Mozambique Population-based HIV Impact Assessment 2021

(INSIDA 2021)

FINAL REPORT
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GLOSSARY OF TERMS

95-95-95: Treatment targets proposed by the Joint United Nations Programme on HIV and AIDS (UNAIDS) to help end the AIDS epidemic. The targets for 2025 are that 95% of all people living with HIV will know their HIV status; 95% of all people with diagnosed HIV will receive sustained antiretroviral therapy (ART); and 95% of all people receiving ART will achieve viral load suppression (VLS).

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

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

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

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

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

Coronavirus disease 2019 (COVID-19): An illness caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a virus that can be spread from person to person. The ongoing pandemic caused by COVID-19 has caused millions of deaths, led to major societal and economic disruptions, and profoundly strained health systems across the globe.

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

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

Head of Household: The person who is recognized within the household as being the head and is aged 18 years or older or is considered an emancipated minor (an individual aged 15-17 years who is or has been married, pregnant, lives alone or is head of a household as defined by law in Mozambique).

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

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

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

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

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

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

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

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

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

Population Viremia: Population viremia is the prevalence of unsuppressed viral load (defined here as ≥ 1,000 copies/mL) among the entire population, irrespective of HIV status. The numerator is the number of people with unsuppressed viral loads, and the denominator is the entire population tested. Subnational areas with higher population viremia could be at risk of higher incidence.

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

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

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

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

Young People: In this report, individuals aged 15-24 years are defined as young people. By sex, this includes older adolescent girls aged 15-19 years and young women aged 20-24 years, and older adolescent boys aged 15-19 years and young men aged 20-24 years.

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ALTC	Active Linkage to Care
ANC	Antenatal Care
ART	Antiretroviral Therapy
ARV	Antiretroviral
CA	Control Areas
CAP/CTM	COBAS® AmpliPrep/COBAS® TaqMan®
CBO	Community-Based Organization
CDC	US Centers for Disease Control and Prevention
CD4	CD4+ T cell
CI	Confidence Interval
DBS	Dried Blood Spot
DTS	Dried Tube Specimens
DU	Dwelling Unit
EA	Enumeration Area
HBTC	Home-Based Testing and Counseling
HIV	Human Immunodeficiency Virus
LAg	Limiting Antigen
mL	Milliliter
µL	Microliter
MOH	Ministry of Health
MOS	Measure of Size
INSIDA 2021	Mozambique Population-based HIV Impact Assessment 2021

MTCT	Mother-to-Child Transmission
NAC	National AIDS Commission
ODn	(normalized) Optical Density
PCR	Polymerase Chain Reaction
PEPFAR	US President's Emergency Plan for AIDS Relief
PHIA	Population-based HIV Impact Assessment
PMTCT	Prevention of Mother-to-Child Transmission
PrEP	Pre-Exposure Prophylaxis
PSU	Primary Sampling Unit
QA	Quality Assurance
QC	Quality Control
RR	Response Rate
SMS	Short Message Service
SSU	Secondary Sampling Unit
TB	Tuberculosis
TNA	Total Nucleic Acid
UNAIDS	Joint United Nations Programme on HIV and AIDS
VLS	Viral Load Suppression
VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organization

FOREWORD

It is with great satisfaction that we present the results of the Mozambique Population-based HIV Impact Assessment (PHIA), INSIDA 2021. This is the third population-based countrywide survey to monitor key indicators of the HIV epidemic and progress towards disease control, including indicators of prevention, care, access to services, and socio-behavioral aspects across all social strata and provinces of Mozambique. The first and second population-based countrywide surveys to monitor key indicators of the HIV epidemic were conducted in 2009 and 2015, respectively. The need to update key indicators related to HIV led the Mozambique National Institute of Health and partners to implement this third survey, with the vision of producing the statistical information required to support evidence-based decision making.

The information contained in this report is important as it provides a snapshot of country progress towards controlling the HIV epidemic, as well as highlighting opportunities for program improvement. The survey was designed to provide estimates of HIV incidence, prevalence, and viral load suppression, as well as indicators of drug resistance and of presence of antiretroviral drugs in the blood. Additionally, INSIDA collected data on indicators to measure progress toward the Joint United Nations Programme on HIV/AIDS (UNAIDS) 95-95-95 goals:

- 95% of people living with HIV know their status
- 95% of those who know their status are on antiretroviral therapy, and
- 95% of those on antiretroviral therapy have suppressed viral load.

We hope the findings contained here will inform new intersectoral and health policies and allow the government and partners to improve Mozambicans' quality of life by tailoring health interventions to the needs of the population. We recognize that while great strides have been made in the fight against HIV/AIDS, as evidenced in this report, the challenges posed by the HIV pandemic are still enormous.

This report is the result of many months of hard work, from technical, administrative, and logistic preparation to implementation, including training, field data collection, data processing, laboratory testing, and analysis of the indicators presented here.

First, we would like to acknowledge the financial assistance from the United States Government (USG) through PEPFAR and the support from the Government of Mozambique that made it possible to implement this survey.

We express our gratitude to the Ministry of Health, the National AIDS Council (CNCS), and the National Institute of Statistics for their close collaboration, as well as to ICAP at Columbia University and CDC for their technical assistance throughout the survey. We express our heartfelt thanks for the assistance of the Provincial and District Health Services and Directorates, Health Units, and local and community authorities that facilitated survey field implementation.

We also acknowledge and congratulate all professionals from the various institutions, supervisors, interviewers, health technicians, drivers, and activists whose participation was indispensable for this survey.

We recognize the valuable contributions of the members of the National Executive Steering Committee, Technical Working Groups, and Data Analysis Advisory Committee for their contributions to the success of the survey and the finalization of this report.

Finally, on behalf of the Government of Mozambique, we are grateful to all the families and households selected to participate in the survey who gave their valuable time and provided the information to compile this report, without whose collaboration and support the survey would not have been possible.

Dr. Eduardo Samo Gudo
Principal Investigator, INSIDA 2021
General Director, INS

PREFACE

The Mozambique Population-based HIV Impact Assessment (PHIA), INSIDA 2021 was a household-based national survey conducted between April 2021 and February 2022 to measure the impact of the country's national and provincial HIV response. INSIDA 2021 offered HIV counseling and testing with return of results and collected information about uptake of HIV care and treatment services. In addition, the survey estimated national HIV incidence as well as the national and provincial HIV prevalence among adults (defined as individuals aged 15 years and older) and the prevalence of viral load suppression (VLS), defined as HIV RNA <1,000 copies per mL of blood among adults living with HIV. This was the third national HIV survey conducted in Mozambique after IMASIDA 2015 and INSIDA 2009. The results of these surveys provide information on national and provincial progress toward control of the HIV epidemic.

INSIDA 2021 was led by the Government of Mozambique through the National Institute of Health (Instituto Nacional de Saúde [INS]), in collaboration with the Ministry of Health (Ministério da Saúde [MISAU]), the National AIDS Council (Conselho Nacional de Combate ao HIV e SIDA [CNCS]), and the National Institute of Statistics (Instituto Nacional de Estatística [INE]). The survey was conducted with funding from the United States (US) President's Emergency Plan for AIDS Relief (PEPFAR) with technical assistance from the US Centers for Disease Control and Prevention (CDC), and ICAP at Columbia University. The implementation of INSIDA 2021 also included support from the Government of Mozambique and from the Provincial and District Health Services and Directorates, Health Units, and local and community authorities. The Government of Mozambique and national and international development partners participated in the National Executive Committee and Technical Working Groups during the survey development and implementation.

INSIDA 2021 used a four-stage probability sample design that first selected control areas (CAs) or primary sampling units (PSUs) within each of the country's 11 provinces, based on a national sample frame maintained by INE. In the second-stage sampling, enumeration areas (EAs) or secondary sampling units (SSUs) were randomly selected from each of the selected CAs, then in the third stage, a list of dwelling units was compiled. During the fourth stage, one household was selected from each sampled dwelling unit. After this sampling process, there were 311 EAs with an average of 35 households per EA except for Cabo Delgado province where an average of 58 households were selected per EA (Table 2.1). The key determinants of sample size and allocation of the sample SSUs and EAs to the 11 provinces were 1) to estimate province-level VLS among HIV-positive persons aged 15-49 years, 2) to estimate national-level HIV incidence among persons aged 15-49 years, 3) to estimate national-level VLS among HIV-positive persons aged 15-49 years and 4) to estimate national-level VLS among HIV-positive women aged 15-24 years. To reach the target sample size, the survey planned to enroll at least 14,980 eligible adults aged 15-49 years and 4,026 eligible adults aged 50 years and older.

Of 8,998 occupied eligible households, 96.5% completed a household interview (Table 2.2). Among 19,912 eligible adults aged 15 years and older (11,098 women and 8,814 men), a total of 17,105 adults participated in the individual interview. Among those interviewed, 72.7% (14,488: 8,255 women and 6,233 men) also had their blood drawn (Table 2.3).

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

Originally scheduled to begin in April 2020, the survey was performed under difficult circumstances at the start of the COVID-19 pandemic. Like many other nations, the Government of Mozambique instituted a series of policies to contain the potential spread of SARS-CoV-2. ICAP, CDC, and INS reached a decision in March 2020 to delay data collection.

During the delay, the project team continually monitored the COVID-19 situation in the country and worked with partners to develop guidelines for mitigating risk of COVID-19 transmission during survey implementation. These comprehensive guidelines prioritized the health and well-being of the team members, members of surveyed households, and the larger communities in which data collection took place (see COVID-19 mitigation, in Chapter 2).

Once the Government of Mozambique, INS, and its partners decided local conditions permitted, data collection began in April 2021, implementing precautions that allowed teams to safely go into communities with COVID-19. Data collection was completed in two waves The first wave, running from April to July 2021 included the provinces of Maputo City, Maputo Province, Gaza, Inhambane, Sofala, and Manica; and the second wave, running from September 2021 to February 2022 included the remaining five provinces. The waves were separated by additional field training.

EXECUTIVE SUMMARY

TOPLINE FINDINGS

- Mozambique's achievement of the UNAIDS conditional 95-95-95 targets was 71.6%-96.4%-89.4% (see next page).

- Prevalence of VLS among adults living with HIV in Mozambique was 64.1%: 67.1% among women and 58.8% among men.

- Annual incidence of HIV among adults in Mozambique was 0.43%: 0.61% among women and 0.24% among men.

- Prevalence of HIV among adults in Mozambique was 12.5% and was higher among women (15.0%) than among men (9.5%).

TOPLINE FINDINGS IN FOCUS

- Prevalence of VLS among adults living with HIV in Mozambique was 64.1%: 67.1% among women and 58.8% among men. Note that these estimates of VLS are among all adults living with HIV regardless of their knowledge of HIV status or use of antiretroviral therapy (ART) (Table 8.1).
- The prevalence of VLS varied considerably by province from a low of 42.5% in Cabo Delgado to a peak of 80.3% in Gaza. The VLS rates in Cabo Delgado, at 42.5% (95% CI: 27.7%-57.2%[*]), Nampula, at 47.9% (95% CI: 37.6%-58.3%[*]), and Sofala, at 51.4% (95% CI: 45.8%-57.1%[*]) were substantially lower compared to the rates in Maputo Cidade, at 69.3% (95% CI: 62.1%-76.5%[*]), Manica, at 71.8% (95% CI: 64.9%-78.6%[*]), Zambézia, at 74.5% (95% CI: 68.8%-80.2%[*]), Maputo Província, at 76.0% (95% CI: 67.6%-84.4%[*]), and Gaza, at 80.3% (95% CI: 69.9%-90.6%[*]) (Table 8.1, Figure 8.1.1 and 8.1.2).
- Annual incidence of HIV among adults (aged 15 years and older) in Mozambique was 0.43% (95% CI: 0.23%-0.63%), which corresponds to approximately 63,000 (95% CI: 34,000-93,000) new cases of HIV per year among adults. HIV incidence was 0.61% (95% CI: 0.29%-0.93%) among women and 0.24% (95% CI: 0.02%-0.46%) among men (Tables 5.1 and 5.2).
- Prevalence of HIV among adults in Mozambique was 12.5%, which corresponds to approximately 2,097,000 (95% CI: 1,938,000-2,256,000) people living with HIV. Prevalence of HIV was higher among women, at 15.0% (95% CI: 13.9%-16.1%[*]) than among men, at 9.5% (95% CI: 8.5%-10.6%[*]) (Tables 6.2 and 5.2).

Prevalence of HIV among adults in Mozambique was 12.5%, which corresponds to approximately 2,097,000 adults.

UNAIDS 95-95-95 TARGETS

UNAIDS set the 95-95-95 targets with the aim that, by 2025, 95% of all people living with HIV would know their status, 95% of those who were diagnosed would be on antiretroviral therapy (ART), and 95% of those who were on ART would have VLS.[†] Mozambique's progress towards achieving these targets is presented in two ways: the conditional 95-95-95 and the overall 95-95-95.

Adult 95-95-95, based on self-report and ARV detection in blood:

For the conditional 95-95-95, the denominator for the second and third 95 is the value of the preceding 95 (Figure 1, Table 9.1.B, and Figure 9.1):

- **Diagnosed:** In Mozambique, 71.6% of adults living with HIV were aware of their HIV-positive status: 73.3% of women and 68.5% of men.
- **On treatment:** Among those who were aware of their HIV-positive status, 96.4% were on ART: 97.5% of women and 94.3% of men.
- **With viral load suppression:** Among those aware of their status and on treatment, 89.4% had suppressed viral loads: 90.4% of women and 87.6% of men.

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* In this report, 95% CIs are presented whenever a comparison is made between two estimates to show that the intervals do not overlap. Note that these CIs are not always available in the table. See Chapter 2, section 6 for more information.

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

Figure 1

Conditional 95-95-95 Achievements Among Adults

| 71.6% | of adults living with HIV knew their HIV status | 96.4% | of those who were aware of their HIV status were on ART | 89.4% | of those who were on ART had viral load suppression |
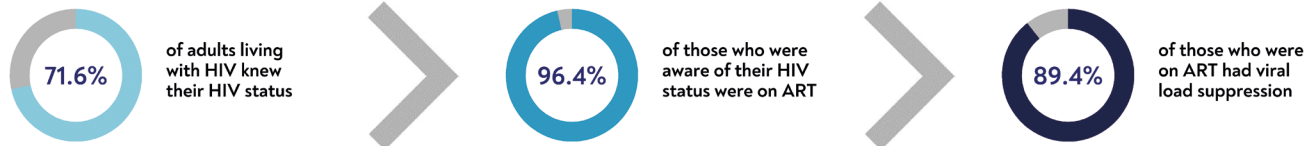
54% of young people living with HIV were aware of their HIV status.

For the overall 95-95-95, the denominator for all three 95s is the overall population of adults living with HIV in Mozambique (Table 9.1.A, Figure 9.1). Note that these estimates are based on the survey population for whom data on treatment status and viral load are available:

- **Diagnosed:** 71.6% of adults living with HIV were aware of their HIV-positive status: 73.3% of women and 68.5% of men.
- **On treatment:** Among all adults living with HIV in Mozambique, 69.0% were on ART: 71.4% among women and 64.6% among men.
- **On treatment with viral load suppression:** Among all adults living with HIV in Mozambique, 61.7% had achieved VLS on treatment: 64.5% among women and 56.6% among men.

(Please see chapter 9 for a full explanation of the differences between estimates of VLS among people living with HIV, and in the two 95-95-95 cascades).

Young people (ages 15-24 years)[*] 95-95-95, based on self-report and ARV detection in blood:

For the conditional 95-95-95 (Table 9.1.B):
- **Diagnosed:** 53.8% of young people living with HIV were aware of their HIV status: 56.4% among young women and 45.3% among young men.
- **On treatment:** Among all the young people living with HIV who were aware of their status, 97.7% were on ART: 97.1% among young women and 100.0% [†]among young men.
- **With viral load suppression:** Among all the young people living with HIV who were on ART, 79.1% had achieved VLS: 78.6% among young women and 80.9%[†] among young men.

For the overall 95-95-95 (Table 9.1.A):
- **Diagnosed:** 53.8% of all the young people living with HIV were aware of their HIV status: 56.4% among young women and 45.3% among young men.
- **On treatment:** 52.6% of all the young people living with HIV were on ART: 54.8% among young women and 45.3% among young men.
- **On treatment with viral load suppression:** 41.6% of all the young people living with HIV had achieved VLS on treatment: 43.1% among young women and 36.6% among young men.

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[*] The term "young people" includes older adolescents aged 15-19 years and young adults aged 20-24 years. Older adolescents are a distinct population of concern from young adults, but this report uses the terms "young women aged 15-24 years" and "young men aged 15-24 years" when young people are disaggregated by sex.

[†] This estimate was based on a denominator between 25 and 49 and should be interpreted with caution.

95-95-95 analyses among other subgroups :
- Achievement of the unconditional (overall) 95-95-95 targets was higher among women living with HIV aged 25-34 years than among men living with HIV in the same age group:
  - 74.5% (95% CI: 68.7%-80.3%*) versus (vs) 53.8% (95% CI: 42.1%-65.6%*) were diagnosed,
  - 73.1% (95% CI: 67.3%-78.9%*) vs 52.6% (95% CI: 40.9%-64.2%*) were on treatment, and
  - 66.6% (95% CI: 60.4%-72.8%*) vs 42.3% (95% CI: 30.7%-53.9%*) were on treatment with viral suppression (Table 9.1.A).

- At the provincial level, there was notable variation in achievement of the conditional 95-95-95 targets among adults aged 15 years and older. For instance, achievement of the first 95 (awareness of HIV status among people living with HIV) ranged from 53.2% in Cabo Delgado to 87.6% in Gaza. However, each of the provinces achieved the second 95 target (those who were aware of their HIV status who were also on treatment) except for Nampula, Cabo Delgado, and Inhambane which each came close, at 93.7%, 94.0% and 94.4%, respectively. In Gaza, 99.6% of those diagnosed were on treatment. However, achievement of the third 95 target of VLS among those on ART varied widely, ranging from 76.5% in Cabo Delgado up to 100.0% in Niassa (Table 9.3.B).

OTHER KEY FINDINGS

Household characteristics
- In Mozambique, 21.6% of households had at least one HIV-positive member. There was at least one HIV-positive member in 18.6% of rural households, and 27.4% of urban households (Table 3.4 and Figure 3.4).
- Among all households, 16.9% were headed by a person living with HIV: 22.1% of female-headed households, and 13.5% of the male-headed households (Table 3.5 and Figure 3.5).

