and the Research Council of Zimbabwe (RCZ)the Institutional Review Boards at the Centers for Disease Control and Prevention, Columbia University Medical Center and Westat (a statistical survey research organization).

The information we collect during the survey will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your name and contact information with the groups above will expire three years after the end of the survey. You can leave the survey at any time for any reason. If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part you should contact the Principal Investigator Dr. Owen Mugurungi who can be reached at

Ministry of Health and Child Care (MOHCC)
Address: Mukwati Building, P.O Box CY 1122, Causeway, Harare, Zimbabwe
Tel: +26342933497
Email: atp.director@ymail.com

If you decide to leave the survey, no more information will be collected from you. However, we will not be able to take back the information that has already been shared with the groups above.

Costs for being in the survey: There is no cost to you or payment from you for being in the household interview. You should also know that you would not be paid to be in the survey.

If you have any questions about your rights as a participant in this survey you can contact:

Dr. Paul Ndebele
Medical Research Council of Zimbabwe (MRCZ)
Josiah Tongogara Ave/ Mazoe Street, P.O. Box CY 573, Causeway, Harare, Zimbabwe
Tel: +2634791792/791193/792747
Email: mrcz@mrcz.org.zw

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

Do you have any questions about the survey?

Consent Statement

I have read this form and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions I had have been answered satisfactorily. I willingly agree to participate in the household interview. I know that after choosing to be in the interview, I may withdraw at any time without any negative consequences. My participation is voluntary. I 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 interview. 'NO' means that you will NOT do the interview.

_____Yes _____No

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

Printed name of head of household_____

[For illiterate participants]

Signature of witness_____ Date:___/___/___

Printed name of witness_____

Signature of person obtaining consent_____ Date:___/___/___

Printed name of person obtaining consent_____

Survey staff ID number_____

Interviewer reads:

What language do you prefer for our discussion today?

___English

___Shona

___Ndebele

___Other Language

Hello. My name is_____. I would like to invite you to take part in this research study/survey about HIV in Zimbabwe. The Government of Zimbabwe through the Ministry of Health and Child Care is leading this survey in collaboration with the Centers for Disease Control and Prevention and ICAP at Columbia University and the Biomedical Research and Training Institute (BRTI).

Title of Survey: Zimbabwe Population-based HIV Impact Assessment

Purpose of the survey
This survey will help us know how many people in Zimbabwe have HIV and need health services. It will also tell us about people's risk for getting HIV. We expect about 30,000 men, women, and children from 15,000 households throughout Zimbabwe to participate in this survey. We would like to invite you to join the survey too. Your participation will help the Ministry of Health and Child Care make HIV services better in your community and in Zimbabwe.

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

Survey Procedures
If you join this survey, we will ask you questions about your age, what kind of work you do, whether you have had any experience with HIV services, and your sexual behaviors. The interview will take about 50 minutes. You may be selected to answer some of the questions we have already asked you on the computer.

After the interview, we will offer you an HIV test and a syphilis test. We will ask you for consent for the HIV test, syphilis test, and blood draw and storage after the interview. The testing and counseling will take about 40 minutes. The interview will take place in private here in your house or an area around your house.

Right to refuse or withdraw
You do not have to be in the survey, and if you choose to join the survey, you may change your mind at any time and stop participating. If you decide not to take part, it will not affect your healthcare in any way.

Risks
The risks involved with taking part in the survey are small. We will do everything we can to keep your information private. However, we cannot promise complete confidentiality. You may feel uncomfortable about some of the questions we will ask. You can refuse to answer any question.

Benefits
There may be no direct benefit to you but your taking part in this research could help us learn more about HIV in Zimbabwe. It can also help us learn about how HIV prevention and treatment programs are working. Your participation is important.

Confidentiality and Access to Your Health Information
Only people working on the survey will have access to the information we collect during the survey, and we will do everything we can to keep your answers private. What we talk about with you and your household members will be kept private. Your name and signed informed consent forms will be kept separate from your answers to the questions. Your answers to the questions will be identified only by a number. When we share survey results, neither your name nor anything that could identify you or your household will be shared.

The following individuals and/or agencies will be able to look at your research records to help oversee this survey:

- Survey staff and survey monitors
- The U.S. 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 participant in this survey.
- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a participant. These include the Medical Research Council of Zimbabwe (MRCZ), the Research Council of Zimbabwe (RCZ) and the Institutional Review Boards at the Centers for Disease Control and Prevention, Columbia University Medical Center and Westat (a statistical survey research organization).

The information we collect during the survey will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your name and contact information with the groups above will expire three years after the end of the survey. You can leave the survey at any time for any reason. If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact the Principal Investigator Dr. Owen Mugurungi who can be reached at

Ministry of Health and Child Care (MOHCC)
Address: Mukwati Building, P.O Box CY 1122, Causeway, Harare, Zimbabwe
Tel: +26342933497
Email: atp.director@ymail.com

If you decide to leave the survey, no more information will be collected from you. However, we will not be able to take back the information that has already been collected and shared.

Costs for being in the survey: There is no cost to you or payment from you for being in the survey. You should also know that you would not be paid to be in the survey.