Survey respondent characteristics
- More than one-third (36.6%) of the survey respondents were young people aged 15-24 years, while only 16.9% were aged 50 years and older (Table 4.1).

HIV incidence
- Annual HIV incidence among adults aged 15 and older was 0.43% (95% CI: 0.23%-0.63%) (Table 5.1).
- Annual HIV incidence among adults aged 15-49 years was 0.48% (95% CI: 0.25%-0.71%): 0.72% (95% CI: 0.34%-1.10%) among women and 0.23% (95% CI: 0.00%-0.47%) among men (Table 5.1).
- The annual HIV incidence among young people aged 15-24 years was 0.50% (95% CI: 0.15-0.85%). It should be noted, however, that the survey was not powered to generate estimates with confidence among subgroups smaller than the population aged 15-49 years (Table 5.1).

HIV prevalence
- HIV prevalence by province among adults aged 15 years and older ranged from 7.9% to 20.9%. HIV prevalence was markedly higher in Maputo Província, at 15.4% (95% CI: 13.3%-17.5%*), Maputo Cidade, at 16.2% (95% CI: 13.7%-18.7%*), Zambézia, at 17.1% (95% CI: 13.0%-21.2%*), and Gaza, at 20.9% (95% CI: 16.7%-25.0%*) than in Manica, at 7.9% (95% CI: 6.0%-9.8%*), Niassa, at 8% (95% CI: 5.3%-10.7%*), Tete, at 8.4% (95% CI: 6.7%-10.1%*), and Nampula, at 10.0% (95% CI: 7.4%-12.8%*) (Table 6.2, Figure 6.2.1, and Figure 6.2.2).

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* In this report, 95% CIs are presented whenever a comparison is made between two estimates to show that the intervals do not overlap. Note that these CIs are not always available in the table. See Chapter 2, section 6 for more information.

In Mozambique, 21.6% of households had at least one HIV-positive member.

Among adults, 59.4% reported they had ever received an HIV test, with a higher percentage among women than among men.

44.5% of young people aged 15-24 years had a suppressed viral load.

- HIV prevalence in women and men was 14.2% in urban areas and 11.4% in rural areas. Among women, HIV prevalence was higher among those residing in urban areas (17.7% [95% CI: 15.9%-19.4%]) compared to those residing in rural areas (13.4% [95% CI: 11.7%-15.1%]) (Table 6.2).
- HIV prevalence in women and men was highest in the 40-44-year age group (21.7%) and varied by sex and age. Prevalence varied from 4.5% among adolescent girls aged 15-19 years to 26.6% among women aged 35-39 years, and from 1.6% among adolescent boys aged 15-19 years to 19.6% among men aged 40-44 years (Table 6.3, Figure 6.3).
- HIV prevalence among adults aged 15 years and older with higher education (7.8% [95% CI: 4.6%-11.0%*]) was roughly half that of those with no formal education (13.2% [95% CI: 11.4%-15.0%*]), and those with primary level education (13.3% [95% CI: 12.0%-14.7%*]) (Table 6.2).
- On the other hand, adult HIV prevalence was lower among those in the two lowest wealth quintiles, at 9.1% (95% CI: 7.2%-11.0%) in the lowest and 8.5% (95% CI: 6.8%-10.3%) in the second lowest compared to the remaining quintiles: 13.9% (95% CI: 11.9%-16.0%) in the medium, 15.8% (95% CI: 13.9%-17.7%) in the fourth, and 13.7% (95% CI: 12.1%-15.3%) in the highest (Table 6.2).

HIV testing, diagnosis, and treatment status
- Among adults, 59.4% reported they had ever received an HIV test, with a higher percentage among women, 64.8% (95% CI: 62.7%-66.9%*), than among men, 53.6% (95% CI: 51.2%-55.9%*). By 5-year age group, the highest rate of ever testing for HIV peaked at 76.8% among adults aged 30-34 years. Among the youngest (ages 15-19 years) and oldest (ages 65 years and older) groups, 36.6% and 30.3%, respectively reported that they had ever tested for HIV (Table 7.1.A-C).
- Among adults aged 15 years and older, 31.3% reported being tested for HIV in the 12 months prior to the survey (Table 7.1.A-C).
- Among adults aged 15 and older who did not report HIV-positive status, 29.8% reported being tested in the 12 months before to the survey, with a higher percentage among women, 34.2% (95% CI: 32.4%-35.9%*), than among men, 25.3% (95% CI: 23.5%-27.2%*). With respect to age group, this proportion ranged from 10.5% among those aged 65 years and older, up to 41.0% among those aged 25-29 years (Table 7.1.A-C, Figure 7.1.2).
- The percentage of adults aged 15 years and older who reported they were not HIV positive and who were tested in the last 12 months before the survey ranged from 17.8% in Nampula, to 42.3% in Maputo Province. By residence, the percentage was higher in urban areas (38.7% [95% CI: 35.6%-41.7%*]) than in rural areas (24.4% [95% CI: 22.5%-26.4%*]) (Table 7.1.A-C).
- The percentage of adults who reported they were HIV negative and who were tested in the past 12 months increased according to educational level, from 17.8% (95% CI: 15.6%-19.9%*) among those with no educational level to 57.9% (95% CI: 53.2%-62.5%*) among those with higher education (Table 7.1.A-C).
- The percentage who reported they were HIV negative and who were tested in the past 12 months was low among widowers at 15.3% (Table 7.1.A-C).
- Among adults who tested HIV positive in the survey, 28.4% were unaware of their HIV status based upon self-report adjusted for detection of ARVs in blood: 26.7% among women and 31.5% among men. Among young people aged 15-24 years, 46.2% of those who tested positive were unaware of their status, based upon self-report adjusted for detection of ARVs in blood (Tables 7.2.A-C).

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* In this report, 95% CIs are presented whenever a comparison is made between two estimates to show that the intervals do not overlap. Note that these CIs are not always available in the table. See Chapter 2, section 6 for more information.

- Among the adults aged 15 years and older who tested HIV positive in the survey, 23.4% who said they were not previously diagnosed had ARVs detectable in their blood. Similarly, 14.5% of those who said they knew they were HIV positive, but were not yet taking ART, had ARVs detectable in their blood. Among those who reported being previously diagnosed and on ART, 11.5% had no ARVs present in their blood (Table 7.3.C).

Viral load suppression among all adults living with HIV

- Comparing 10-year age groups, young people aged 15-24 years had a lower prevalence of VLS at 44.5% (95 % CI: 37.6%-51.4%[*]) than older adults including adults aged 25-34 years, at 60.1% (95% CI: 54.6%-65.7%[*]). Both age groups had a lower prevalence of VLS than adults aged 45-54 years, at 74.2% (95% CI: 68.2%-80.2%[*]), which was similar to the other older age groups (Table 8.2).
- Among all adults living with HIV, 58.6% had viral load below 200 copies/mL: 62.3% in women and 52.0% in men (Table 8.4).
- Population viremia, which measures the amount of HIV in the community (the proportion among all the adults aged 15 years and older irrespective of HIV status with *unsuppressed* viral load [≥1,000 HIV RNA per mL])—see chapter 8), in Mozambique was 4.5%. By province, population viremia ranged from 2.2% in Manica up to 6.4% in Sofala (Table 8.3, and Figure 8.3).
- Based on self-report and ARV detection, 82.6% of those who knew they were HIV positive and taking ART had viral loads below 200 copies/mL (Table 8.4).
- Among all adults living with HIV who reported they were receiving HIV care, 59.5% said that they had ever had a viral load test, and among those, 61.9% reported that they had received the results of their last viral load test (Table 8.5).
- Reported access to viral load testing varied by province, ranging from 34.5% in Sofala up to 81.2% in Maputo Cidade (Table 8.5).

Clinical perspectives on people living with HIV

- The median CD4 count among adults living with HIV was 515 cells/microliter (µL): 567 cells/µL among women and 442 cells/µL among men (Table 10.1).
- Among adults living with HIV, CD4 count varied depending on awareness of HIV status and treatment status. The median CD4 count was 435 cells/µL among those who were unaware of their status, 314 cells/µL[†] among those who were aware of their status but not on ART, and 551 cells/µL among those who were aware of their status and on ART (Table 10.1 and Figure 10.1).
- Among adults that were diagnosed with HIV in the survey for the first time based on self-report (and the absence of ARVs in the blood), 23.9% had a CD4 between 200-349/µL and 14.1% had advanced HIV disease (less than 200 CD4 cells/µL) (Table 10.2).
- Based upon self-report, 97.9% of all adults living with HIV who had started on ART were still taking it: 98.5% among women and 96.7% among men (Table 10.3).

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

- Among women of childbearing age (ages 15-49 years, henceforth referred to as women in this section) who delivered a child in the 3 years before the survey, 90.3% reported attending at least one antenatal care (ANC) visit for their most recent birth (Table 11.1).

97.9% of all adults living with HIV who had started on ART were still taking it.

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[*] In this report, 95% CIs are presented whenever a comparison is made between two estimates to show that the intervals do not overlap. Note that these CIs are not always available in the table. See Chapter 2, section 6 for more information.

[†] This estimate is based upon a denominator between 25 and 49 and should be interpreted with caution.

90.3% of women who delivered a child in the 3 years before the survey attended at least one ANC visit for their most recent birth.

- Based on self-report, among women who delivered in the 12 months before the survey, 72.3% knew their HIV status: 6.3% already knew they were HIV positive, 63.6% reported that they had tested HIV-negative, and 2.4% reported that they had tested HIV positive during ANC testing (Table 11.2 and Figure 11.3).
- Among women living with HIV and aware of their HIV status who delivered in the 12 months before the survey, 95.9% reported that they took ART to reduce mother-to-child transmission: 66.6% reported that they were already on ART before becoming pregnant, and 29.4% reported that they started ART during pregnancy (Table 11.3 and Figure 11.3).
- Among women who delivered in the three years before the survey, 1.5% reported that they had never breastfed their last child: 0.9% among HIV-negative women, and 5.5% among women living with HIV (Table 11.4).
- During the survey period, 90.4% of children aged 0-1 months and 43.3% of children aged 18-23 months were breastfeeding (Table 11.4).
- Among women living with HIV who delivered within the 3 years before the survey, 26.0% reported that their infant had an HIV test before they were 2 months of age, while 47.1% reported that their infant had an HIV test when they were between 2 and 12 months of age (Table 11.5).
- At the time of the survey, among women living with HIV of childbearing age, 73.9% of those who were breastfeeding had suppressed viral loads. Among those that were pregnant, 61.1% had suppressed viral loads (Table 11.6 and Figure 11.6).

HIV risk factors and prevention interventions
- Adults aged 15 years and older who reported having more than one lifetime sexual partner had a higher prevalence of HIV (14.7% [95% CI: 13.6%-15.9%*]) than those who reported only having one lifetime partner (8.4% [95% CI: 7.2%-9.7%*]) (Table 12.2).
- The percentage of adults who reported that they had sexual intercourse before the age of 15 (early sexual debut) was 15.4% among women and 15.9% among men (Tables 12.1).
- Among young people aged 15-24 years, 18.9% reported having had sexual intercourse before the age of 15 years: 16.3% of young women and 21.6% of young men (Table 12.3).
- Among young women aged 15-24 years, a number of variables were related to early sexual debut, including residence, province and education:
  o The percentage that reported early sexual debut was smaller among young women living in urban settings (10.9% [95% CI: 8.4%-13.5%*]) than in rural areas (20.6% [95% CI: 16.6%-24.6%*]).
  o The percentage of self-reported early sexual debut varied by province, with lower values in Maputo Cidade and Manica, at 4.6% (95% CI: 2.4%-6.8%*), and 7.2% (95% CI: 4.6%-9.8%*), respectively, when compared to Niassa, at 16.6% (95% CI: 11.8%-21.3%*), Nampula, at 19.1% (95% CI: 12.8%-25.4%*), Zambézia, at 22.7% (95% CI: 10.2%-35.2%*), and Cabo Delgado, at 40.7% (95% CI: 28.2%-53.2%*).
  o Early sexual debut was also more common among young women who had no formal education or who had only attended primary school, at 29.6% (95% CI: 21.3%-37.8%*) and 21.2% (95% CI: 17.1%-25.3%*), respectively, than those who attended secondary school, at 8.8% (95% CI: 7.0%-10.5%*) and who had more than a secondary education, at 1.2% (0.0%-3.9%*) (Table 12.3).

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- Among adults aged 15 years and older who reported that they had sex in the 12 months before the survey, 38.8% reported that they had sex with a nonmarital, noncohabiting partner, 32.0% among women and 46.0% among men. Among these, 36.4% of women and 47.0% of men, reported that they had used a condom the last time they had sex with such a partner (Tables 12.4.A-C and Figure 12.4).
- Among adults who were sexually active in the 12 months before the survey, sex reported with a nonmarital, noncohabiting partner and condom use with such a partner varied by age, residence, province, education, and wealth:

  o The percentage of adults who had sex with a nonmarital, noncohabiting partner was 50.5% (95% CI: 47.3%-53.8%*) in urban settings compared to those living in rural settings, at 31.5% (95% CI: 29.7%-33.2%*). The use of condoms the last time they had sex with such a partner was 54.4% (95% CI: 50.9%-57.9%*) in urban areas vs 30.5% (95% CI: 27.4%-33.6%*) in rural areas.
  o The percentage of adults who had sex with a nonmarital, noncohabiting partner ranged from 26.1% in Manica up to 61.7% in Maputo Cidade, while the proportion who reported condom use the last time that they had sex with such a partner ranged from 17.8% in Cabo Delgado up to 59.8% in Maputo Cidade.
  o The percentage of adults who had sex with a nonmarital, noncohabiting partner varied according to the level of education, from 22.2% among those with no formal education up to 57.7% among those who had attended secondary school. The percentage who reported condom use the last time they had sex with such a partner ranged from 14.1% among those with no formal education up to 58.6% among those who had attended secondary school. Among women, only 9.5% of those with no formal education reported that a condom was used the last time they had sex with a nonmarital, noncohabiting partner (Tables 12.4.A-C).
- Among men aged 15 years and older, 39.9% reported they had a medical circumcision, 33.2% had a nonmedical circumcision, and 26.8% were uncircumcised. Among young men aged 15-24 years, 54.1% had a medical circumcision and 25.8% had a nonmedical circumcision (Table 12.5).
- In many provinces where there was a low prevalence of medical circumcision among men aged 15 years and older, there was a high prevalence of nonmedical circumcision, such as in Niassa, where 18.3% reported they had a medical circumcision and 76.9% reported that they had a nonmedical circumcision (Table 12.5).
- In the seven provinces where there has been a focus on voluntary medical male circumcision (VMMC) because male circumcision is not practiced culturally among the general population,[†] the proportion of men reporting that they were uncircumcised ranged from 18.6% in Maputo Província to 72.2% in Tete (Table 12.5).
- Among the men who tested positive for HIV in the survey, 38.5% were uncircumcised, 27.4% had medical circumcision, and 34.1% had non-medical circumcision (Table 12.5).
- INSIDA 2021 also assessed awareness of pre-exposure prophylaxis (PrEP) and the willingness of men and women to take it. Among adults, 7.1% reported that they had heard of PrEP before the survey: 6.6% among women, and 7.6% among men. There was some variation by residence, from 5.1% in rural areas up to 10.2% in urban settings (Table 12.6).

Among young people, 18.9% reported having had sexual intercourse before the age of 15 years.

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† The four provinces where MC is a cultural practice among the general population are Cabo Delgado, Niassa, Nampula, and Inhambane. Ministério da Saúde (MS), Direcção Nacional da Assistência Médica (DNAM). Programa Nacional de Circuncisão Masculina : Plano Estratégico 2018-2021. Maputo : MS/DNAM ; 2018.

20.9% of women reported that they had been screened for cervical cancer.

- Among HIV-negative adults who reported they had previously heard of PrEP but had never taken it, 85.1% said that they would be willing to take it: 86.3% among women and 84.0% among men. Among HIV-negative adults who had not previously heard of PrEP until they learned about it during the survey interview, 70.4% said that they would be willing to take it. Among HIV-negative adults who had heard of PrEP before the survey, 21.1% reported that they had taken it: 16.1% of women and 25.2% of men (Tables 12.7 and 12.8).

Tuberculosis, cervical cancer screening, and other chronic conditions
- Among women aged 15 years and older living with HIV, 20.9% reported that they had ever been screened for cervical cancer, and among these, 8.6% reported that they had received an abnormal result (Table 13.1, Figure 13.1).
- The percentage of women living with HIV that reported having been screened for cervical cancer varied by residence: 14.9% (95% CI: 11.5%-18.3%[*]) in rural areas vs 28.2% (95% CI: 22.5%-33.9%[*]) in urban settings. By province, this percentage ranged from 7.0% in Inhambane up to 42.9% in Maputo Cidade (Table 13.1).
- Of note, in Gaza, where 26.3% of women living with HIV reported receipt of cervical cancer screening, 19.9% of these women reported that they received an abnormal result (Table 13.1).
- Among HIV-negative adults, 6.6% reported having been previously told by a health worker that they had high blood pressure, while among adults living with HIV, 11.7% reported having been told they had high blood pressure (Table 13.2).
- Among adults who reported that they attended a tuberculosis (TB) clinic in the 12 months before the survey, 55.9% reported that they were tested for HIV during the visit, and 3.1% reported that they already knew they were HIV positive, but 41.0% reported that they were not tested for HIV and did not know their status (Table 13.3 and Figure 13.3).
- Among adults living with HIV, 8.5% reported that they had visited a TB clinic in the 12 months before the survey and among those, 43.4% said they received a TB diagnosis. Among those who were diagnosed with TB, 88.2% said that they were treated for TB during that period (Table 13.4).
- Among adults living with HIV, 46.1% reported that they had been screened for the symptoms of TB during their last HIV-related visit to a health facility (Table 13.5 and Figure 13.5).

GAPS AND UNMET NEEDS

In Mozambique, 1 out of 5 households had a member living with HIV. Additional efforts are needed to reach the UNAIDS targets for ending the epidemic by 2030.
- Women were more affected by HIV. For every 100 adult women, 15 were living with HIV, while for every 100 men, approximately 10 were living with HIV. Meanwhile, women were the ones who sought out the most HIV diagnostic, care, and treatment services.
- Among all adults living with HIV, 64% had VLS and this percentage was markedly lower in Cabo Delgado, Nampula, and Sofala provinces. Notably, in Mozambique, approximately 60% of adults living with HIV reported having already had a viral load test, and this percentage was below 50% in Sofala, Manica, and Cabo Delgado.
- Once aware of their HIV-positive status (based on self-report or having an ARV detectable in their blood), 96% of adults living with HIV were on treatment. However, treatment coverage among all adults living with HIV was 69%, highlighting a gap in achieving universal treatment coverage. Possible explanations for this gap could include low rates of diagnosis or that some

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people were previously diagnosed but did not report knowledge of their status. This latter group could include people who were either not effectively linked to care when initially diagnosed, or who started treatment but were not retained in care and stopped taking treatment.

- Among young people aged 15-24 years living with HIV, the percentages of those who knew their status, were on ART, and achieved viral load suppression were considerably lower compared to the other age groups.
- More than a quarter of adults living with HIV—and almost a third of the men living with HIV—were unaware of their HIV status. Among young people aged 15-24 years who were living with HIV, almost half were unaware of their status.
- Less than 60% of adults said that they had ever received an HIV test and approximately 30% reported having been tested in the last 12 months.
- Approximately 30% of adults who tested positive in the survey did not report knowing their HIV-positive status.
- Among those who reported that they were HIV negative but who had an HIV- positive test result in the survey, approximately 40% said they had never been tested in their lives. However, almost a quarter of those who said they had not previously tested positive were on treatment, based on the presence of ARVs in their blood.
- Approximately 30% of women who gave birth in the 12 months before the survey reported that they did not know their HIV status during pregnancy.
- About 40% of women who were pregnant and one quarter of those who were breastfeeding during the survey had not achieved VLS.
- Among young people aged 15-24 years, 19% reported an early sexual debut (under the age of 15 years. It is worth noting that this tracks closely with recent UNICEF data on child marriage among girls under the age of 15 in Mozambique.[*] In addition, the percentage of young women aged 15-24 years with no formal level of education or with primary level of education who reported early sexual debut was two to three times higher compared to those with secondary level education. Finally, the proportion of young people self-reporting early sexual debut peaked in Cabo Delgado, where a recent United Nations High Commissioner for Refugees' report describes growing internal displacement that could increase vulnerability among girls and boys to sexual assault and forced marriage.[†]
- More than half of those who had sex with a noncohabitating, nonmarital partner reported that they did not use a condom at last sex with such a partner, and this percentage was as high as 70% in rural areas.
- Some of the provinces that had lower HIV prevalence at the time of the survey, such as Niassa, Cabo Delgado, and Nampula, nevertheless, had significant challenges in terms of diagnosis, treatment, and viral load suppression that could increase the risk of the HIV epidemic expanding in those areas.
- In Mozambique, 27% of men aged 15 and older had not been circumcised, and this percentage is highest in the provinces of the central region.
- Only 7% of survey participants had heard of PrEP prior to the survey. Many participants expressed interest in taking it, including those who heard about PrEP for the first time during the survey.

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[*] United Nations Population Fund, UNICEF. *Mozambique Country Profile: Global Programme to End Child Marriage.* Geneva: UNFPA-UNICEF; 2019. https://www.unicef.org/media/88826/file/Child-marriage-Mozambique-profile-2019.pdf, Accessed June 7, 2023.

[†] United Nations High Commission on Refugees (UNHCR), Doctors with Africa (CUAMM), *Helpcode.Gender-Based Violence (GBV) Incidents Trends Analysis. Cabo Delgado, Mozambique | January – June 2022.* Pemba: UNHCR-CUAMM-Helpcode, 2022.

Once aware of their HIV-positive status, 96% of adults living with HIV were on treatment.

Many participants expressed interest in taking pre-exposure prophylaxis to prevent HIV.

- Four in five women living with HIV reported not having been screened for cervical cancer. The percentage of women living with HIV who were screened for cervical cancer was lowest in rural areas (15%).
- One in 7 adults who said they were unaware of their HIV status when they tested positive in the survey were diagnosed with advanced HIV disease (CD4<200 cells/microliter).
- Among adults who said they had attended a health facility for TB services, about 40% did not believe they were tested for HIV during the visit and reported that they did not know their HIV status at the time. Among those living with HIV, just over half reported not having been screened for TB symptoms at their last visit to HIV care and treatment services.

PROGRAMMATIC RESPONSES OR RECOMMENDATIONS FROM INS & MOH

To address the remaining gap to achieving the 1st 95 target—which contributes to suboptimal ART coverage and VLS among adults living with HIV—a number of initiatives have been proposed or are underway:

- The Government of Mozambique is supporting the development and implementation of the "Know Your Serostatus" campaign targeting the population of men and young people to improve access to HIV diagnosis. Results from INSIDA suggest that:
  o Strengthening existing case finding strategies to identify people living with HIV (such as through index case testing, use of screening algorithms for testing, HIV self-testing, and provider-initiated testing, with a greater focus in provinces with lower rates of testing: Cabo Delgado, Nampula, Sofala, and Niassa) could contribute to increased awareness of HIV status among people living with HIV.
  o Strengthening effective linkage, retention, and adherence to HIV care and treatment.
- Mozambique is also introducing the "Welcome Back" package targeting those previously on treatment who are not currently receiving care. Results from INSIDA suggest that:
  o This campaign could include renewed and continuous efforts to reduce stigma, which may contribute to people not disclosing their status, as evidenced in the survey by the quarter of adults who tested positive—and who were, in fact, on treatment but reported not knowing their HIV-positive status. Stigma may also discourage some to seek or remain in care.
  o Further research to identify barriers to linkage and retention in care could help refine differentiated treatment and adherence strategies, and lead to improved outcomes.
  o Whether diagnosed late or previously diagnosed and lost-to-follow-up, increased efforts to identify and provide close follow-up and support for any HIV-positive person with immune suppression and/or advanced HIV disease who is not on ART could be lifesaving because they are at heightened risk of developing opportunistic infections and AIDS-related cancers while they remain off-treatment.

These program components to improve diagnosis, linkage to care, and retention on treatment can contribute to maintaining undetectable viral loads, improving the health of people living with HIV and breaking the chain of HIV transmission, particularly among younger adults living with HIV. Since expansion of ART without corresponding increases in prevention efforts will not be sufficient to achieve control of the epidemic in the country, other prevention interventions also have a part to play:

- Enhancing combination prevention efforts using all available evidence-based methods may further reduce new HIV and other infections. In Mozambique, combination prevention interventions include VMMC, PrEP, post-exposure prophylaxis, STI diagnosis and treatment, condom and lubricant gel use, HIV testing and ART, PMTCT, harm reduction, human papillomavirus (HPV) and hepatitis B virus (HBV) immunization, and health education and communication.

- As noted in the national strategic plan for the HIV/AIDS response (PEN V - 2021-25), efforts should be made to improve the supply chain, availability, and acceptability of male and female condoms and lubricant.
- There is a need to strengthen demand creation strategies and expand the supply of medical male circumcision services in areas where many men remain uncircumcised, especially in Tete, Manica, and Sofala provinces.
- The data suggest an opportunity for expanding options for both the awareness of and demand for the use of PrEP as part of HIV combination prevention interventions in Mozambique. This is in line with the national strategic plan, which also identified PrEP as a potential prevention opportunity for all at-risk individuals. Gaining access to long-acting injectable PrEP could also expand options for those at risk.
- Continuing to expand access to viral load testing and making the results available to people living with HIV in a timely manner will have the added benefit of supporting the U=U strategy (see Chapter 8).
- Strengthening strategies to reduce early sexual debut among boys and girls, including increasing access to school and education, socioeconomic support for youth, in particular, those not in school, and access to youth-friendly sexual and reproductive health services, as well as sensitization and training of teachers and caregivers, are recommended. Youth-led prevention programming and other interventions contributing to delay of early sexual debut needs continued support and expansion. Finally, vulnerability among boys and girls leading to early sexual debut may be reduced through the recent Law on Prevention and Combat of Premature Unions —which seeks to eliminate child marriage—and national initiatives to prevent sexual and other types of violence.[*]
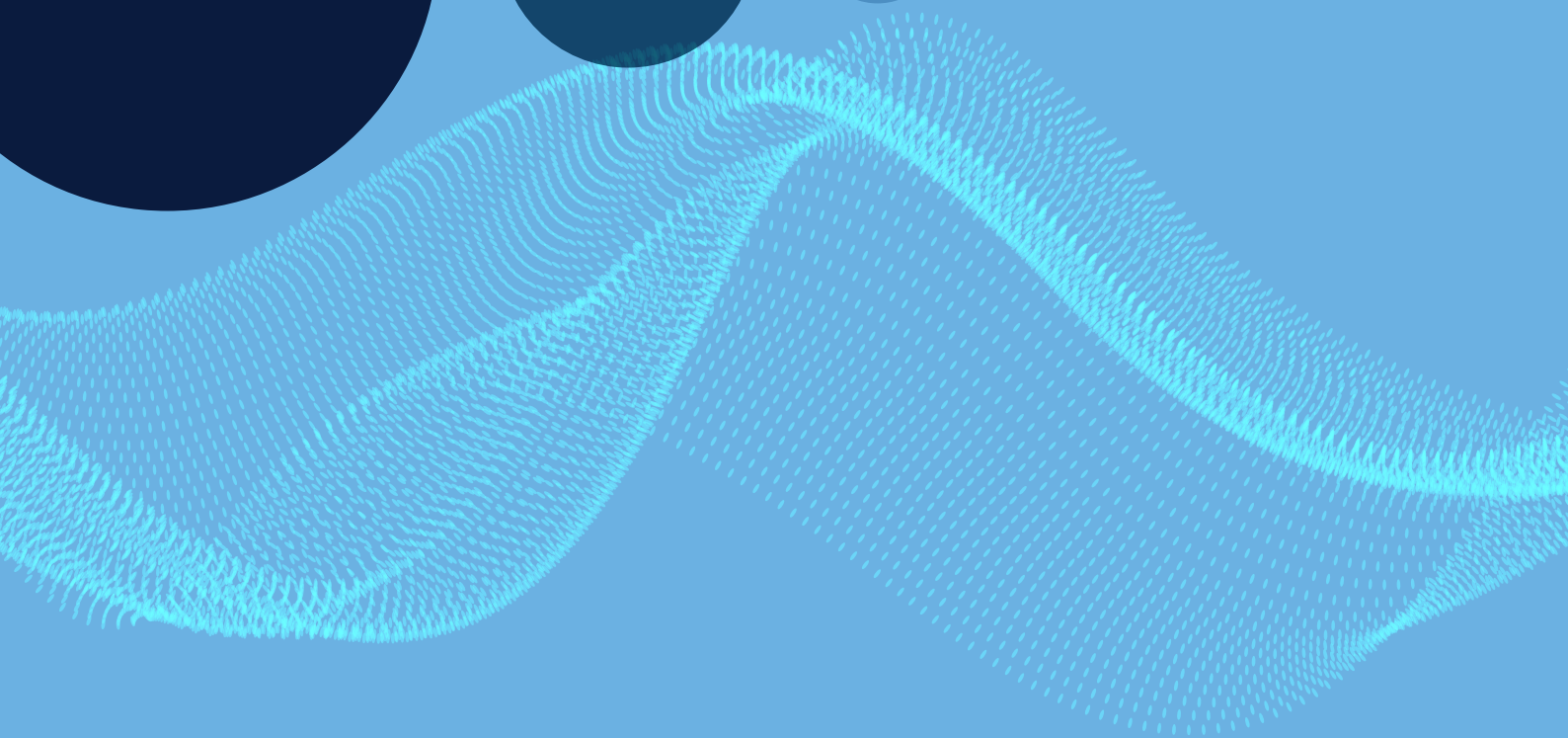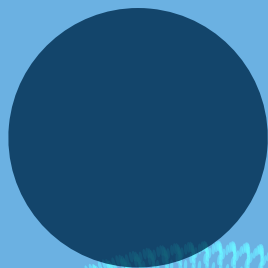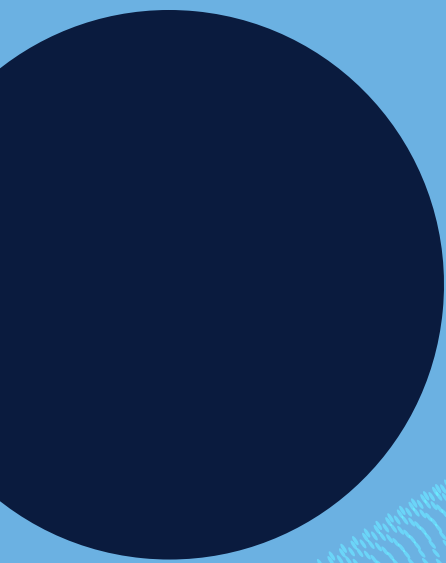
Needs in other service areas:

- Women living with HIV in Mozambique could benefit from differentiated services to support their own health and the wellbeing of their families, especially those who are head of a household. Improving access to quality sexual and reproductive health services integrated into HIV service points could improve access to and uptake of cervical cancer screening.
- Programmatic data show that the percentage of people living with HIV who are screened for TB symptoms in HIV services is quite high and the reasons for the disparity with the survey data may merit investigation. Similarly, the percentage of TB patients tested for HIV in TB services in Mozambique is high as HIV testing is routine and is only not performed if the patient opts out. The survey results, however, showed lower percentages for these self-reported two indicators. In the case of HIV testing in TB services, there may be a need for improved communication between health provider and user for a better understanding of the procedures being performed.

Enhancing combination prevention efforts using all available evidence-based methods may further reduce new HIV and other infections.

CONCLUSION

INSIDA 2021 provided relevant data on national HIV incidence, national and provincial HIV prevalence, HIV service utilization, national and provincial viral load suppression prevalence, and combination prevention service uptake. The Government of Mozambique encourages the use of the data by key stakeholders and decision makers responsible for programmatic planning and monitoring within the HIV response.

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[*] Kaulard M, Sánchez-Benedito Gaspar A. *Eliminating violence against women and girls is everyone's responsibility.* UNICEF.org, 2020. https://www.unicef.org/mozambique/en/stories/eliminating-violence-against-women-and-girls-everyones-responsibility. Accessed June 7, 2023.

1. INTRODUCTION

1.1 BACKGROUND

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

INSIDA 2021 was led by the Government of Mozambique through the National Institute of Health (*Instituto Nacional de Saúde* [INS]), in collaboration with the Ministry of Health (*Ministério da Saúde* [MISAU]), the National AIDS Council (*Conselho Nacional de Combate ao HIV e SIDA* [CNCS]), and the National Institute of Statistics (*Instituto Nacional de Estatística* [INE]). The survey was conducted with funding from the United States (US) President's Emergency Plan for AIDS Relief (PEPFAR) with technical assistance from the US Centers for Disease Control and Prevention (CDC), and ICAP at Columbia University. The implementation of INSIDA 2021 also included financial backing from the Government of Mozambique and support from the Provincial and District Health Services and Directorates, Health Units, and local and community authorities. The Government of Mozambique and national and international development partners participated in the National Executive Committee and Technical Working Groups during the implementation of the survey.

1.2 OVERVIEW OF INSIDA 2021

INSIDA 2021 was a household-based national survey among adults (defined as those 15 years and older) that measured the status of Mozambique's national HIV response. Conducted from April 2021 through February 2022, INSIDA 2021 offered HIV home-based testing and counseling (HBTC) with return of results and collected information about households and individuals' backgrounds and the uptake of HIV care and treatment services. The survey also estimates HIV incidence and prevalence among a nationally representative sample of adults and national and subnational-level viral load suppression (VLS), defined as HIV RNA <1,000 copies per milliliter (mL), among adults living with HIV.

With its focus on measuring key biological endpoints in a nationally representative sample of the population, INSIDA 2021 provides direct estimates of HIV-infection risk and burden, the effectiveness and population-level impact of HIV-related prevention, care, and treatment interventions implemented in the country, and Mozambique's progress toward the achievement of the UNAIDS 95-95-95 targets.

1.3 SPECIFIC OBJECTIVES

The goal of the survey was to assess the status of the HIV epidemic in Mozambique as well as 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.

The main objectives of the survey were:
- To estimate the subnational-level prevalence of VLS among adults living with HIV
- To measure national and subnational HIV prevalence.
- To generate national HIV incidence estimates
- To collect high quality data on HIV-related risk behaviors
- To explore the behavioral and demographic determinants of HIV incidence and prevalence
- To assess health response coverage by gathering data on the uptake, and barriers to uptake, of HIV-related services and exposure to HIV interventions
- To produce weighted estimates of the prevalence of primary and secondary antiretroviral (ARV) drug resistance (DR) in adults living with HIV
- To document the country's progress towards achievement of UNAIDS 95-95-95 targets.

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

2. SURVEY DESIGN, METHODS, AND RESPONSE RATES

INSIDA 2021 was a nationally representative, cross-sectional, population-based survey of households across Mozambique. Its target population corresponded to adults (defined as individuals aged 15 years and older for the purposes of the survey).

2.1 SAMPLE FRAME AND DESIGN

INSIDA 2021 used a four-stage probability sample design, that first selected control areas (CAs) or primary sampling units (PSUs) within each of the country's 11 provinces, based on a national sample frame maintained by INE with probabilities proportionate to size.[1] In the second-stage sampling, enumeration areas (EAs) or secondary sampling units (SSUs) were randomly selected with equal probability from each of the selected CAs, one of which was deemed ineligible due to flooding. Then in the third stage, a list of dwelling units was compiled, however, the listing staff could not enter 12 EAs (considered as nonresponding) due to security concerns. During the fourth stage, one household was selected for each sampled dwelling unit. After this sampling process, there were 311 remaining EAs with an average of 28 households per EA, except for Cabo Delgado province, where an average of 39 households were selected per EA (Table 2.1).

The key determinants of sample size and allocation of the sample PSUs and EAs to the 11 provinces were: (1) VLS among HIV-positive persons aged 15-49 years at province level with a 95% CI of ± 10% or less; (2) HIV incidence among persons aged 15-49 years at the national level with a relative standard error (RSE) ≤ 0.3; (3) national-level VLS among HIV-positive adults aged 15-49 years with a 95% CI of ± 3%; and (4) national-level VLS among HIV-positive women aged 15-24 years with a 95% CI of ± 6%. To reach the target sample size, the survey planned to enroll at 14,980 eligible adults aged 15-49 years and 4,026 eligible adults aged 50 years and older—with approximately 19,006 persons aged 15 years and older who would participate in the survey blood draw in the selected households.