If you have any questions about your rights as a participant in this survey, you can contact:

Dr. Paul Ndebele
Medical Research Council of Zimbabwe (MRCZ)
Josiah Tongogara Ave/ Mazoe Street, P.O. Box CY 573, Causeway, Harare, Zimbabwe
Tel: +2634791792/791193/792747
Email: mrcz@mrcz.org.zw

Do you have any questions about the survey?

Consent Statement

I have read this form and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions I had have been answered satisfactorily. I agree to be in this survey. I know that after choosing to be in this survey, I may withdraw at any time. My participation is voluntary. I have been offered a copy of this consent form.

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

_____Yes _____No

2. **FUTURE RESEARCH:** It is possible that you may be eligible to participate in future studies related to health in Zimbabwe. We are asking for your permission to contact you in the next two years if such an opportunity occurs. If we contact you, we will give you details about the new study and ask you to sign a separate consent form at that time. 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 involvement in this study. Do you agree to be contacted in the future? 'YES' means that you agree to be contacted in the future if a study opportunity arises. 'NO' means that you will NOT be contacted about future studies.

_____Yes _____No

Participant signature or mark_____ Date:___/___/___

Printed name of participant_____

Participant ID number_____

[For illiterate participants]

Signature of witness_____ Date:___/___/___

Printed name of witness_____

Signature of person obtaining consent_____ Date:___/___/___

Printed name of person obtaining consent_____

Survey staff ID number_____

Interviewer reads:

What language do you prefer for our discussion today?

___English

___Shona

___Ndebele

___Other Language: Specify _____

Title of Survey: Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA)
Now I would like to ask you to give us permission to invite your son/daughter to take part in this survey.

Purpose of the survey
This research study/survey will help us learn more about the health of children in Zimbabwe. We plan to ask thousands of children like yours to join this survey. We would like to invite your child to join the survey too. Your child's participation will help the Ministry of Health and Child Care make HIV services better.

Survey Procedures
If you agree to allow us to invite your child to take part in this survey, we will invite him/her to participate and a trained nurse will take about **one teaspoon or about 5 mL (for children ages 7-14 years)** and about **three teaspoons or about 14 mL (for children age 15 years)** of blood from your child's arm and perform an HIV test **(and syphilis test for children age 15 years)** here in your home. If it's 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 HIV test **(and syphilis test for children age 15 years**) here in your home. We will give the results today. **For children ages 7-14 years,** we will provide counseling about the results and discuss with you how to share the results with your child. **For children ages 15,** we will provide counseling about the results and discuss with your child how to share the results with you if they decide to discuss the results with you. The entire testing and counseling session will take about 40 minutes.

If your child tests positive for HIV, we will also test the amount of CD4 cells in his/her blood and give you **(for children 7-14 years)** or your child **(age 15 years)** the result today to take to the clinic. CD4 count test shows how well your child's body is able to fight diseases. We will give you or your child **(age 15 years)** a

referral form and information to help you and your child to consult with a doctor/nurse to learn more about his/her HIV test, CD4 count and health. We will also test the CD4 level of some people without HIV.

If your child tests positive for HIV, we will also send his/her blood to a laboratory to measure his/her viral load. Viral load is the amount of HIV in the blood. Parents **(for children 7-14 years)** can get their children's viral load results at a health facility in six to eight weeks from now. Your child **(age 15 years)** can get his/her viral load results at a health facility in six to eight weeks from now. You or your child **(age 15 years)** will be able to talk to a doctor/nurse at the facility about the test result.

Some of your child's blood may be sent to a laboratory out of the country for some additional tests related to HIV because there are no laboratories in Zimbabwe that can do these tests. If we have test results that might guide your child's treatment **(for children 7-14 years),** and if you provide your contact information, we will contact you to tell you how you and your child's doctor or nurse may get these results. If we have test results that might guide your child's treatment **(age 15 years),** and if your child provides his/her contact information, we will contact your child to tell him/her how your child's doctor or nurse may get these results.

We would also like to ask your permission to store his/her leftover blood for future research tests. These tests may be about HIV or other health issues important for the health of Zimbabweans, such as nutrition or immunization. This sample will be stored for an indefinite amount of time but your child's name will be on the sample for only three years. We will attempt to tell you or your child **(age 15 years)** about any test results during the three year period that are important for your child's health. Your child's leftover blood will not be sold or used for commercial reasons. If you do not agree to long-term storage of your child's blood samples, we will destroy your child's blood samples after survey-related testing has been completed.

[For children 10-15 years only]
We will also ask your child to do an interview with us in private to learn what your child knows about HIV and about your child's behaviors that may put him or her at risk for HIV. The interview will take about 40 minutes. We will not share your child's answers to the interview questions with you. The interview will take place in private here in your house or an area around your house.

[For children 15 years only]
It is also possible that your child may be eligible to participate in future studies related to health in Zimbabwe. We will also ask your child for permission to contact them in the next two years if such an opportunity occurs.

Right to refuse or withdraw
It is your decision about whether you will allow us to invite your child to join the survey. Your child does not have to be in the survey. Your child may refuse to participate or stop participation at any time. If your child decides not to take part, it will not affect your child's healthcare in any way. You may agree to let us test your child for HIV and CD4 count, and syphilis **(age 15 years**) here and other HIV related tests at the laboratory but not agree to have his/her blood stored for future research tests.