Table 2.1 Distribution of sampled enumeration areas and households by province

Distribution of sampled enumeration areas and households by province, INSIDA 2021

Province	Enumeration Areas			Households		
	Urban	Rural	Total	Urban	Rural	Total
Niassa	8	27	35	232	636	868
Cabo Delgado	4	14	18	176	521	697
Nampula	11	31	42	399	862	1,261
Zambézia	5	25	30	127	584	711
Tete	9	39	48	347	969	1,316
Manica	8	16	24	223	470	693
Sofala	10	11	21	322	338	660
Inhambane	7	17	24	178	507	685
Gaza	6	13	19	161	389	550
Maputo Província	19	10	29	525	387	912
Maputo Cidade	21	0	21	662	0	662
Total	108	203	311	3,352	5,663	9,015

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

2.2 ELIGIBILITY CRITERIA, RECRUITMENT, AND CONSENT PROCEDURES

In INSIDA 2021, individuals aged 15 years and older were eligible to participate in the survey. For the population of inference (those whose survey data were included in the analysis), the inclusion criteria included:

- Adults[*] aged 18 years and older or emancipated minors (an individual aged 15-17 years who were or had been married, pregnant, lived alone or were heads of households as defined by law in Mozambique) who slept in the household the night before the survey, whether they were usual residents in the selected household or overnight visitors, who were willing and able to provide written consent.
- Minors aged 15-17 years who slept in the household the night before, whether they were usual residents in the selected household or overnight visitors, who were willing and able to provide written assent, and whose parents or guardians were willing and able to provide written permission for their participation.

A survey interviewer administered the informed consent process using electronic and hardcopies of the consent forms (see Appendix G) in the following order. First, a designated head of household provided written consent for the household interview, after which individual household members were rostered. Once the household interview was completed, eligible adults and emancipated minors could then provide written consent for an interview and for participation in the biomarker component of the survey, including HBTC, with return of HIV-testing results during the household visit. Participants had to consent to receipt of their test results to participate in the biomarker component of the survey. If an individual did not want to receive his or her HIV test result, this was considered a refusal and their interview was concluded. The interviewer also asked participants for written consent to store their blood samples in a repository to perform additional tests in the future. After the return of HIV rapid test results during the biomarker component of the survey, the interviewer asked all participants who tested HIV positive to provide consent for their viral load and CD4 test results returned with his or her name and age to a health facility of their choice. Among those who tested positive who were not on ART, the interviewer also asked for their consent to share their contact information with a trained healthcare worker or counselor to facilitate active linkage to HIV care at the facility.

The interviewer asked minors aged 15-17 years for their assent to the interview and biomarker components after permission was granted by their parents or guardians. Although parental consent was required for their participation in the survey, minors aged 15-17 years could receive their HIV testing results without their parents being present. The consent process to share contact information for active linkage to care (ALTC) and return of viral load and CD4 results to a health facility was the same as for adults.

At each stage of the consent process, the interviewer recorded on the consent form on the tablet whether written consent/assent was given, and a printed copy was provided to the participant.

The interviewer assessed the cognitive ability of each potential participant by providing information on survey participation and asking them to summarize their understanding of the purpose of the survey and what the survey involves. Standard operating procedures on eligibility determination process and verification of eligibility criteria were used to guide the interviewers on how to assess the respondent's cognitive ability based on the summary they provide. Persons who were unable to give consent or assent due to cognitive impairment or intellectual disability were not eligible to participate. Individuals with disabilities who were otherwise able to give written consent were offered survey participation.

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

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* Note that for the consent process, the definition of adult is determined by the national age of majority.

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 including venipuncture and finger-stick
- Home-based HIV testing and counseling (HBTC)
- 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
- COVID-19 risk mitigation trainings: Training session for all survey staff was conducted on COVID-19 mitigation measures. The COVID-19 training component included the general COVID-19 introduction and guidance; staff screening, isolation, and quarantine procedures (see below).

Laboratory staff were trained in specimen management, including sample processing, labeling, and quality assurance (QA). Central laboratory staff were trained in viral load measurement, HIV confirmatory testing, and HIV recency testing using the limiting antigen (LAg) avidity enzyme immunoassay (see below). In addition, after pausing due to the COVID-19 pandemic, laboratory staff received trainings on COVID-19 risk mitigation within the laboratory setting.

COVID-19 Mitigation

Survey fieldwork was delayed from April 2020 to April 2021 due to the COVID-19 pandemic. During the delay, the project team continually monitored the COVID-19 situation in the country and worked with partners to develop guidelines for mitigating risk of COVID-19 transmission during survey implementation. Before starting fieldwork, the project team took precautions to prioritize the health and well-being of the team members, members of surveyed households, and of the greater community where the survey operated. Working in close contact with its partners, the survey team adapted survey-related work to be consistent with rapidly evolving guidance. These approaches included COVID-19 mitigation trainings for survey and laboratory staff, updated community sensitization materials in advance of the survey restart (with an emphasis on holding outdoor community meetings of 10 or less people with all COVID-19 protocols observed), adjustments to the household entry procedures survey team size, and the best practices for interacting with households, including providing personal protective equipment (PPE) to household members.

Trainings were conducted which emphasized COVID-19 mitigation strategies for survey and laboratory staff. All staff were tested for SARS-CoV-2 by PCR test before gathering for the trainings and were required to submit a symptom screen each morning of the training, using a mobile phone app developed for this purpose. Staff testing positive attended the training virtually while in isolation.

Survey staff were required to reduce their own coronavirus risk through application of the prevention and control measures that were available at the time. Mitigation measures implemented during fieldwork included consistent use of masks for both survey staff and household participants, testing survey staff for SARS-CoV-2 before the start of fieldwork, participating in daily symptom screening of all staff before they could be cleared for work, submitting to SARS-CoV-2 testing whenever staff screened positive for symptoms consistent with COVID-19, close monitoring of quarantine and isolation periods of those infected or that were close contacts of COVID-19 cases, and providing COVID-19 vaccines to those who consented. Field data collection teams

and satellite laboratory shifts operated as cohorts, with all members considered close contacts of each other. The number of staff interacting with each household was minimized, and staff were encouraged to complete survey procedures outdoors or in well ventilated rooms when possible.

Survey Staff

Fieldwork started in April 2021 and was completed in February 2022. The fieldwork was conducted by 50 locally hired field teams with seven members each, including a team leader, four interviewers, and two health technicians. The interviewers performed interviews, and the health technicians performed phlebotomy, testing, and counseling. Each team was supported by two drivers. Field teams included both male and female staff and members spoke the languages commonly used in the areas to which they were deployed.

Overall, a total of 411 field staff, comprised of 11 provincial coordinators, 100 health technicians, 200 interviewers, 50 team leaders, and 100 drivers, participated in data collection. The field teams were supervised by their team leaders and provincial coordinators and managed by central staff who guided and oversaw data collection activities, performed quality checks, and provided technical support (Appendix D).

The laboratory staff were organized at different levels (central laboratory staff, field laboratory officers, supervisors, satellite laboratory managers, satellite/mobile lab technicians, and satellite lab logisticians). At survey launch, 40 satellite laboratory technicians and three central lab technicians processed samples and performed additional procedures for HIV-1 viral load, CD4 counts, quality control (QC), and QA.

Community Sensitization and Mobilization

The survey also employed community mobilization teams to maximize community support and participation before data collection. The teams consisted of 17 community mobilization coordinators and 626 local community mobilizers, managed by a mobilization advisor and communication advisor. The mobilization began before fieldwork commenced with a high-level national launch meeting that included key national and provincial leaders, mass media, and other stakeholders. Community mobilization teams visited each EA before initiation of data collection and partnered with community mobilizers to meet key gatekeepers in the communities (chiefs, local government officials, and religious and community leaders). The mobilization teams held community sensitization meetings, disseminated written informational materials such as brochures and posters, held discussions with community residents, and helped the field teams locate selected households when needed.

After the survey delay due to the COVID-19 pandemic, door-to-door sensitization was used after launch instead of holding large community meetings which could create opportunities for wider transmission. Radio and community-based public address systems were extensively used after the launch.

Supervision

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

The national and international monitoring teams observed and assessed the quality of survey procedures, including adherence to protocol and standard operating procedures, and identified and responded to challenges with data collection. Weekly debriefing sessions were held between field-based supervisors and monitoring teams. Monitoring reports were circulated to collaborating institutions and the INSIDA 2021 Technical Working Group to respond to any issues.

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, completion, and response rates (RRs) of provinces, data collection teams, EAs, sampled households, interviews, and blood draws, as well as progress towards the achievement of the target.

Questionnaire Data Collection

Questionnaire and field laboratory data were collected on mobile tablet devices using an application programmed in Census and Survey Processing System (CSPro) software, an open-source mobile data collection application. The household interview collected information on household residents, assets, economic support, recent deaths, and orphans and vulnerable children (see Appendix E). The individual interview was administered to all consenting participants and included modules on demographic characteristics, sexual and reproductive health, marriage, male circumcision, sexual activity, the HIV testing and treatment history, TB, other health issues, and alcohol use (see Appendix F). Participants who reported their HIV-positive status were asked questions about their HIV care experience. Women were interviewed by female staff and men by male staff, whenever possible. The questionnaire was administered in Portuguese, and with verbal translation to local languages whenever possible. As there is no written form for all the local languages, a group of staff who spoke the same local languages translated the questionnaires and consent forms together, which were thoroughly tested for acceptability, feasibility, and flow of questions.

2.4 FIELD-BASED BIOMARKER TESTING

Blood Collection

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

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

HIV Home-Based Testing and Counseling

HIV HBTC was conducted in each household in accordance with national guidelines (Figure 2.1). As per these guidelines, the survey used a sequential rapid-testing algorithm in the field.

Determine™ HIV-1/2 (Abbott Molecular Inc., Des Plaines, Illinois, United States) was used as a screening test and Uni-Gold™ (Trinity Biotech, plc. Wicklow, Ireland) as a confirmatory test. Individuals with a nonreactive result on the screening test were reported as HIV negative. Individuals with a reactive screening test underwent subsequent testing with Uni-Gold™. Those with reactive results on both the screening and confirmatory tests were classified as HIV positive. Individuals with a reactive Determine™ test followed by a nonreactive Uni-Gold™ test were immediately retested in parallel in the field. If the results during the parallel testing were repeatedly discordant, the individual was classified as indeterminate and referred to a local health facility for repeat testing within four weeks as per the national guidelines. Those with an inconclusive or HIV-positive result were given the MISAU referral form which provided different instructions to the health facility for those who were indeterminate; positive, not on ART; and positive, on ART.

Figure 2.1
Household-based
HIV testing algorithm,
INSIDA 2021
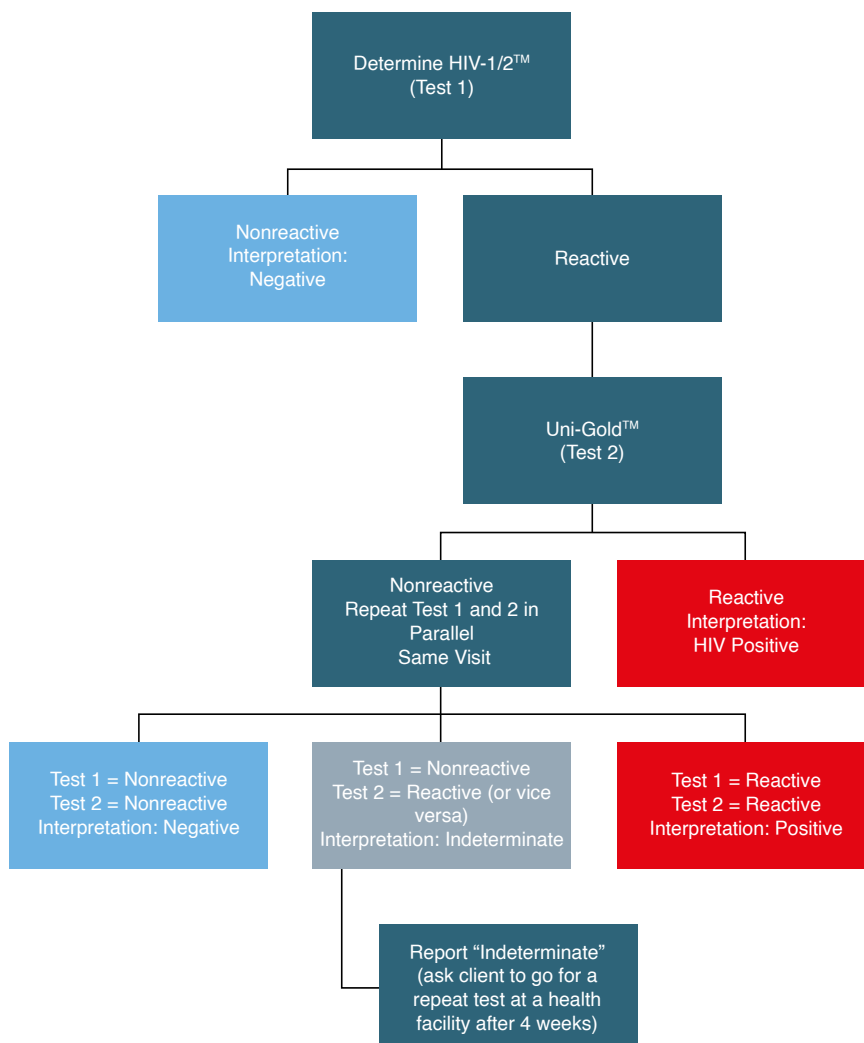
Participants who tested HIV positive and who reported not being on ART were counseled on the possibility of receiving a facilitated linkage to a health facility for ART, care and support and asked to provide written consent for their information to be shared with a trained healthcare worker or counselor to facilitate the linkage. If the participant consented, his/her contact information was shared with a community-based organization (CBO) or health facility responsible for the ALTC in that EA. The health facilities and CBOs participating in linkage to care were sensitized by Provincial HIV Focal Points and informed about the detailed procedures of the survey ALTC, including eligibility for linkage to care, how contact information would be shared with the facility, mechanisms of facilitated linkage, and documentation of linkage to care.

If a person who self-reported an HIV-positive status tested HIV negative in the survey, additional testing was performed at the satellite lab to confirm their status (see below). Once the participant's status was confirmed, MoH staff returned to the household to share the results and provide counseling to these participants.

Field QC and proficiency testing

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

2.5 LABORATORY-BASED BIOMARKER TESTING

Satellite and Central Laboratories

There were 25 laboratory sites for the national survey, one of which was fixed, and 24 others that were serviced by five mobile laboratories. One central reference laboratory was chosen for more specialized tests. At each satellite laboratory, trained technicians performed HIV confirmatory testing, QC/QA testing, and processing of whole blood specimens into plasma aliquots and DBS cards for temporary storage at -20°C.

HIV QA and confirmatory testing: For QA of the HIV rapid testing conducted in the field, the first 25 samples tested by each field tester were retested in the satellite laboratory using the national HIV rapid-testing algorithm. All specimens that tested HIV positive during HBTC, and those that had confirmed positive rapid test results during QA, underwent confirmatory testing using the Geenius HIV 1/2 Supplemental Assay (Bio-Rad, Hercules, California, United States). A positive Geenius result defined HIV-positive status for the survey.

Central laboratory procedures included HIV viral load testing, HIV total nucleic acid (TNA) polymerase chain reaction (PCR) for confirmation of the status of those who reported an HIV-positive status but tested negative in HBTC, HIV recency testing, and long-term storage of samples at -80°C.

For participants who reported an HIV-positive status but tested HIV negative at the time of the survey, additional HIV rapid tests were conducted at the satellite lab (following the same national testing algorithm as used in the field). Additional laboratory-based testing was then conducted using HIV TNA PCR for confirmation of the status.

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

CD4 Count Measurement

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

Viral Load Testing

The HIV-1 viral load (HIV RNA copies per mL) of all confirmed HIV-positive participants was measured using the COBAS® AmpliPrep/COBAS® TaqMan® (CAP/CTM), COBAS® 4800. For testing performed using the Roche CAP/CTM or 4800 instruments, plasma was tested using the HIV-1 Test, (version 2.0 for CAP/CTM) (Roche Molecular Diagnostics, Branchburg, New Jersey, United States), and DBS was tested using the Free Virus Elution (Roche Molecular Diagnostics, Branchburg, New Jersey, United States) assay on the same test, the HIV-1 Test (version 2.0 for CAP/CTM), but using a separate test definition file (TDF) from the TDF used for plasma, which is optimized by Roche for DBS on the instrument.

Return of CD4 and Viral Load Results

The return of results coordinator delivered CD4 and viral load results within 8 to 12 weeks to the health facility chosen by each HIV-positive participant. HIV-positive participants were provided with a MoH referral form during HBTC for subsequent retrieval of their results. Survey staff also contacted each participant via mobile phones, informing them that their CD4 and viral load results were available at the chosen facility and further advising them to seek care and treatment.

HIV Recent Infection Testing Algorithm

To distinguish recent from long-term HIV infections, in order to estimate incidence, the survey used a laboratory-based testing algorithm that employed a combination of assays: an HIV-1 LAg avidity enzyme immunoassay (EIA),[2] viral load, and ARV detection (Figure 2.2), as described in Appendix B.2

The Sedia HIV-1 LAg-Avidity EIA (Sedia Biosciences Corporation, Portland, Oregon, United States) was used on plasma specimens, while the Maxim HIV-1 Limiting Antigen-Avidity Dried Blood Spot (DBS) EIA (Maxim Biomedical, Bethesda, Maryland, United States) was used on DBS specimens. Using LAg avidity testing, plasma specimens with median normalized optical density (ODn) ≤ 1.5 and DBS specimens with median ODn ≤ 1.0 were classified as potential recent infections[2] and their viral load results were assessed. Specimens with viral load < 1,000 copies/mL were classified as long-term infections, while ARV detection data were assessed for those with viral load ≥ 1,000 copies/mL: those with a detectable ARV were classified as long-term infections and those without were classified as recent infections (Figure 2.2).