Risks
The risks to being in the survey and drawing blood are small. They include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. We will do everything we can to keep your child's information private. However we cannot promise complete confidentiality. You may learn that your child is infected with HIV and/or syphilis **(age 15 years).** Learning that your child has HIV and/or syphilis **(age 15 years)** may cause some emotional discomfort. You will decide when your child **(for children 7-14 years)** should be told of the test result. We will provide counseling on how to cope with learning that your child has HIV and/or syphilis **(age 15 years) and** how to talk to your child about it **(for children 7-14 years)**.

[For children 10-15 years only]
Your child may feel uncomfortable about some of the questions we will ask. Your child can refuse to answer any question.

Benefits
The main potential benefit to your child from being in the survey is the chance to learn more about his/her health today. Some children who participate will test HIV-positive. If this happens to your child, the benefit is that you will/may learn his/her HIV status and you will learn where to take your child for care and treatment of the infection. HIV care and treatment provided by the Ministry of Health and Child Care is free. If you/your child already know he/she has HIV and is not on treatment, you will get information to help your child's doctor/nurse determine if your child is able to start treatment. If you already know that your child is HIV-positive and he/she is on treatment, the tests may help your child's doctor/nurse judge how well the treatment is working. Your child's taking part in this survey will help us learn more about children and HIV in Zimbabwe. It will also give us information we can use to improve HIV prevention and treatment services.

Confidentiality and Access to Your Health Information
We will do everything we can to keep your child's participation in the survey confidential. Your child's name and the permission and assent forms will be kept separate from their health information and answers to questions. The information we collect from your child will be identified by a number and not by your name or your child's name. Your name and your child's name will not appear when we share survey results. Only people working on the survey will have access to the data during the survey. If we learn of anything that could harm your child or others, we will provide information on where he/she can receive support.

The following individuals and/or agencies will be able to look at your child's research records to help oversee this survey:

- Survey staff and survey monitors
- The U.S. 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 participant in this survey
- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your child's rights as a participant. These include the Medical Research Council of Zimbabwe (MRCZ), the Research Council of Zimbabwe (RCZ), and the Institutional Review Boards at the Centers for Disease Control and Prevention, Columbia University Medical Center and Westat (a statistical survey research organization).

The information we collect from your child will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your child's name and contact information with the groups above will expire three years after the end of the survey. Your child can leave the survey at any time for any reason. If you want your child to leave the survey, have any additional questions about the survey, or feel that your child has been harmed, you should contact the Principal Investigator Dr. Owen Mugurungi who can be reached at

Ministry of Health and Child Care (MOHCC)
Address: Mukwati Building, P.O Box CY 1122, Causeway, Harare, Zimbabwe
Tel: +26342933497
Email: atp.director@ymail.com

If you or your child decides that he/she should leave the survey, no more information will be collected from him/her. However, we will not be able to take back the information that has already been collected and shared.

COSTS FOR BEING IN THE SURVEY: There is no cost to you or payment from you for your child to be in the survey. You should also know that you and your child would not be paid for your child to be in the survey.

If you have any questions about your rights as a participant in this survey, you can contact:

Dr. Paul Ndebele
Medical Research Council of Zimbabwe (MRCZ)
Josiah Tongogara Ave/ Mazoe Street, P.O. Box CY 573, Causeway, Harare, Zimbabwe
Tel: +2634791792/791193/792747
Email: mrcz@mrcz.org.zw

Do you want to ask me anything about your child's participation in the survey?

Permission Statement
I have read this form, and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions I had have been answered satisfactorily. I agree for my child to take part in this survey. I know that after allowing my child to participate, I may change my mind and withdraw him/her from taking part in this survey at any time.

I agree to allow you to ask my child to be in this survey. I know that after allowing my child to decide whether he/she wants to be in this survey, he/she may withdraw at any time. His/her participation is voluntary. I have been offered a copy of this form.

1. Do you agree for us to ask your child to give blood for HIV testing and related testing. 'YES' means that you give your permission for us to ask your child to have the nurse collect a sample of your child's blood for HIV and related testing. 'NO' means that we will NOT ask your child to give blood for testing.

_____Yes _____No
(if "Yes" proceed to the next question)

2. Do you agree for us to ask your child to have his/her leftover blood stored for future research. 'YES' means that you give permission for us to ask your child to store your child's blood samples for future research. 'NO' means that you do NOT give us permission to ask your child to store his/her blood samples for future research.

_____Yes _____No

[For children 10-15 years only]

3. Do you agree for us to ask your child to do the interview. YES' means that you give your permission to have the survey staff ask your child to do the interview your child. 'NO' means that you will NOT give permission for us to ask your child to be interviewed.

_____Yes _____No
(if "Yes" proceed to the next question)

Parent/guardian signature or mark_____ Date:____/ ___/___

Printed name of parent/guardian_____

Parent/guardian relationship to child:_____

[For illiterate participants]

Signature of witness_____ Date:____/___/___

Printed name of witness_____

Signature of person obtaining permission_____ Date:____/___/___

Printed name of person obtaining permission_____

Survey staff ID number _____

Child's name (print) _____

Child's participant ID number _____

Interviewer reads:

What language do you prefer for our discussion today?

___English

___Shona

___ Ndebele

___Other Language

Hello. My name is_____. I will give you information about blood testing in this survey.

As a part of this research study/survey, we are giving participants 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 might have some words in it that may be new to you. Please ask me to explain anything that you do not understand.

What would happen if I join this survey?
If you agree to testing, here is what would happen:

- **For children age 10-14 years.** We will use a needle to take about a teaspoon [about 5mL] of your blood from your arm. If it's not possible to take blood from your arm, then we will try to take a few drops of blood from your finger. Then we will test your blood for HIV here in your home.
- **For children ages 15 years.** We will use a needle to take about three teaspoons or about 14mL of blood from your arm. If it's not possible to take blood from your arm, then we will try to take a few drops of blood from your finger. Then we will test your blood for HIV and syphilis here in your home.
- It will take about 40 minutes to do the test and to talk to you about the results.
- If you have HIV, we will measure how well your blood can fight HIV and other infections. We can do this test here in your home. We will also measure this in the blood of some people without HIV.
- If you test positive for HIV, we will send your blood to a laboratory to measure the amount of HIV in your blood. Some of your blood will be sent to a laboratory out of the country for some additional tests related to HIV because there are no laboratories in Zimbabwe that can do these tests.

- 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 for a long period of time but your name will be on the sample for only three years. We will attempt to tell your parents/guardians about any test results during the three year period that are important to your health. We will attempt to tell you about any test results during the three year period that are important to your health **(age 15 years)**. Your leftover blood will not be sold. If you do not agree to future storage and testing of your blood, we will destroy your blood after survey related testing has finished.

Could bad things happen if I join this research?
The needle may hurt when it is put into and taken out of your arm. This will go away quickly. Sometimes the needle can leave a bruise on the skin. You might bleed a little or feel a little dizzy afterwards. Rarely, an infection might occur where the needle enters the skin. And sometimes we may have to stick you with the needle more than one time in order to get the right amount of blood. We will do our best to make it hurt as little as possible. You may learn that you have HIV and/or syphilis **(age 15 years)**. Learning that you have HIV and/or syphilis **(age 15 years)** may cause you to feel worried. We will talk to you and try to make you feel better to help you with this. We will do everything we can to keep your information private. However, we cannot promise complete confidentiality.

Could being in the survey help me? [For children 10-14 years only]
Being in the survey may help you by learning whether or not you have HIV. We would give your results to your parent/guardian and they would decide on the best time to tell you the result. If your parent wants us to tell you about your test results, we would talk with you about any questions that you might have about the results. If you are HIV positive, we will tell your parent/guardian where to take you for your medical care and the Government of Zimbabwe will pay for your care. We hope to learn about HIV health care needs in this survey. And we hope it will help other children in Zimbabwe in the future.

[For children 15 years only]
Being in the survey may help you by learning whether or not you have HIV or syphilis. This survey may or may not help you.

We will give your results for HIV and syphilis and provide counseling to you and discuss with you how to share these results with your parent/guardian if you decide to **(No sharing of results with parent/guardian for ages 15 years)**. If you test positive for either of these infections, you will learn about it and you will learn where to go for care and treatment of either of these infections HIV and/or syphilis. Care and treatment provided by the Ministry of Health and Child Care is free. If you already know you have HIV and are not on treatment, you will get information to help your doctor/nurse determine if you are ready to start treatment. If you already know that you have HIV and you are on HIV treatment, the tests may help your doctor/nurse judge how well your treatment is working. If you test negative for HIV or syphilis, you will learn about what you can do to stay that way. Your participation in this survey will help us learn more about HIV and syphilis in Zimbabwe.

What else should I know about this survey?
If you do not want to be in the survey, you do not have to be. Nobody will get upset if you do not want to be in the survey.

It is also OK to say 'yes' and change your mind later. You can stop being in the survey at any time. If you want to stop, please tell us.

We will not tell other people that you are in this survey and will not share information about you to anyone who does not work on the survey. Any information about you will have a number on it instead of your name.

You should also know that you will not be paid to be in the survey.

The following individuals and/or agencies will be able to look at your research records:

- Study staff and study monitors
- Staff members from groups that protect your rights as a survey participant to ensure that we are protecting your rights as a participant

[For emancipated minors only]
The information we collect during the survey will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your name and contact information with the groups above will expire three years after the end of the survey. You can leave the survey at any time for any reason. If you want to leave the survey, have any questions about the survey or feel that you have been harmed by taking part, you should contact the Principal Investigator Dr. Owen Mugurungi who can be reached at

Ministry of Health and Child Care (MOHCC)
Address: Mukwati Building, P.O Box CY 1122, Causeway, Harare, Zimbabwe
Tel: +26342933497
Email: atp.director@ymail.com

If you decide to leave the survey, no more information will be collected from you. However, we will not be able to take back the information that has already been collected and shared.

If you have any questions about your rights as a participant in this survey, you can contact:

Dr. Paul. Ndebele
Medical Research Council of Zimbabwe (MRCZ)
Josiah Tongogara Ave/ Mazoe Street, P.O. Box CY 573, Causeway, Harare, Zimbabwe
Tel: +2634791792/791193/792747
Email: mrcz@mrcz.org.zw

[For 10-15 years only]
If you have any questions about the survey, feel that you have been harmed by taking part, or no longer want to participate in the survey, you can contact:

Dr. Owen Mugurungi
Ministry of Health and Child Care (MOHCC)
Address: Mukwati Building, P.O Box CY 1122, Causeway, Harare, Zimbabwe
Tel: +26342933497
Email: atp.director@ymail.com

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Email: mrcz@mrcz.org.zw

You can ask questions any time. Ask us any questions you have. Take the time you need to make your choice about participating.