Figure 2.2
HIV-1 recent infection testing algorithm, INSIDA 2021
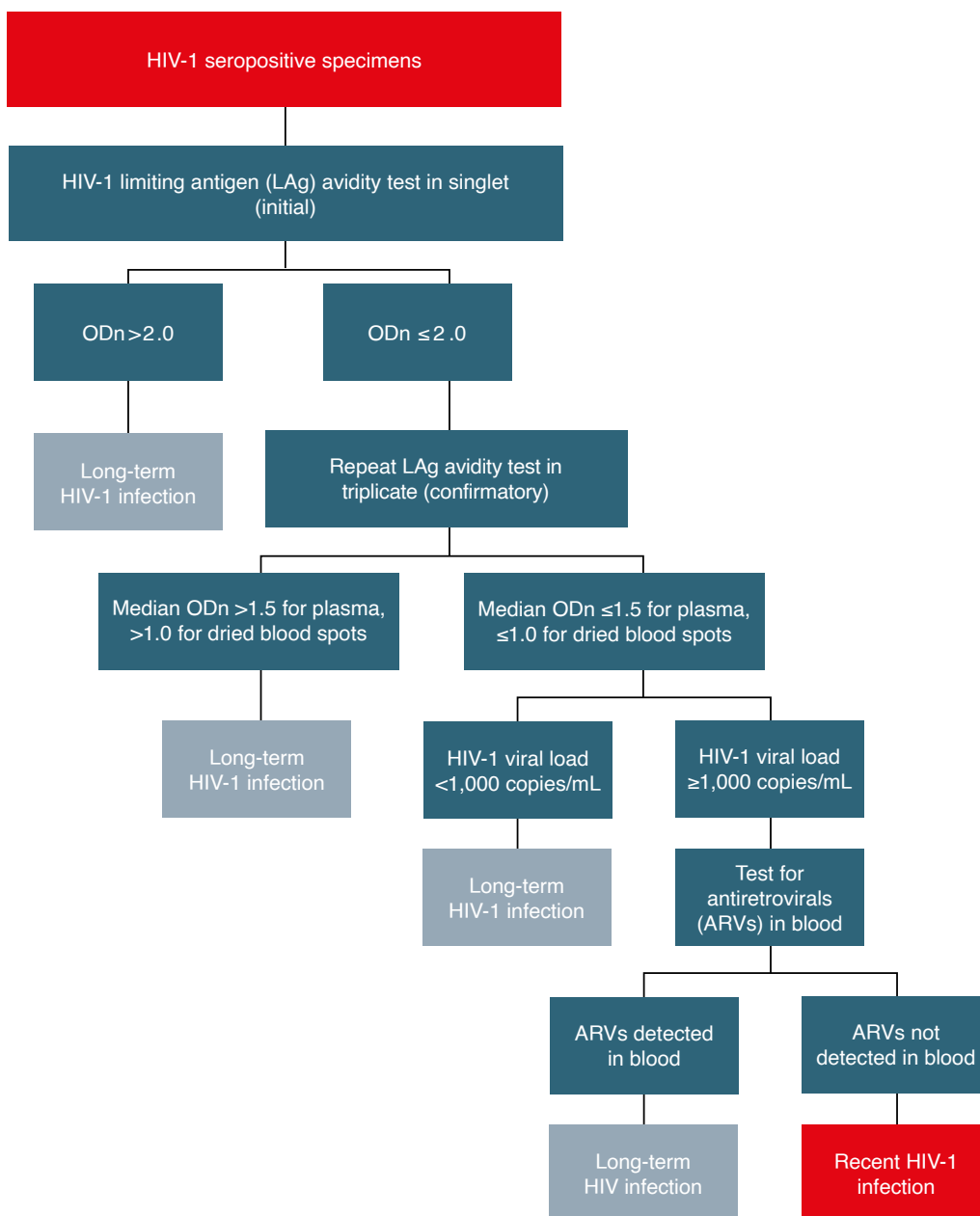
Abbreviations: mL: milliliter; ODn: normalized optical density; DBS: dried blood spot; ARV: antiretroviral.

Detection of Antiretroviral Drug Resistance

HIV resistance to ARVs was assessed for HIV-positive participants including recent cases, those without VLS (≥1,000 copies/mL; both on treatment and not on treatment), and those with viral load of 200-999 copies/mL. The findings will be presented in a separate addendum to this report.

Detection of Antiretrovirals

Qualitative screening for detectable concentrations of ARVs was conducted on DBS specimens from all HIV-positive participants and participants who reported a previous positive HIV result but tested HIV negative in the survey, 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.[3] This qualitative assay was highly specific (as it separates the parent compound from the fragments) and highly sensitive, with a limit of detection of 0.02 μg/mL for each drug, and a signal-to-noise ratio of at least 5:1 for all drugs. As detection of all ARVs in use at the time of the survey was cost-prohibitive, four ARVs: atazanavir, lopinavir, efavirenz, and dolutegravir, were selected as markers for the most prescribed first- and second-line regimens in Mozambique. These ARVs were also selected based on their relatively long half-lives, allowing for a longer period of detection following intake.

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

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

2.6 DATA PROCESSING AND ANALYSIS

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

All results presented in the report are based on weighted estimates unless otherwise noted. Analysis weights account for sample selection probabilities and were adjusted for nonresponse and noncoverage. Nonresponse adjusted weights were calculated for households, individual interviews, and individual blood draws in a hierarchical form. Weighting adjustment cells, defined by a combination of variables that are potential predictors of response, were developed to adjust initial individual and blood-level weights for nonresponse. The nonresponse adjustment cells were constructed using chi-square automatic interaction detection, or the Chi-square Automatic Interaction Detector (CHAID) algorithm. The cells were defined based on data from the household interview for the adjustment of individual-level weights, and from both the household and individual interviews for the adjustment of blood sample-level weights. Post-stratification adjustments were implemented to compensate for noncoverage in the sampling process. This final adjustment calibrated the nonresponse-adjusted individual and blood weights to make the sum of each set of weights conform to national population totals by sex and 5-year age groups. Descriptive analyses of RR, characteristics of respondents, and other indicators 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 viral load and ARV detection algorithm, and obtained using the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays and with assay performance characteristics of a mean duration of recent infection = 130 days (95% CI: 118, 142), a time cutoff = 1.0 year, and percentage false recent = 0.00.[4]

In this report, denominators for a characteristic in a table may differ from the overall table totals due to nonresponse, missing data, and conditional responses. Also, unless otherwise noted in the report, comparisons between estimates were based upon nonoverlapping 95% CIs. Note that CIs are not shown in most of the report tables. However, the public use data package will provide instructions to calculate the CIs, once it is available on the PHIA website.

Where applicable, the UNAIDS and PEPFAR indicators (that were in effect when the survey concluded) corresponding to a given table are specified at the end of the table. The UNAIDS Global Monitoring indicators refer to the 2022 release of the indicators, available at: https://www.unaids.org/sites/default/files/media_asset/global-aids-monitoring_en.pdf and the 2022 Monitoring, Evaluation, and Reporting (MER) indicators available at: https://www.state.gov/wp-content/uploads/2021/09/FY22-MER-2.6-Indicator-Reference-Guide.pdf.

2.7 RESPONSE RATES

Household RRs were calculated using the American Association for Public Opinion Research Response Rate 4 method[5] 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 dwelling units, nonresidential units, and household units with no eligible respondents were considered not eligible and excluded from the calculation.

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

Out of 11,375 selected dwelling units (DU), 9,853 were occupied, and of those 9,015 responded. The overall DU RR was 88.1%. Of the 9,015 selected households, 8,998 were occupied, and of those, 8,690 were interviewed. The overall household RR (unweighted) was 96.5%. After adjusting for differential sampling probabilities and nonresponse, the weighted household RR was 96.6%. The overall household RR (EA RR * DU RR * household RR) was 82.0% (Table 2.2).

A total of 19,912 individuals (8,814 men and 11,098 women) were eligible to participate in the survey. A total of 17,105 adults participated in the individual interview: interview RRs were 84.3% among men and 88.7% among women. Among those interviewed, 85.9% of men and 84.8% of women also had their blood drawn (Table 2.3).

Table 2.2 Household response rates

Number of enumeration areas, dwelling units, and households selected, occupied, and interviewed, and response rates (unweighted and weighted), by residence, INSIDA 2021

Result	Residence		Total
	Urban	Rural	
Enumeration Areas (EAs)			
EAs selected	109	214	323
EAs responding	108	203	311
Dwelling Units (DUs)			
DUs selected)	3,920	7,455	11,375
DUs occupied or in-scope	3,608	6,245	9,853
DUs responding	3,352	5,663	9,015
Household interviews			
Households selected	3,352	5,663	9,015
Households occupied	3,346	5,652	8,998
Households interviewed	3,236	5,454	8,690

Table 2.2 Household response rates (continued)

Number of enumeration areas, dwelling units, and households selected, occupied, and interviewed, and response rates (unweighted and weighted), by residence, INSIDA 2021

Result	Residence		Total
	Urban	Rural	
EA response rate (unweighted)	99.1	94.9	96.3
EA response rate (weighted)	98.5	95.3	96.3
DU response rate[1] (unweighted)	91.8	85.9	88.0
DU response rate[1] (weighted)	92.1	86.3	88.1
Household response rate[1] (unweighted)	96.6	96.5	96.5
Household response rate[1] (weighted)	96.8	96.5	96.6
Overall household response rate[2] (unweighted)	87.9	78.7	81.8
Overall household response rate[2] (weighted)	87.8	79.4	82.0

[1] Household and dwelling unit response rates were calculated using the American Association for Public Opinion Research (AAPOR) Response Rate 4 (RR4) method: https://aapor. org/wp-content/uploads/2023/05/Standards-Definitions-10th-edition.pdf.
[2] Overall household response rate is the product of the EA, DU, and household response rates.

Table 2.3 Individual interview and blood draw response rates

Number of eligible individuals and response rates for individual interviews[1] and blood draws[2] (unweighted and weighted) by residence and sex, INSIDA 2021

Result	Residence				Total by sex		Total
	Urban		Rural				
	Men	Women	Men	Women	Men	Women	
Eligible individuals, ages 15-24 years							
Number of eligible individuals	1,411	1,641	1,528	1,891	2,939	3,532	6,471
Interview response rate (unweighted)	79.0	84.9	78.9	83.0	78.9	83.9	81.6
Interview response rate (weighted)	80.6	85.8	79.5	83.7	80.0	84.7	82.5
Blood draw response rate (unweighted)	85.5	85.4	85.3	83.3	85.4	84.3	84.8
Blood draw response rate (weighted)	85.2	85.6	85.6	84.4	85.4	84.9	85.2
Eligible individuals, ages 15-49 years							
Number of eligible individuals	3,171	3,803	3,970	5,087	7,141	8,890	16,031
Interview response rate (unweighted)	77.4	87.5	84.5	87.3	81.3	87.4	84.7
Interview response rate (weighted)	79.3	88.1	85.5	87.6	83.0	87.8	85.6
Blood draw response rate (unweighted)	82.9	84.3	85.6	83.9	84.5	84.1	84.3
Blood draw response rate (weighted)	83.4	84.6	86.1	84.9	85.0	84.7	84.8
Eligible individuals, ages 15+ years							
Number of eligible individuals	3,737	4,551	5,077	6,547	8,814	11,098	19,912
Number of interviewed individuals	2,906	4,001	4,386	5,812	7,292	9,813	17,105
Number of individuals with blood draw	2,429	3,362	3,804	4,893	6,233	8,255	14,488
Interview response rate (unweighted)	77.8	87.9	86.4	88.8	82.7	88.4	85.9
Interview response rate (weighted)	79.5	88.4	87.3	88.9	84.3	88.7	86.7
Blood draw response rate (unweighted)	83.6	84.0	86.7	84.2	85.5	84.1	84.7
Blood draw response rate (weighted)	83.8	84.4	87.2	85.0	85.9	84.8	85.3
Overall response rate (unweighted)[3]	57.1	64.9	58.9	58.8	57.8	60.8	59.5

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

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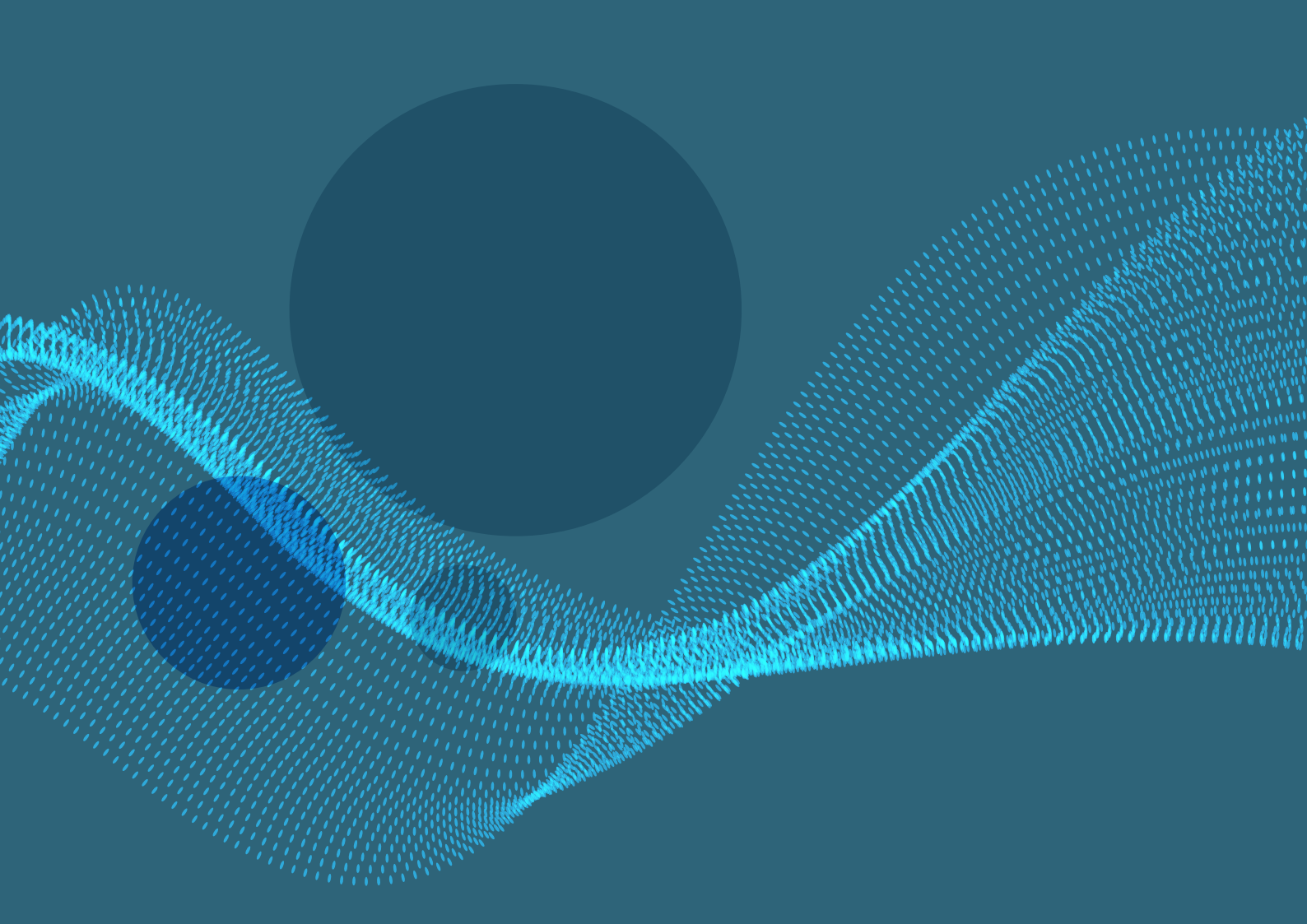
3. SURVEY HOUSEHOLD CHARACTERISTICS

3.1 BACKGROUND

This chapter presents the characteristics of the households surveyed in INSIDA 2021. Household composition is described in terms of the sex of the head of household, as well as the size of the household. The age structure of the de facto household population (i.e., persons who slept in the household the night before) is described by sex as well as urban/rural residence. This chapter also describes the prevalence and composition of households impacted by HIV, which are households with one or more HIV-positive members.

3.2 RESULTS

The following tables and figures describe household characteristics.

Table 3.1 Household composition

Percent distribution of households by sex of head of household; median (quartile 1, quartile 3 [Q1, Q3]) size of household and median (Q1, Q3) number of children under 18 years of age by residence, INSIDA 2021

	Residence				Total	
Characteristic	Urban		Rural			
	Percent	Number	Percent	Number	Percent	Number
Head of household						
Male	60.4	1,976	64.1	3,444	62.8	5,420
Female	39.6	1,260	35.9	2,009	37.2	3,269
Total	100.0	3,236	100.0	5,453	100.0	8,689

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

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

Percent distribution of the de facto household population by 5-year age groups and sex, INSIDA 2021

Age	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
0-4	7.1	2,495	7.2	2,527	14.3	5,022
5-9	8.2	2,898	8.1	2,872	16.2	5,770
10-14	7.7	2,778	7.2	2,659	14.9	5,437
15-19	4.2	1,602	4.7	1,776	8.9	3,378
20-24	3.8	1,371	5.0	1,786	8.7	3,157
25-29	3.2	1,131	4.4	1,546	7.6	2,677
30-34	2.6	913	3.4	1,246	6.0	2,159
35-39	2.4	864	2.7	1,007	5.2	1,871
40-44	1.9	694	2.3	865	4.2	1,559
45-49	1.8	615	1.9	701	3.7	1,316

Table 3.2 Distribution of de facto household population (population pyramid) (continued)

Percent distribution of the de facto household population by 5-year age groups and sex, INSIDA 2021

Age	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
50-54	1.1	397	1.6	599	2.7	996
55-59	0.9	355	1.2	466	2.1	821
60-64	0.9	322	1.0	385	1.9	707
65-69	0.7	240	0.7	270	1.4	510
70-74	0.5	182	0.5	201	1.0	383
75-79	0.2	81	0.3	112	0.5	193
80+	0.3	96	0.4	175	0.7	271
Total	47.4	17,034	52.6	19,193	100.0	36,227
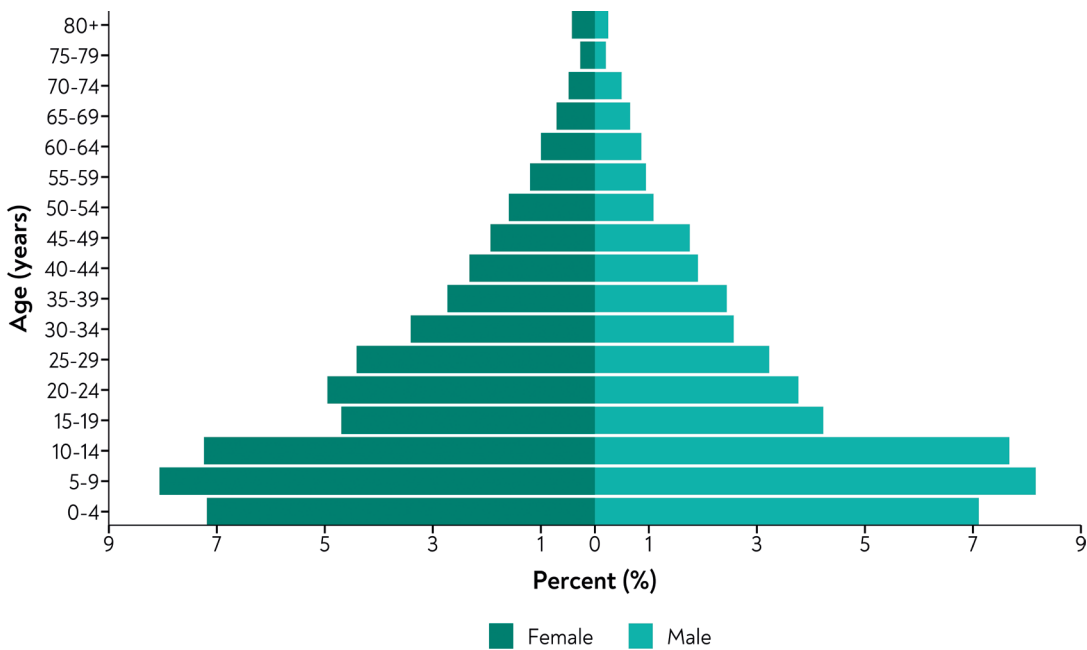
Figure 3.2
Distribution of the de facto population by sex and age, INSIDA 2021