Do you want to ask me anything?

Is there anything else?
If you want to get an HIV test and give your blood for research after we talk, please write your name below. We will write our name too. This shows we talked about the survey and what you decide about taking part.

1. Do you agree to give blood for testing? 'YES' means that you agree to give blood for HIV testing and related testing. 'NO' means that you will NOT give blood for HIV testing and related testing.

_____Yes _____No
(if "Yes" proceed to the next question)

2. Do you agree to give your blood to be stored for future research? 'YES' means that you agree to have your blood stored for future research. 'NO' means that your blood will NOT be stored for future research.

_____Yes _____No

Child signature or mark _____ Date:____/ ___/___

Printed name of child _____

Child's participant ID number _____

Printed name of parent/guardian _____ **[Does not apply for emancipated minors]**

[For emancipated minors only]

Participant signature or mark _____ Date:____/ ___/___

Printed name of Participant _____

Participant ID number _____

[For illiterate child/participant]

Signature of witness _____ Date:____/___/___

Printed name of witness _____

Signature of person obtaining consent/assent _____ Date:____/___/___

Printed name of person obtaining consent/assent _____

Survey staff ID number _____

Nurse counselor/Interviewer reads:

What language do you prefer to use for this discussion?

___English

___Shona

___ Ndebele

___Other Language

Hello. My name is_____. I would like to invite you to take part in a research study/survey. Surveys help us learn new things.

This form talks about our survey and the choice that you have to take part in it. We want you to ask us any questions that you have. You can ask questions any time.

Why are we doing this survey?
We are doing this survey to help us learn more about the health of children in Zimbabwe. We plan to ask thousands of children like you to join this survey. A survey is a way to learn about something by interviewing and testing many people. We would like to invite you to join this survey. Your parent/guardian said it was okay for us to ask you to join (**For emancipated minors: parental/guardian permission is not needed)**.

This form might have some words that you may not have heard before. Please ask us to explain anything that you do not understand.

What would happen if I join this survey?
If you decide to join the survey, here is what would happen:

- We will ask you questions about your age, what you know about HIV, and whether you have experience with behaviors that may increase your risk of HIV.
- The interview will take place in private here in your house or an area around your house.
- The interview will take about 30 minutes.

After we ask you the questions, we will also ask you if it is okay to take some of your blood to test for HIV and to store for future survey.

Could bad things happen if I join this survey?
You may feel uncomfortable answering some of the questions we will ask. You can refuse to answer any question at any time and we will stop. We will do everything we can to keep your information private. However we cannot promise complete confidentiality.

Could the survey help me?
You may not get anything yourself by being in the study. But you may help us figure out ways to help other children and learn more about HIV in Zimbabwe. Your participation is important.

What else should I know about this survey?

If you don't want to be in the survey study, you don't have to be. Nobody will get upset with you if you do not want to join the survey.

It is also OK to say 'yes' and change your mind later. You can stop being in the survey at any time. If you want to stop, please tell us.

We will not tell other people that you are in this survey and will not share information about you to anyone who does not work in the survey study. Any information about you will have a number on it instead of your name.

We will not tell your parent/guardian about your responses to the questions **(For emancipated minors: parental/guardian permission is not needed).**

The following individuals and/or agencies will be able to look at your research records:

- Study staff and study monitors
- Staff members from groups that protect your rights as a survey participant to ensure that we are protecting your rights as a participant

[For emancipated minors only]
The information we collect during the survey will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your name and contact information with the groups above will expire three years after the end of the survey. You can leave the survey at any time for any reason. If you want to leave the survey, have any questions about the survey or feel that you have been harmed by taking part, you should contact the Principal Investigator Dr. Owen Mugurungi who can be reached at

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If you have any questions about your rights as a participant in this survey, you can contact:

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Tel: +2634791792/791193/792747
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[For 10-15 years only]
If you have any questions about the survey or feel that you have been harmed by taking part or no longer want to participate in the survey, you can contact:

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Email: mrcz@mrcz.org.zw

You should also know that you would not be paid to be in the study. You can ask questions any time. Ask us any questions you have. Take the time you need to make your choice.

Do you want to ask me anything?

Is there anything else?
If you want to be asked questions after we talk, please write your name below. We will write our name too. This shows we talked about the survey and that you want to take part.

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

_____Yes _____No

[For children ages 15 and emancipated minors only]

2. **FUTURE RESEARCH:** It is possible that you may be eligible to participate in future studies related to health in Zimbabwe. We are asking for your permission to contact you in the next two years if such an opportunity occurs. If we contact you, we will give you details about the new study and ask you to sign a separate assent/consent form at that time. 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 involvement in this study. Do you agree to be contacted in the future? 'YES' means that you agree to be contacted in the future if a study opportunity arises. 'NO' means that you will NOT be contacted about future studies.

_____Yes _____No

Child signature or mark _____ Date:____/ ___/___

Printed name of child_____

Child's participant ID number_____

Printed name of parent/guardian_____ **[Does not apply for emancipated minors]**

[For emancipated minors only]

Participant signature or mark _____ Date:____/ ___/___

Printed name of Participant _____

Participant ID number_____

[For illiterate child/participant]

Signature of witness_____ Date:____/___/___

Printed name of witness_____

Signature of person obtaining consent/assent_____ Date:____/___/___

Printed name of person obtaining consent/assent_____

Survey staff ID number_____

Interviewer reads:

What language do you prefer to use for this discussion?

___English

___Shona

___ Ndebele

___Other Language

Hello. My name is_____. I will give you information about testing options in this research study/survey.

As a part of this survey, we are giving participants an opportunity to learn if they have HIV or syphilis. We also offer several other HIV-related tests.

Blood draw and HIV testing procedures
If you agree to the testing and blood draw, a trained nurse will take about three teaspoons (about 14 ml) of blood from your arm. If it's not possible to take blood from your arm, then we will take a few drops of blood from your finger. We will then test your blood for HIV and syphilis here in your home. We will give you the results and provide counseling today. The testing and counseling session will take about 40 minutes.

If you test positive for HIV, we will measure the amount of CD4 cells in your blood and give you the result today. CD4 cells help fight HIV and other diseases. We will give you a referral form and information so that you can consult with a doctor or nurse to learn more about the test result and your health. We will also test the CD4 level of some people without HIV.

If you test positive for HIV, we will send your blood to a laboratory to measure your viral load. Viral load is the amount of HIV in the blood. You will be able to talk to a doctor/nurse at your clinic about your viral load in six to eight weeks from now.

Some of your blood will be sent to a laboratory out of the country for some additional tests related to HIV because there are no laboratories in Zimbabwe that can do the test. If we have test results that might help guide your treatment, and 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.

If you test positive for syphilis, we will give you a referral letter so that you can consult with a doctor or a nurse about treatment.

Storage of specimens
We would like your permission to store your leftover blood for future research tests. These tests may be about HIV or other diseases and your body's response to them. This will help the Ministry of Health and Child Care improve the health of Zimbabweans. 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. Your leftover blood will not be sold or used for commercial reasons.

If you do not agree to long term storage of your blood samples, we will destroy your blood samples after survey- related testing has been completed.

Right to refuse or withdraw
You do not have to give blood and you are free to change your mind even after you have started the blood draw. You may agree to let us test your blood for HIV, syphilis, CD4 count and other lab testing and not agree to have your blood stored for future research tests. If you don't want to give blood, please tell us. Your participation is voluntary.

Risks
The risks to you from having your blood drawn are very small. They include brief pain from the needle stick, bruising, lightheadedness, bleeding, and rarely, infection where the needle enters the skin. The nurse who will take your blood has received training on how to draw blood safely. If you have any discomfort, bleeding or swelling at the site, please let us know. You may learn that you are infected with HIV and/or syphilis. Learning that you have HIV and/or syphilis may cause some emotional discomfort. You will receive counseling today on how to cope with learning that you have HIV and/or syphilis. We will do everything we can to keep your information private. However, we cannot promise complete confidentiality.

Benefits
The main benefit to you from being in the survey is the chance to learn more about your health. Some people who participate will test positive for HIV or syphilis. If you test positive for either of these infections, you will learn about it and you will learn where to go for care and treatment of HIV and/or syphilis. HIV care and treatment provided by the Ministry of Health and Child Care is free. If you already know you have HIV and are not on treatment, you will get information to help your doctor/nurse determine if you are ready to start treatment. If you already know that you have HIV and you are on HIV treatment, the tests may help your doctor/nurse judge how well your treatment is working. If you test HIV negative or syphilis negative, you will learn about what you can do to stay that way. Your participation in this survey will help us learn more about HIV and syphilis in Zimbabwe. It can also help us learn about how to improve HIV prevention and treatment services.

Confidentiality and Access to Your Health Information
We will do everything we can to keep your test results private. The blood we collect from you will be identified by a number and not by your name. Your name and signed informed consent forms will be kept separate from your blood sample and results. Besides you, no one else will know your test results except the people working on the survey.

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

- Survey staff and survey monitors
- The U.S. 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 participant in this survey
- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a participant. These include the Medical Research Council of Zimbabwe (MRCZ), the Research Council of Zimbabwe (RCZ) and the Institutional Review Boards at the Centers for Disease Control and Prevention, Columbia University Medical Center and Westat (a statistical survey research organization).

The information we collect during the survey will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your name and contact information with the groups above will expire three years after the end of the survey. You can leave the survey at any time for any reason. If you want to leave the survey or have additional questions about the survey or feel that you have been harmed by taking part, you should contact the Principal Investigator Dr. Owen Mugurungi who can be reached at

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If you decide to leave the survey, no more information will be collected from you. However, we will not be able to take back the information that has already been collected and shared.

COSTS FOR BEING IN THE SURVEY: There is no cost to you or payment from you for being in the survey. You should also know also know that you will not be paid to be in the survey.

If you have any questions about your rights as a participant in this survey you can contact:

Dr. Paul Ndebele
Medical Research Council of Zimbabwe (MRCZ)
Josiah Tongogara Ave/ Mazoe Street, P.O. Box CY 573, Causeway, Harare, Zimbabwe
Tel: +2634791792/791193/792747
Email: mrcz@mrcz.org.zw

Do you want to ask me anything about the survey?

Consent Statement

I have read this form and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions that I had have been answered satisfactorily. I know that after choosing to be in this survey, I may withdraw at any time. My participation is voluntary. I have been offered a copy of this consent form.