Table 3.3 Household population by age, sex, and residence

Percent distribution of the household population by age, sex, and residence, INSIDA 2021

Age	Urban					
	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
0-4	13.3	806	11.4	806	12.3	1,612
5-14	28.1	1,784	27.0	1,952	27.6	3,736
15-49	50.3	3,200	52.2	3,818	51.3	7,018
50+	8.3	566	9.3	748	8.9	1,314
Total	100.0	6,356	100.0	7,324	100.0	13,680
Age	Rural					
	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
0-4	15.9	1,689	14.9	1,721	15.4	3,410
5-14	36.2	3,892	30.2	3,579	33.1	7,471
15-49	37.8	3,990	43.4	5,109	40.7	9,099
50+	10.1	1,107	11.6	1,460	10.9	2,567
Total	100.0	10,678	100.0	11,869	100.0	22,547

Figure 3.3
Household population by age, sex, and residence, INSIDA 2021
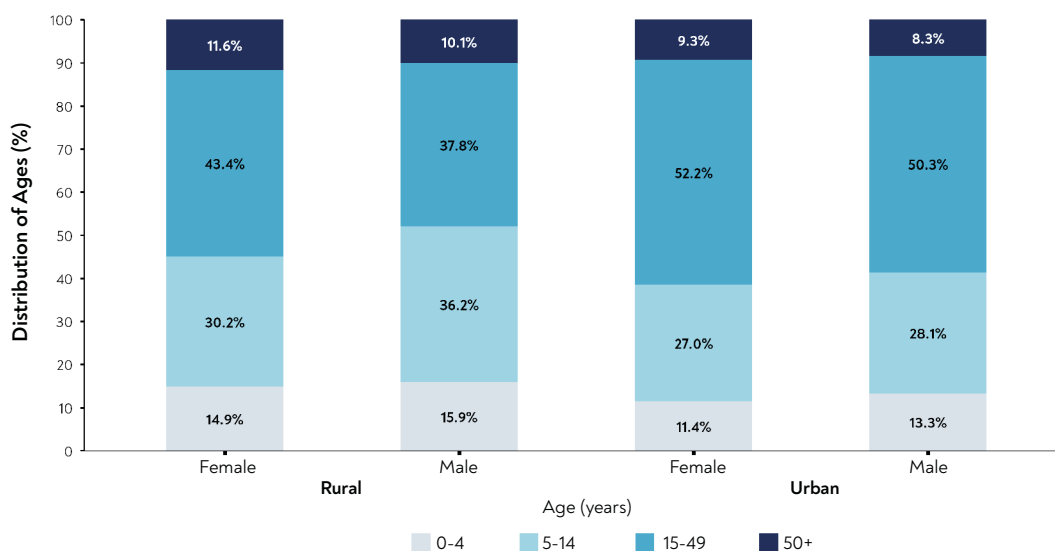
Table 3.4 Prevalence of HIV-affected households

Percentage of households with at least one HIV-positive household member by residence, INSIDA 2021		
Residence	Percent	Number
Urban	27.4	2,770
Rural	18.6	4,688
Total	21.6	7,458
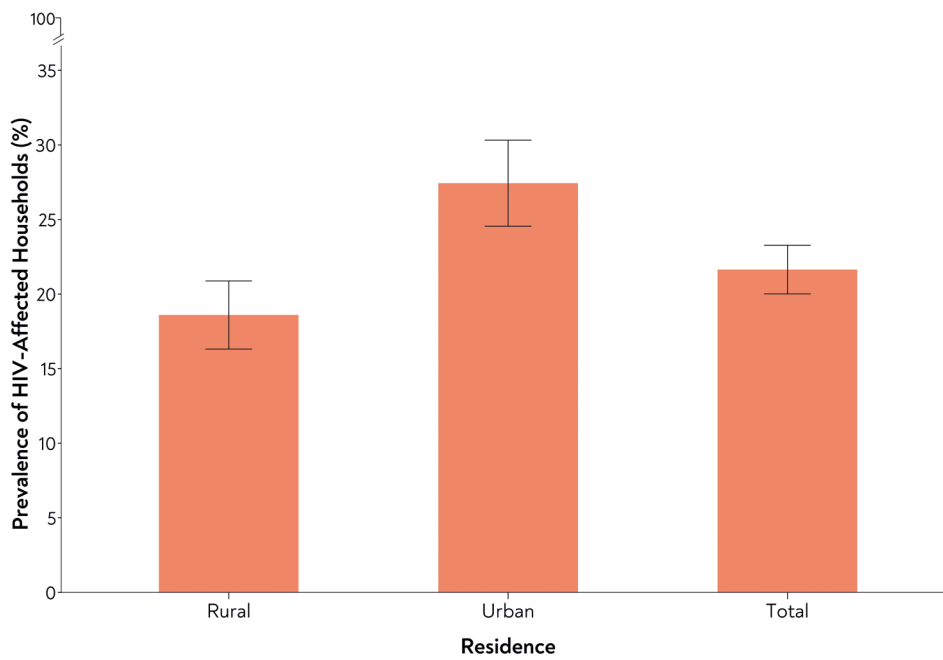
Figure 3.4
Prevalence of HIV-affected households by residence, INSIDA 2021

Table 3.5 Prevalence of households with an HIV-positive head of household

Percentage of households with an HIV-positive head of household by sex of head of household, INSIDA 2021		
Sex of head of household	Percent	Number
Male	13.5	3,810
Female	22.1	2,586
Total	16.9	6,396

Figure 3.5
Prevalence of HIV among heads of households, by sex, INSIDA 2021
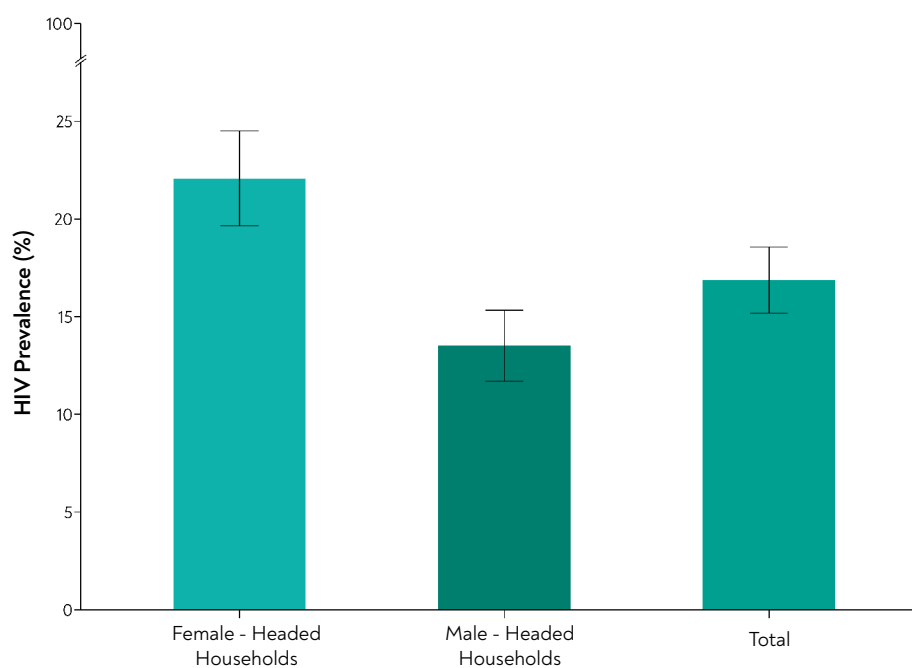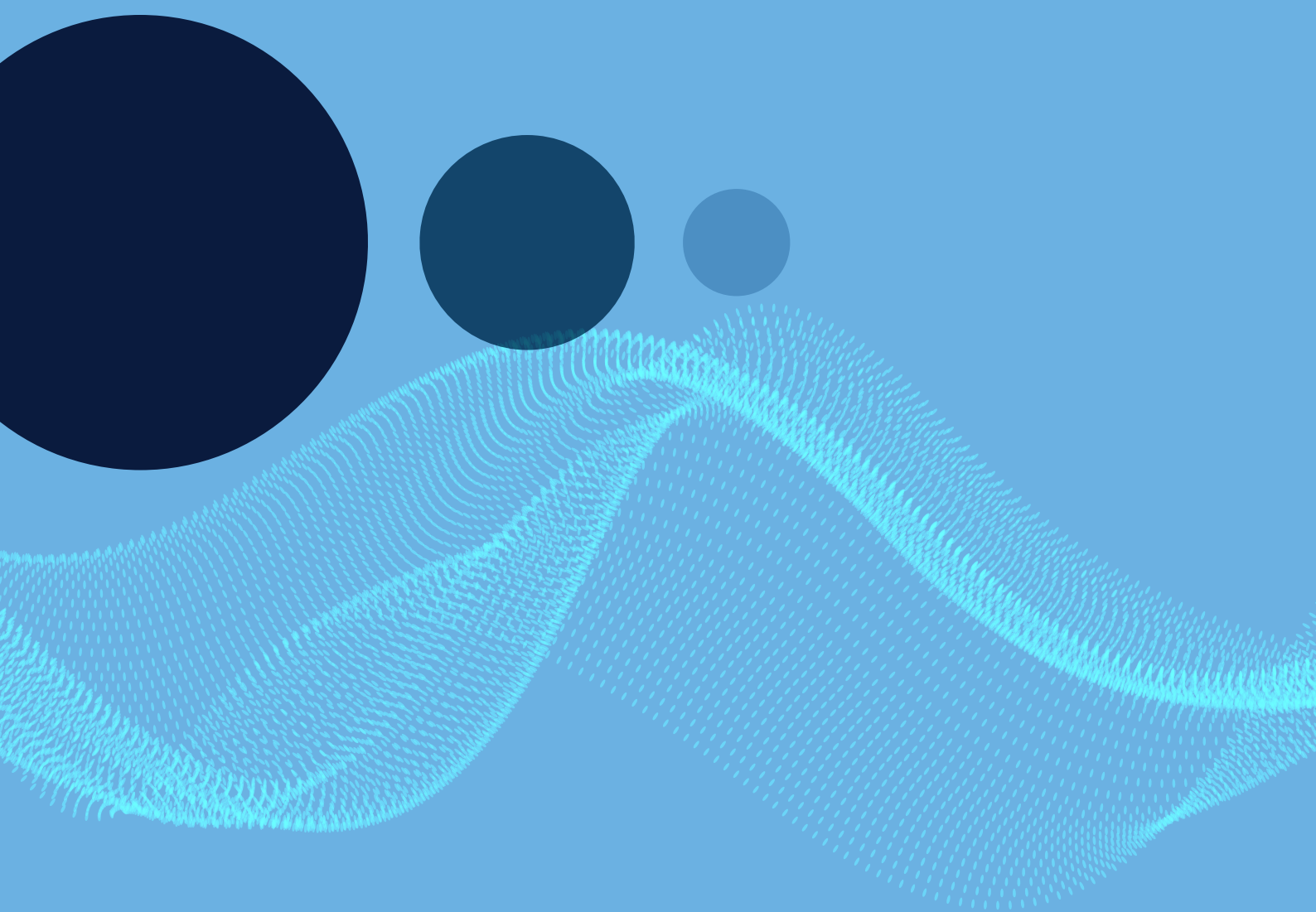
4. SURVEY POPULATION CHARACTERISTICS

4.1 BACKGROUND

INSIDA 2021 assessed key indicators and outcomes for adults (defined as those aged 15 years and older). To provide context for these outcomes, this chapter summarizes the basic demographic and socioeconomic characteristics of the survey population. Most key indicators in this report are stratified according to these characteristics.

4.2 RESULTS

Table 4.1 presents the demographic characteristics of the population in INSIDA 2021.

Table 4.1 Demographic characteristics of the adult population

Percent distribution of the population aged 15 years and older by sex and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
Residence						
Urban	39.4	2,906	38.1	4,001	38.7	6,907
Rural	60.6	4,386	61.9	5,812	61.3	10,198
Province						
Niassa	6.1	621	5.7	693	5.9	1,314
Cabo Delgado	9.1	516	9.1	658	9.1	1,174
Nampula	20.1	1,150	17.2	1,216	18.5	2,366
Zambézia	13.4	514	12.9	643	13.1	1,157
Tete	9.0	993	8.7	1,300	8.9	2,293
Manica	7.4	637	7.9	879	7.7	1,516
Sofala	9.8	631	9.9	863	9.8	1,494
Inhambane	4.7	461	6.6	888	5.7	1,349
Gaza	4.1	373	5.8	759	5.0	1,132
Maputo Província	10.5	739	10.3	1,035	10.4	1,774
Maputo Cidade	6.0	657	5.9	879	5.9	1,536
Marital status						
Never married	36.1	2,290	22.2	1,938	28.7	4,228
Married or living together	55.3	4,318	55.9	5,454	55.6	9,772
Divorced or separated	7.3	550	12.9	1,336	10.3	1,886
Widowed	1.3	123	9.0	1,060	5.4	1,183
Education						
No education	12.1	879	29.3	2,809	21.2	3,688
Primary	47.8	3,536	42.4	4,125	44.9	7,661
Secondary	36.3	2,544	25.8	2,568	30.7	5,112
More than secondary	3.9	318	2.5	280	3.1	598
Wealth quintile						
Lowest	15.3	1,051	17.4	1,524	16.4	2,575
Second	19.4	1,399	18.1	1,667	18.7	3,066
Middle	18.8	1,382	18.5	1,751	18.7	3,133
Fourth	21.1	1,483	22.0	2,184	21.6	3,667
Highest	25.4	1,954	23.9	2,659	24.6	4,613

Table 4.1 Demographic characteristics of the adult population (continued)

Percent distribution of the population aged 15 years and older by sex and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
Age						
15-19	21.1	1,177	18.7	1,402	19.9	2,579
20-24	16.7	1,143	16.8	1,561	16.8	2,704
25-29	13.2	917	14.4	1,374	13.8	2,291
30-34	10.5	726	10.5	1,102	10.5	1,828
35-39	8.6	722	8.8	920	8.7	1,642
40-44	7.5	580	7.7	775	7.6	1,355
45-49	6.0	543	5.8	637	5.9	1,180
50-54	4.5	334	4.6	551	4.6	885
55-59	3.4	311	3.5	435	3.5	746
60-64	2.6	290	2.6	359	2.6	649
65+	5.8	549	6.5	697	6.2	1,246
Total 15-24	37.9	2,320	35.5	2,963	36.6	5,283
Total 15-49	83.6	5,808	82.7	7,771	83.1	13,579
Total 50+	16.4	1,484	17.3	2,042	16.9	3,526
Total 15+	100.0	7,292	100.0	9,813	100.0	17,105

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

5. HIV INCIDENCE

5.1 BACKGROUND

HIV incidence, the measure of new HIV infections in a population over time, provides important information on the status of the HIV epidemic. It can be used for effective targeted HIV prevention planning in groups that are most vulnerable to recent infection and to measure the impact of HIV prevention programs. This chapter presents annual estimates of HIV incidence among adults (ages 15 years and older) at the national level. For the purposes of this analysis, HIV incidence is expressed as the cumulative incidence or risk of new infections in a 12-month period, which is a close approximation to the instantaneous incidence rate. It is important to note that INSIDA 2021 was not powered to estimate incidence at the provincial level or across different subgroups.

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

Incidence estimation is based on recent/long-term classification by the recent infection algorithm using limiting antigen (LAg) avidity to identify potential recent infections.[1,2,3] The algorithm uses viral load testing to exclude specimens with low viral load and limit misclassification of persons as recent infections who are elite controllers[*] or on effective ART. The algorithm uses ARV detection to exclude specimens with high viral load and limit misclassification as recent infections of persons with longstanding infection who are on ART but have drug resistance or poor treatment adherence.[4]

5.2 RESULTS

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

Table 5.1 Annual HIV incidence using the recent infection testing algorithm

Annual incidence of HIV among adults aged 15-49 and 15 years and older, by sex and age, using the recent infection testing algorithm (limiting antigen plus viral load plus antiretroviral biomarker testing), INSIDA 2021

Age	Men		Woman		Total	
	Percentage annual incidence[1]	95% CI	Percentage annual incidence[1]	95% CI	Percentage annual incidence[1]	95% CI
15-24	0.28	(0.00-0.69)	0.72	(0.14-1.29)	0.50	(0.15-0.85)
25-34	0.15	(0.00-0.51)	0.68	(0.00-1.40)	0.43	(0.03-0.83)
35-49	0.21	(0.00-0.63)	0.76	(0.00-1.75)	0.49	(0.00-1.04)
50+	0.29	(0.00-0.84)	0.12	(0.00-0.41)	0.20	(0.00-0.48)
15-49	0.23	(0.00-0.47)	0.72	(0.34-1.10)	0.48	(0.25-0.71)
15+	0.24	(0.02-0.46)	0.61	(0.29-0.93)	0.43	(0.23-0.63)

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

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

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

People living with HIV and number of new HIV infections per year among adults aged 15-49 years and 15 years and older, by age, using the recent infection testing algorithm (limiting antigen plus viral load plus antiretroviral biomarker testing), INSIDA 2021

Age	People living with HIV[1]	95% CI	Number of new HIV infections per year	95% CI
15-24	330,000	(278,000-383,000)	29,000	(8,000-50,000)
25-34	603,000	(532,000-674,000)	15,000	(1,000-29,000)
35-49	799,000	(719,000-879,000)	14,000	(0-31,000)
50+	365,000	(317,000-413,000)	5,000	(0-12,000)
15-49	1,732,000	(1,589,000-1,876,000)	59,000	(30,000-87,000)
15+	2,097,000	(1,938,000-2,256,000)	63,000	(34,000-93,000)

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

5.3 REFERENCES

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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 Mar 27;7(3):e33328. doi: 10.1371/journal.pone.0033328.