1. 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 will NOT give blood for HIV testing and related testing.

_____Yes _____No
(if "Yes" proceed to the next question)

2. Do you agree to have your leftover blood stored for future research? 'YES' means that you agree to have these blood samples stored for future research. 'NO' means that these blood samples will NOT be stored for future research.

_____Yes _____No

Participant signature or mark_____ Date:___/___/___

Printed name of participant_____

Participant ID number_____

[For illiterate participants]

Signature of witness_____ Date:___/___/___

Printed name of witness_____

Signature of person obtaining consent_____ Date:___/___/___

Printed name of person obtaining consent_____

Survey staff ID number_____

Interviewer reads:

What language do you prefer to use for this discussion?

___English

___Shona

___ Ndebele

___Other Language

Hello. My name is_____. I would like to invite you to take part in a research study/survey. Surveys are a way to learn about things by talking to a group of people.

This form talks about the survey. You have a choice to take part in it. I want you to ask me any questions that you have. You can ask questions any time.

Why are we doing this survey?
We are doing this survey to learn more about the health of children in Zimbabwe. We plan to ask thousands of children like you to join. We would like to invite you to join this survey. Your parent/guardian said it was okay for us to ask you to join the survey.

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

What would happen if I join this survey?
If you decide to join the survey, here is what would happen:

- We will use a needle to take some of your blood. Then we will check on your health by doing a blood test for HIV here in your home.
- If you have HIV, we will measure how well your blood can fight HIV and other infections. We can do this test here in your home. We will also measure this in the blood of some people without HIV.
- 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 for a long time but your name will be on it for only three years. We will try to tell your parents/guardians about any test results during the three year period that are important to your health.

Could bad things happen if I join this research?
The needle may hurt a little bit when it is put into and taken out of your arm. This will go away after a short time. Sometimes the needle can leave a bruise on the skin. You might bleed a little or feel a little dizzy afterwards. Rarely, an infection might occur where the needle enters the skin. And sometimes we may have to stick you with the needle more than one time in order to get the right amount of blood. We will do our best to make it hurt as little as possible. We will do everything we can to keep your information private. However, we cannot promise complete confidentiality.

Could being in the survey help me?
This research might help you. If your parent/guardian finds out that you are HIV positive, we will tell them where to take you for medical care. We hope to learn about HIV health care needs in this survey. And we hope it will help other children in Zimbabwe in the future.

Is there anything else to know?

If you don't want to be in the survey, you don't have to be.

It is also okay to say 'yes' and change your mind later. You can stop being in the survey at any time. If you want to stop, please tell us.

We will not tell other people that you are in this survey and will not share information about you to anyone who does not work on the survey. Any information about you will have a number on it instead of your name.

You should also know that you will not be paid to be in the survey.

You can ask questions any time. Please, ask us any questions you have.

Do you want to ask me anything? Is there anything else?

If you do not want to be in this survey, just say so, and do not sign this form.

If you want to get an HIV test and give your blood for research after we talk, please write your name below. We will write our name too. This shows we talked about the survey and what you decide about taking part.

1. 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 will NOT give blood for HIV testing and related testing.

_____Yes _____No
(if "Yes" proceed to the next question)

2. Do you agree to give your blood for future research? 'YES' means that you agree to have these blood samples stored for future research. 'NO' means that these blood samples will NOT be stored for future research.

_____Yes _____No

Child signature or mark _____ Date:____/ ___/___

Printed name of child_____

Child's participant ID number_____

Printed name of parent/guardian_____

[For illiterate child]

Signature of witness_____ Date:___/___/___

Printed name of witness_____

Signature of person obtaining assent_____ Date:____/___/___

Printed name of person obtaining assent_____

Survey staff ID number_____

Interviewer reads:

What language do you prefer for our discussion today?

___English

___Shona

___Ndebele

___Other Language: Specify_____

Title of Survey: Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA)

Now I would like to ask you if your son/daughter can take part in the research study/ survey.

Survey Procedures
If you agree to allow your child (ages 2-6) to take part in the survey, a trained nurse will take about one teaspoon or about 5 mL of blood from your child's arm and perform an HIV test here in your home. 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. If your child is less than 2 years, we will take only a few drops (about 1 mL) from your child's finger or heel. We will give you the test results today. We will provide counseling about the results and discuss with you how to share the results with your child. The entire testing and counseling session will take about 40 minutes.

If your child tests positive for HIV, we will also test the amount of CD4 cells in his/her blood and give you the result today to take to the clinic. The CD4 count test shows how well your child's body is able to fight diseases. We will also test the CD4 level of some people without HIV.

If your child tests positive for HIV, we will also send his/her blood to a laboratory to measure his/her viral load. Viral load is the amount of HIV in the blood. Parents can get their children's viral load results at a health facility in six to eight weeks from now. You will be able to talk to a doctor/nurse at the facility about the test result.

Some of your child's blood may be sent to a laboratory out of the country for some additional tests related to HIV because there are no laboratories in Zimbabwe that can do these tests. If we have test results that might guide your child's treatment, and if you provide your contact information, we will contact you to tell you how you and your child's doctor or nurse may get these results.

We would also like 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 Zimbabweans, such as nutrition or immunization. This sample will be stored for an indefinite amount of time but your child's 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 for your child's health. Your child's leftover blood will not be sold or used for commercial reasons. If you do not agree to long-term storage of your child's blood samples, we will destroy your child's blood samples after survey-related testing has been completed.

[For children ages 0-18 months only]
The body makes antibodies to fight HIV. Antibodies from a mother with HIV can enter the baby's blood during pregnancy. The test we perform on your child today will let us know if your child is exposed to HIV. If it is positive, it does not mean your child has the virus in his/her blood. It just confirms that he/she has been exposed to HIV. We will need to send your child's blood to a lab for a special test to confirm if he/she has the HIV infection. If you provide us with the name of a health facility, we can send the result there in about six weeks from now. We will also contact you to inform you that the results have been sent to the facility, if you provide us with your contact information. You will be able to talk to a doctor or nurse at the facility about the test result.

[For children 0-5 years only]
If your child test positive for HIV, we will also measure your child's weight and height to track your child's growth and monitor their health. We will also measure weight and height for some children without HIV. The results will be returned to you and you will be able to talk to a doctor or nurse at the facility about the result.

Right to refuse or withdraw
It is your decision about whether you will allow your child to join the survey. Your child does not have to be in the survey. You may stop participation at any time. If you do want your child to take part, it will not affect your child's healthcare in any way. You may agree to let us test your child for HIV and CD4 counts and not agree to have his/her blood stored for future research tests.

Risks
The risks to giving blood are small. There may be some pain from the needle stick or bruising, lightheadedness, and bleeding. Rarely, there may be an infection where the needle enters the skin. You may learn that your child is infected with HIV. Learning that your child has HIV may cause some emotional discomfort. You will decide when your child should be told of the test result. We will provide counseling on how to cope with learning that your child has HIV and how to talk to your child about it. We will do everything we can to keep your child's information private. However, we cannot promise complete confidentiality.

Benefits
The main benefit to your child from being in the survey is the chance to learn more about his/her health today. Some children who participate will test HIV-positive. If this happens to your child, the benefit is that you will learn his/her HIV status and will learn where to take your child for care and treatment.
Care and treatment provided by the Ministry of Health and Child Care is free. If you already know your child has HIV and your child is not on treatment, you will get information to help your child's doctor/nurse determine if your child is ready to start treatment. If you already know that your child is HIV-positive and he/she is on treatment, the tests may help your child's doctor/nurse judge how well the treatment is working. Your child's taking part in this survey may help us learn more about children and HIV in Zimbabwe. It may also give us information we can use to improve HIV prevention and treatment services.

Confidentiality and Access to Your Health Information
We will do everything we can to keep your child's participation in the survey confidential. Your child's name and the consent forms will be kept separate from their health information. The information we collect from your child will be identified by a number and not by your name or your child's name. Your name and your child's name will not appear when we share survey results. Only people working on the survey will have access to the data during the survey.

The following individuals and/or agencies will be able to look at your child's research records to help oversee this survey:

- Survey staff and survey monitors
- The U.S. 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 participant in this survey.
- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your child's rights as a participant. These include, the Medical Research Council of Zimbabwe (MRCZ), Research Council of Zimbabwe (RCZ), and the Institutional Review Boards at the Centers for Disease Control and Prevention, Columbia University Medical Center and Westat (a statistical survey research organization).

The information we collect from your child will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your child's name and contact information with the groups above will expire three years after the end of the survey. Your child can leave the survey at any time for any reason. If you want your child to leave the survey, have additional questions about the survey, or feel that your child has been harmed by taking part, you should contact the Principal Investigator Dr. Owen Mugurungi who can be reached at

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If you or your child decides that he/she should leave the survey, no more information will be collected from him/her. However, we will not be able to take back the information that has already been collected and shared.

COSTS FOR BEING IN THE SURVEY: There is no payment to you for your child to be in the survey. You should also know that you and your child would not be paid for your child to be in the survey.

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Josiah Tongogara Ave/ Mazoe Street, P.O. Box CY 573, Causeway, Harare, Zimbabwe
Tel: +2634791792/791193/792747
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Do you want to ask me anything about your child's participation in the survey?

Consent Statement
I have read this form and/or someone has read it to me. I was encouraged to ask questions and given time to ask questions. Any questions I had have been answered satisfactorily. I agree for my child to take part in this survey. I know that after allowing my child to participate, I may change my mind and withdraw him/her from taking part in this survey without negative consequences. I have been offered a copy of this consent form.

1. Do you agree for us to collect your child's blood for HIV testing and related testing. 'YES' means that you give your permission for the nurse collect a sample of your child's blood for HIV testing and related testing. 'NO' means that we will NOT collect your child's blood for HIV testing and related testing.

_____Yes _____No
(if "Yes" proceed to the next question)

2. Do you agree for us to have his/her leftover blood stored for future research. 'YES' means that you give permission to store your child's blood sample to be stored for future research. 'NO' means that you do NOT give us permission to store his/her blood samples for future research.

_____Yes _____No

Parent/guardian signature or mark_____ Date:___/___/___

Printed name of parent/guardian_____

Parent/guardian ID number_____ (if applicable, if not applicable check here _____)

Relationship to Child:_____

[For illiterate participants]

Signature of witness _____ Date:___/___/___

Printed name of witness_____

Signature of person obtaining consent_____ Date:___/___/___

Printed name of person obtaining consent_____

Survey staff ID number_____

Child's name (print)_____

Child's participant ID number_____

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