4. Voetsch AC, Duong YT, Stupp P, et al. HIV-1 recent infection testing algorithm with antiretroviral drug detection to improve accuracy of incidence estimates. *J Acquir Immune Defic Syndr*. 2021;87(Suppl 1):S73-S80. doi:10.1097/QAI.0000000000002707.
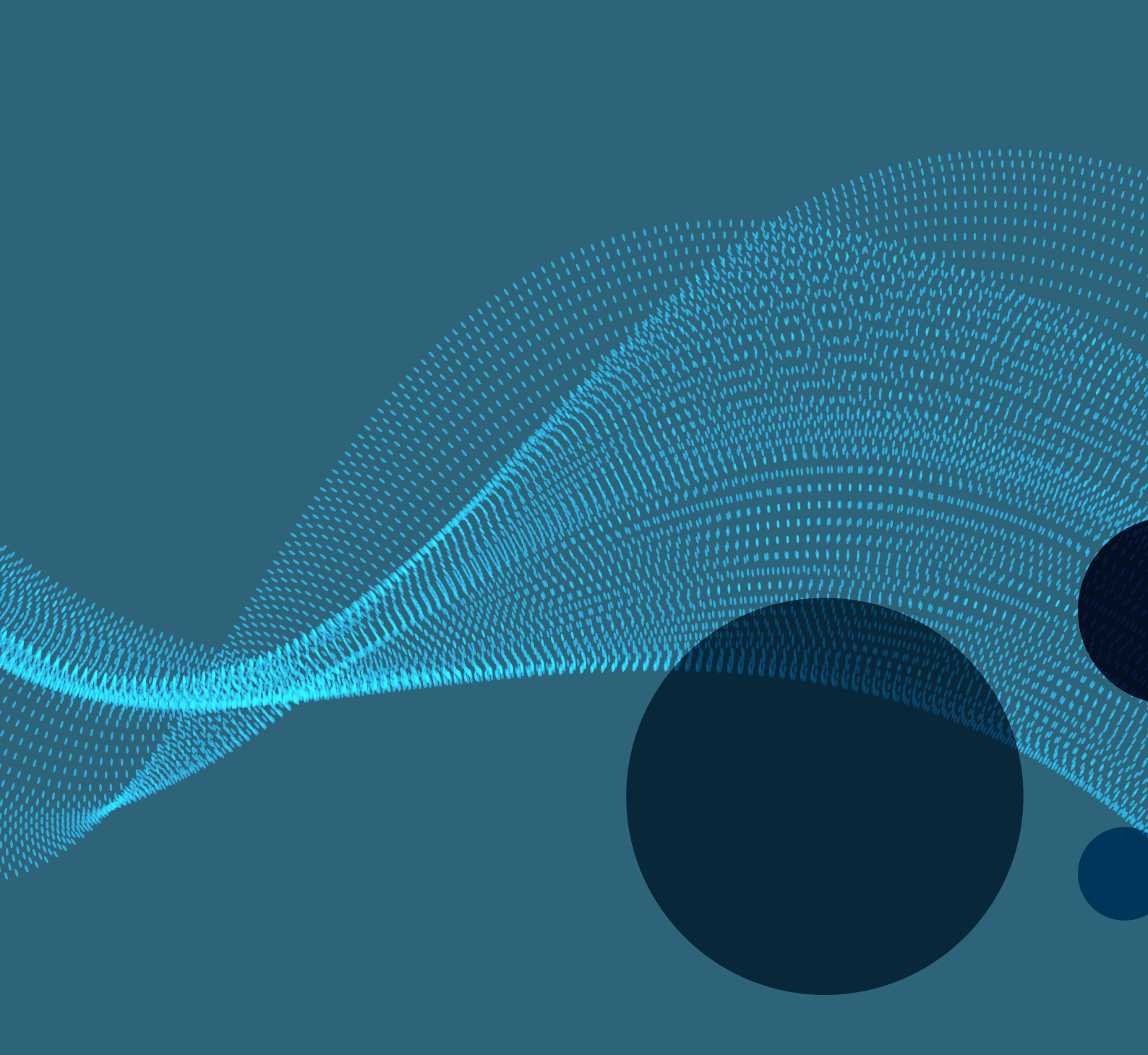
6. HIV PREVALENCE

6.1 BACKGROUND

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

6.2 RESULTS

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

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

Prevalence of HIV among adults aged 15-49 years by sex and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Residence						
Urban	9.4	2,036	17.5	2,808	13.7	4,844
Rural	8.7	2,871	14.0	3,728	11.5	6,599
Province						
Niassa	5.8	430	10.7	500	8.3	930
Cabo Delgado	5.3	326	14.1	404	10.1	730
Nampula	8.0	814	12.2	902	10.1	1,716
Zambézia	16.2	360	20.0	454	18.2	814
Tete	5.0	655	11.0	806	8.1	1,461
Manica	7.0	444	7.2	594	7.1	1,038
Sofala	10.9	462	17.0	604	14.1	1,066
Inhambane	8.0	229	15.1	521	12.5	750
Gaza	11.1	232	27.1	437	20.3	669
Maputo Província	9.8	541	18.6	740	14.4	1,281
Maputo Cidade	9.0	414	21.0	574	15.3	988
Marital status						
Never married	2.6	1,887	8.8	1,524	5.1	3,411
Married or living together	13.3	2,603	14.6	3,830	14.0	6,433
Divorced or separated	15.4	388	25.3	915	22.0	1,303
Widowed	(26.8)	25	39.0	256	37.8	281
Education						
No education	8.0	475	16.7	1,452	14.3	1,927
Primary	10.1	2,224	16.2	2,794	13.3	5,018
Secondary	8.3	1,999	14.0	2,081	10.8	4,080
More than secondary	7.1	205	6.4	196	6.8	401

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

Prevalence of HIV among adults aged 15-49 years by sex and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Wealth quintile						
Lowest	6.7	693	12.3	969	9.8	1,662
Second	7.0	894	10.0	1,058	8.5	1,952
Middle	11.3	922	17.1	1,120	14.3	2,042
Fourth	11.6	1,022	18.3	1,516	15.2	2,538
Highest	8.0	1,360	17.3	1,855	12.8	3,215
Pregnancy status						
Currently pregnant	NA	NA	10.6	469	NA	NA
Not currently pregnant	NA	NA	15.8	5,991	NA	NA
Total 15-49	9.0	4,907	15.4	6,536	12.4	11,443

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

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

Prevalence of HIV among adults aged 15 years and older by sex and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Residence						
Urban	10.4	2,429	17.7	3,362	14.2	5,791
Rural	9.0	3,804	13.4	4,893	11.4	8,697
Province						
Niassa	5.7	540	10.3	586	8.0	1,126
Cabo Delgado	6.1	412	14.3	479	10.5	891
Nampula	7.7	1,044	12.3	1,076	10.0	2,120
Zambézia	16.3	455	17.7	567	17.1	1,022
Tete	5.8	813	10.9	1,017	8.4	1,830
Manica	7.7	546	8.0	731	7.9	1,277
Sofala	10.1	586	15.8	788	13.2	1,374
Inhambane	9.3	366	14.6	743	12.6	1,109
Gaza	13.0	310	25.9	640	20.9	950
Maputo Província	11.4	635	18.9	888	15.4	1,523
Maputo Cidade	11.6	526	20.2	740	16.2	1,266
Marital status						
Never married	2.9	1,961	9.3	1,656	5.5	3,617
Married or living together	12.9	3,673	14.0	4,556	13.5	8,229
Divorced or separated	15.2	479	24.9	1,144	21.7	1,623
Widowed	19.9	111	21.2	882	21.1	993

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

Prevalence of HIV among adults aged 15 years and older by sex and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Education						
No education	8.7	758	14.8	2,353	13.2	3,111
Primary	10.6	3,076	16.0	3,506	13.3	6,582
Secondary	8.6	2,150	14.2	2,160	11.1	4,310
More than secondary	7.4	236	8.4	213	7.8	449
Wealth quintile						
Lowest	5.9	910	11.4	1,287	9.1	2,197
Second	7.2	1,223	9.9	1,389	8.5	2,612
Middle	11.0	1,209	16.6	1,450	13.9	2,659
Fourth	13.1	1,259	18.1	1,868	15.8	3,127
Highest	9.5	1,614	17.5	2,236	13.7	3,850
Pregnancy status						
Currently pregnant	NA	NA	10.6	470	NA	NA
Not currently pregnant	NA	NA	15.3	7,706	NA	NA
Total 15+	9.5	6,233	15.0	8,255	12.5	14,488

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

Figure 6.2.1

HIV prevalence among adults aged 15 years and older by province, INSIDA 2021
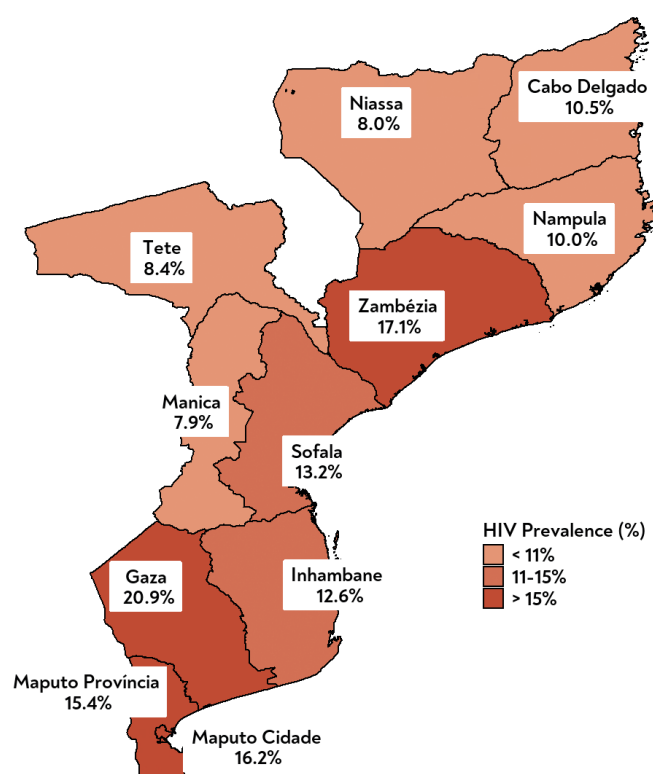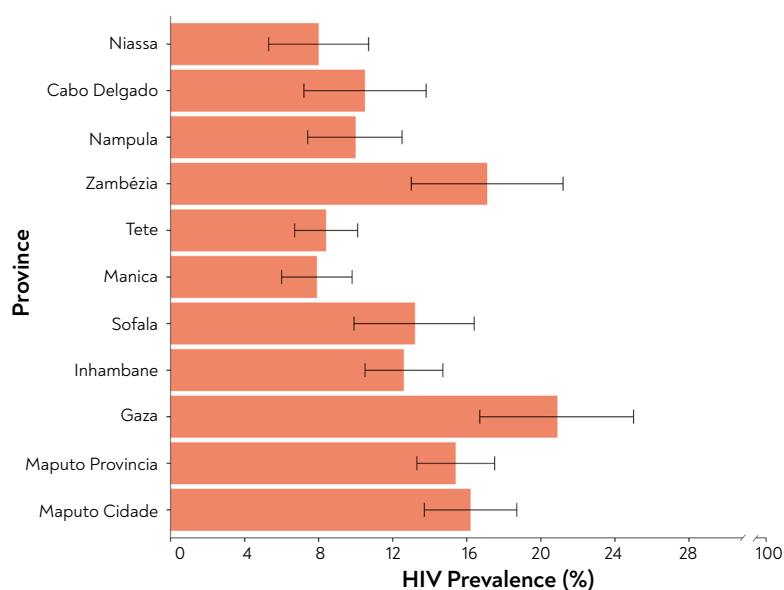
Figure 6.2.2
HIV prevalence among adults aged 15 years and older by province, INSIDA 2021

Table 6.3 HIV prevalence by age and sex

Prevalence of HIV among adults aged 15 years and older by sex and age, INSIDA 2021

Age	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
15-19	1.6	1,005	4.5	1,195	3.1	2,200
20-24	3.8	976	11.8	1,303	8.1	2,279
25-29	7.1	765	15.4	1,142	11.7	1,907
30-34	15.9	592	21.3	908	18.8	1,500
35-39	15.9	612	26.6	763	21.6	1,375
40-44	19.6	491	23.5	667	21.7	1,158
45-49	18.9	466	22.3	558	20.7	1,024
50-54	15.4	295	19.0	476	17.3	771
55-59	15.4	277	16.5	363	16.0	640
60-64	13.8	258	12.6	314	13.2	572
65+	7.4	496	7.9	566	7.6	1,062
Total 15-24	2.6	1,981	8.0	2,498	5.4	4,479
Total 15-49	9.0	4,907	15.4	6,536	12.4	11,443
Total 50+	12.3	1,326	13.3	1,719	12.9	3,045
Total 15+	9.5	6,233	15.0	8,255	12.5	14,488

Figure 6.3
HIV prevalence by age
and sex, INSIDA 2021
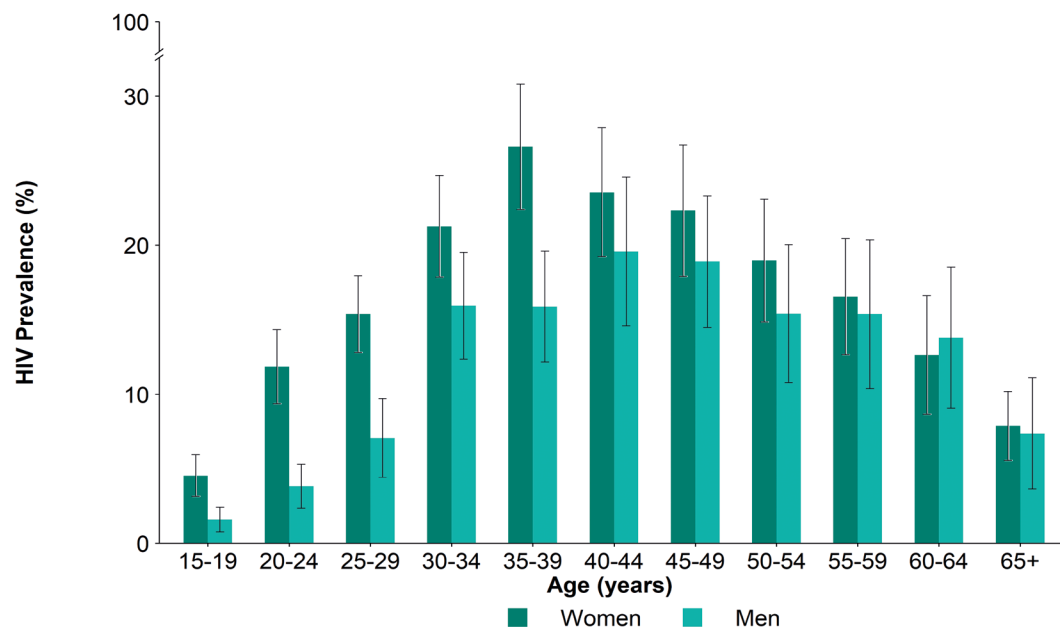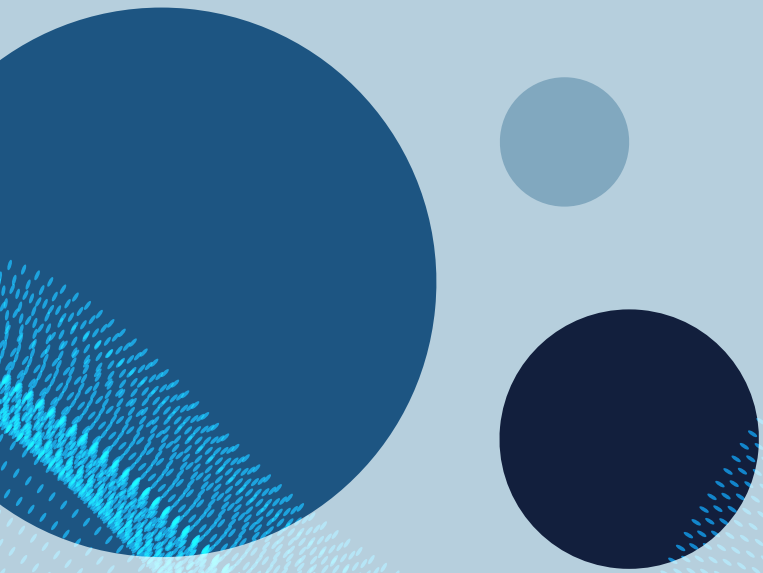
7. HIV DIAGNOSIS AND TREATMENT

7.1 BACKGROUND

HIV testing is necessary for awareness of HIV status and is an essential component of HIV epidemic control targets. For people living with HIV, awareness of HIV status is the first step to engagement with HIV care, treatment and support services, with access to ART and counselling to prevent onward transmission; while individuals who learn that they are HIV-negative can be provided with prevention counselling and linked to other interventions and services to reduce their risk of HIV acquisition. While many countries have expanded the uptake of HIV testing services, making certain that everyone knows their current HIV status remains a challenge. INSIDA 2021 gathered data on HIV testing and awareness to help identify gaps in testing uptake, and whether there were subpopulations in need of expanded or community-based HIV testing service options such as self-testing, mobile testing, partner notification/testing, and index case testing.

Once someone has been diagnosed, current guidelines recommend that they immediately be linked to HIV treatment services to start ART as soon as possible.[1,2] Treating people living with HIV as soon as possible can improve their immune recovery and preserve health, decreasing the risk of opportunistic infections, cancers, comorbidities, and mortality. In addition, it can help them to protect their loved ones from sexual and vertical transmission of HIV. In 2016, after an extensive review of the evidence of both the clinical and population-level benefits of expanding ART, WHO changed their ART policy recommendations to "Treat All" regardless of CD4 count. By November 2017, all countries in sub-Saharan Africa had adopted this policy, despite the challenges in ensuring uptake and implementation.[2] This policy was adopted in Mozambique in 2016.[3]

7.2 RESULTS

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

Tables 7.2.A-C and Figure 7.2 present the proportion of participants who tested positive in INSIDA 2021 who reported awareness of their status as well as the proportion of those who were aware of their HIV-positive status who reported that they were also on ART.

Note that since participants are sometimes reluctant to reveal their HIV and treatment status in a household survey, INSIDA 2021 determined whether they were taking ART by screening their blood for the presence of selected ARVs (atazanavir, dolutegravir, efavirenz, and lopinavir) used in first- and second-line regimens in the country at the time of the survey. Since many tables in this report describe estimates among self-reported people living with HIV without adjustment for ARV detection, Tables 7.3.A-C reports the concordance of self-reported and actual ART use based upon ARV biomarker data.

Table 7.1.A Self-reported HIV testing: Men

Percentage of men aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Among all men			Among men who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Result of INSIDA HIV test						
HIV positive	81.3	36.4	589	52.5	16.6	214
HIV negative	49.6	24.2	5,231	49.3	24.1	5,202
Not tested	58.6	34.8	984	57.7	34.3	958

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

Percentage of men aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Among all men			Among men who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Residence						
Urban	66.3	34.6	2,680	63.9	33.4	2,475
Rural	45.5	21.7	4,124	42.3	20.3	3,899
Province						
Niassa	35.4	14.8	584	33.8	14.2	568
Cabo Delgado	41.6	22.0	490	39.9	20.3	476
Nampula	37.8	17.3	1,087	35.4	15.7	1,041
Zambézia	64.3	37.4	475	59.4	34.8	412
Tete	62.0	26.2	948	60.2	25.7	911
Manica	54.9	29.4	613	53.0	28.4	582
Sofala	46.7	23.0	591	44.1	22.5	560
Inhambane	56.2	30.8	427	53.9	29.8	401
Gaza	61.5	33.8	335	56.5	31.8	289
Maputo Província	74.3	34.1	670	72.1	33.9	608
Maputo Cidade	76.3	38.7	584	74.1	38.5	526
Marital status						
Never married	40.3	20.3	2,159	39.4	20.0	2,123
Married or living together	62.3	31.0	4,023	58.8	29.3	3,683
Divorced or separated	56.5	28.9	503	53.2	26.6	463
Widowed	41.9	13.5	108	34.6	9.0	95
Education						
No education	30.0	15.1	824	25.8	12.9	776
Primary	46.5	20.6	3,298	43.0	19.0	3,072
Secondary	67.2	35.6	2,373	65.2	34.7	2,230
More than secondary	88.3	56.2	297	87.7	55.1	285
Wealth quintile						
Lowest	35.7	15.9	986	33.8	15.0	957
Second	41.1	20.7	1,326	38.6	19.5	1,268
Middle	48.2	24.2	1,299	44.3	22.8	1,214
Fourth	61.6	31.3	1,379	58.1	28.8	1,261
Highest	72.0	36.5	1,793	70.1	35.8	1,653
Age						
15-19	26.7	12.3	1,124	26.2	12.0	1,114
20-24	57.5	31.2	1,071	56.9	30.9	1,059
25-29	65.1	36.0	859	63.9	34.9	834
30-34	72.0	39.8	684	69.6	38.1	632

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

Percentage of men aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Among all men			Among men who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
35-39	71.8	33.4	660	68.2	32.1	589
40-44	63.7	27.6	536	58.5	25.3	470
45-49	56.9	24.6	501	49.8	22.5	437
50-54	59.2	27.5	313	53.3	24.3	275
55-59	57.9	27.6	287	51.9	24.3	255
60-64	51.0	23.5	270	45.3	21.4	239
65+	34.1	14.6	499	29.8	11.8	470
Total 15-24	40.1	20.5	2,195	39.6	20.2	2,173
Total 15-49	54.5	27.6	5,435	52.0	26.4	5,135
Total 50+	48.8	22.3	1,369	43.1	19.2	1,239
Total 15+	53.6	26.7	6,804	50.7	25.3	6,374

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

Table 7.1.B Self-reported HIV testing: Women

Percentage of women aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Among all women			Among women who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Result of INSIDA HIV test						
HIV positive	85.3	40.8	1,235	56.4	26.6	385
HIV negative	60.6	32.8	6,150	60.4	32.7	6,124
Not tested	67.0	44.0	1,412	65.6	43.6	1,344
Residence						
Urban	76.8	44.1	3,627	73.5	43.9	3,120
Rural	57.3	30.2	5,170	53.6	28.4	4,733

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

Percentage of women aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Among all women			Among women who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Province						
Niassa	54.4	27.3	595	52.8	26.2	568
Cabo Delgado	59.9	34.1	614	57.2	32.1	576
Nampula	49.5	22.0	1,076	46.5	20.2	1,012
Zambézia	66.7	42.5	562	61.2	40.4	474
Tete	70.6	31.0	1,215	68.5	30.9	1,140
Manica	66.5	38.0	829	64.5	37.1	775
Sofala	55.0	29.8	768	50.3	27.3	696
Inhambane	67.7	40.6	760	64.9	39.2	692
Gaza	77.2	47.6	696	71.2	47.8	532
Maputo Província	82.3	49.8	903	78.9	50.8	740
Maputo Cidade	82.5	41.7	779	79.5	43.8	648
Marital status						
Never married	50.0	31.0	1,802	47.9	30.5	1,719
Married or living together	72.0	38.8	4,853	69.0	37.4	4,366
Divorced or separated	72.0	40.2	1,198	66.1	38.9	980
Widowed	47.7	20.0	925	39.1	16.2	773
Education						
No education	45.2	22.1	2,474	40.4	19.7	2,278
Primary	67.9	34.3	3,653	64.0	32.9	3,168
Secondary	78.5	49.6	2,386	76.0	49.3	2,141
More than secondary	92.7	62.1	258	92.3	61.8	244
Wealth quintile						
Lowest	49.4	24.7	1,363	46.6	23.5	1,292
Second	51.7	23.9	1,498	48.9	22.6	1,413
Middle	61.1	33.7	1,560	56.7	30.9	1,397
Fourth	74.3	43.8	1,953	70.7	42.4	1,684
Highest	80.0	46.2	2,401	77.0	47.1	2,045
Age						
15-19	46.5	29.6	1,325	45.8	29.5	1,308
20-24	80.4	47.7	1,418	79.2	47.0	1,349
25-29	79.9	47.4	1,242	77.6	46.4	1,124
30-34	81.2	44.0	1,000	77.9	42.7	844
35-39	78.6	37.7	825	73.5	36.7	658
40-44	69.7	34.0	688	63.1	31.5	552
45-49	58.5	27.1	560	51.0	22.5	457

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

Percentage of women aged 15 years and older who reported they had ever received an HIV test, and percentage who reported they had received an HIV test in the 12 months before the survey, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Among all women			Among women who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
50-54	52.3	24.4	472	44.8	20.7	408
55-59	44.7	17.1	378	37.6	15.2	326
60-64	40.5	20.3	308	35.0	16.2	281
65+	26.9	10.3	581	23.1	9.3	546

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

Table 7.1.C Self-reported HIV testing: Total

Percentage of adults aged 15 years and older who reported they had ever received an HIV test, and percentage who reported that they received an HIV test in the 12 months before the survey, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Among all adults			Among adults who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Result of INSIDA HIV test						
HIV positive	83.8	39.1	1,824	54.8	22.5	599
HIV negative	55.1	28.5	11,381	54.9	28.4	11,326
Not tested	63.2	39.8	2,396	61.9	39.3	2,302
Residence						
Urban	71.8	39.5	6,307	68.7	38.7	5,595
Rural	51.6	26.2	9,294	48.1	24.4	8,632
Province						
Niassa	44.7	20.9	1,179	43.1	20.0	1,136
Cabo Delgado	51.2	28.4	1,104	48.9	26.4	1,052
Nampula	43.4	19.5	2,163	40.6	17.8	2,053
Zambézia	65.5	40.0	1,037	60.3	37.6	886
Tete	66.5	28.7	2,163	64.5	28.4	2,051
Manica	61.2	34.1	1,442	59.2	33.1	1,357

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

Percentage of adults aged 15 years and older who reported they had ever received an HIV test, and percentage who reported that they received an HIV test in the 12 months before the survey, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Among all adults			Among adults who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Sofala	51.0	26.6	1,359	47.3	25.0	1,256
Inhambane	63.1	36.7	1,187	60.4	35.4	1,093
Gaza	71.2	42.4	1,031	65.2	41.3	821
Maputo Província	78.5	42.3	1,573	75.5	42.3	1,348
Maputo Cidade	79.5	40.3	1,363	76.8	41.2	1,174
Marital status						
Never married	44.3	24.7	3,961	42.8	24.2	3,842
Married or living together	67.3	35.1	8,876	64.1	33.5	8,049
Divorced or separated	66.8	36.4	1,701	61.4	34.5	1,443
Widowed	47.0	19.2	1,033	38.6	15.3	868
Education						
No education	41.0	20.1	3,298	36.2	17.8	3,054
Primary	56.9	27.3	6,951	53.0	25.6	6,240
Secondary	72.2	41.8	4,759	69.9	41.0	4,371
More than secondary	90.2	58.7	555	89.7	57.9	529
Wealth quintile						
Lowest	43.3	20.7	2,349	40.8	19.6	2,249
Second	46.5	22.3	2,824	43.7	21.1	2,681
Middle	54.9	29.1	2,859	50.6	26.9	2,611
Fourth	68.4	37.9	3,332	64.7	35.9	2,945
Highest	76.1	41.5	4,194	73.5	41.4	3,698
Age						
15-19	36.6	20.9	2,449	35.9	20.6	2,422
20-24	69.5	39.9	2,489	68.3	39.2	2,408
25-29	73.2	42.2	2,101	71.2	41.0	1,958
30-34	76.8	42.0	1,684	73.7	40.4	1,476
35-39	75.4	35.7	1,485	70.9	34.4	1,247
40-44	66.8	31.0	1,224	60.9	28.5	1,022
45-49	57.7	25.9	1,061	50.4	22.5	894
50-54	55.6	25.9	785	48.9	22.4	683
55-59	51.0	22.1	665	44.4	19.5	581
60-64	45.6	21.8	578	40.0	18.7	520
65+	30.3	12.3	1,080	26.2	10.5	1,016

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

Percentage of adults aged 15 years and older who reported they had ever received an HIV test, and percentage who reported that they received an HIV test in the 12 months before the survey, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Among all adults			Among adults who did not report an HIV-positive status		
	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number	Percentage who had ever received an HIV test	Percentage who received an HIV test in the 12 months before the survey[1]	Number
Total 15-24	51.4	29.4	4,938	50.3	28.8	4,830
Total 15-49	62.5	33.7	12,493	59.4	32.3	11,427
Total 50+	44.0	19.6	3,108	38.0	16.8	2,800
Total 15 +	59.4	31.3	15,601	56.0	29.8	14,227

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

Figure 7.1.1
Proportion of adults who reported having received an HIV test in the 12 months before the survey by age and sex, INSIDA 2021
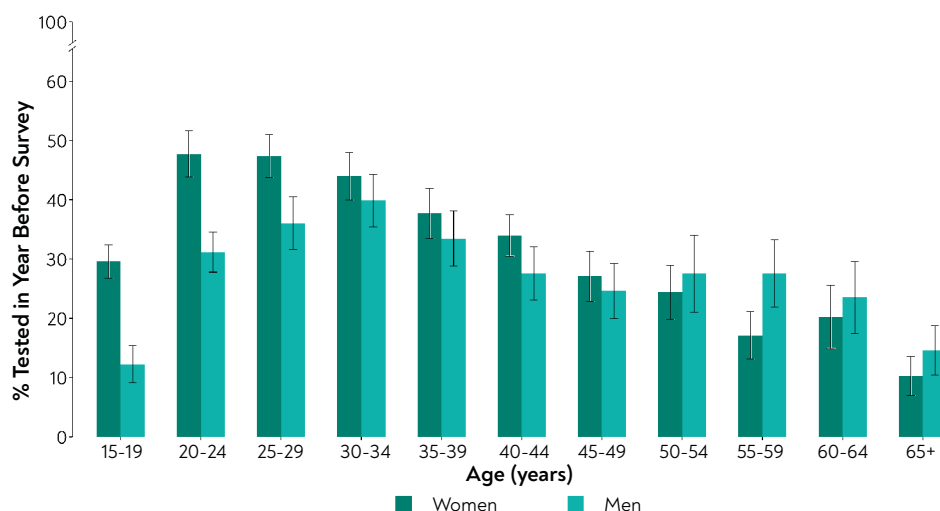
Figure 7.1.2
Proportion of adults who did not report that they were HIV positive who reported having received an HIV test in the 12 months before the survey by age and sex, INSIDA 2021
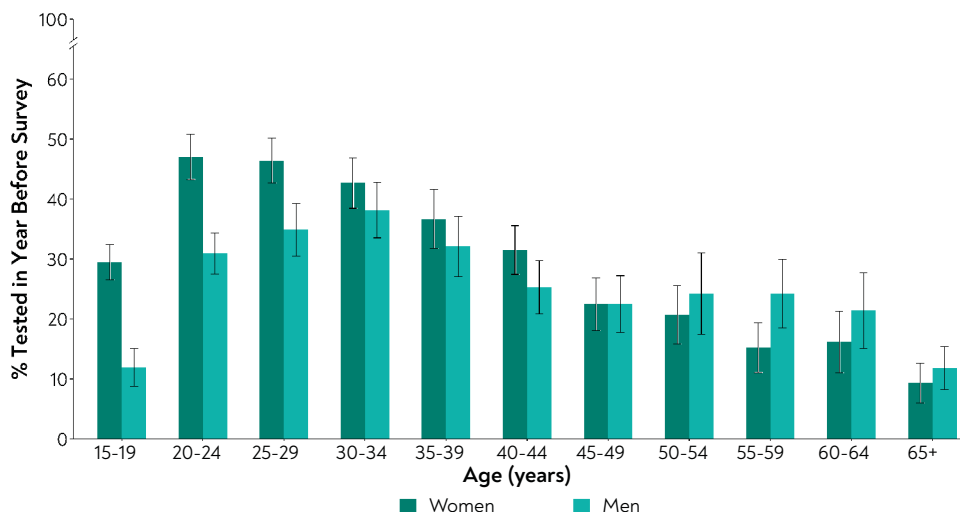
Table 7.2.A HIV diagnosis and treatment status: Men

Percent distribution of HIV-positive men, aged 15 years and older, diagnosed and on treatment based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, INSIDA 2021

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
Residence					
Urban	28.0	4.3	67.7	100.0	288
Rural	34.2	3.6	62.3	100.0	353
Province					
Niassa	(38.2)	(2.4)	(59.4)	(100.0)	35
Cabo Delgado	(50.0)	(11.9)	(38.1)	(100.0)	25
Nampula	44.9	4.5	50.6	100.0	87
Zambézia	23.1	2.2	74.8	100.0	85
Tete	(34.2)	(0.0)	(65.8)	(100.0)	48
Manica	30.9	3.9	65.2	100.0	52
Sofala	55.1	2.8	42.1	100.0	54
Inhambane	(29.1)	(5.6)	(65.3)	(100.0)	44
Gaza	15.7	0.0	84.3	100.0	54
Maputo Província	13.7	7.9	78.4	100.0	79
Maputo Cidade	19.3	1.9	78.8	100.0	78
Marital status					
Never married	43.3	0.0	56.7	100.0	66
Married or living together	29.6	4.5	65.9	100.0	477
Divorced or separated	34.9	1.3	63.8	100.0	72
Widowed	(24.8)	(13.7)	(61.5)	(100.0)	25
Education					
No education	21.2	8.0	70.8	100.0	72
Primary	33.0	3.5	63.5	100.0	356
Secondary	33.6	3.5	62.9	100.0	193
More than secondary	*	*	*	*	18
Wealth quintile					
Lowest	42.1	4.2	53.7	100.0	55
Second	36.9	1.4	61.7	100.0	92
Middle	32.5	4.3	63.2	100.0	139
Fourth	30.0	6.0	64.0	100.0	169
Highest	25.4	2.2	72.3	100.0	186
Age					
15-19	*	*	*	*	18
20-24	(59.9)	(0.0)	(40.1)	(100.0)	35
25-29	(43.4)	(0.9)	(55.7)	(100.0)	45
30-34	47.7	1.4	50.9	100.0	85
35-39	24.0	9.1	66.9	100.0	103
40-44	28.1	4.2	67.7	100.0	103
45-49	16.3	5.7	78.0	100.0	87
50-54	(20.9)	(8.1)	(71.0)	(100.0)	47

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

Percent distribution of HIV-positive men, aged 15 years and older, diagnosed and on treatment based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, INSIDA 2021

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
55-59	(8.9)	(0.0)	(91.1)	(100.0)	43
60-64	(32.0)	(8.2)	(59.7)	(100.0)	40
65+	(10.5)	(0.0)	(89.5)	(100.0)	35
Total 15-24	54.7	0.0	45.3	100.0	53
Total 15-49	35.3	3.8	60.9	100.0	476
Total 50+	17.6	4.3	78.2	100.0	165
Total 15+	31.5	3.9	64.6	100.0	641

[1] Relates to Global AIDS Monitoring 2022 Indicator 1.2 : People living with HIV on ART; and PEPFAR TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving ART.
* Estimates based on a denominator less than 25 have been suppressed.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 7.2.B HIV diagnosis and treatment status: Women

Percent distribution of HIV-positive women, aged 15 years and older, diagnosed and on treatment based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, INSIDA 2021

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
Residence					
Urban	22.2	2.1	75.7	100.0	684
Rural	30.4	1.7	68.0	100.0	708
Province					
Niassa	43.3	0.0	56.7	100.0	70
Cabo Delgado	45.7	0.0	54.3	100.0	73
Nampula	41.9	3.0	55.1	100.0	134
Zambézia	14.9	2.5	82.7	100.0	108
Tete	28.7	1.2	70.1	100.0	117
Manica	23.1	1.3	75.5	100.0	72
Sofala	33.8	2.3	63.9	100.0	125
Inhambane	24.4	3.6	71.9	100.0	125
Gaza	11.3	0.5	88.1	100.0	197
Maputo Província	14.5	1.8	83.8	100.0	199
Maputo Cidade	26.1	2.2	71.8	100.0	172
Marital status					
Never married	35.1	1.6	63.3	100.0	166
Married or living together	25.6	1.9	72.4	100.0	689
Divorced or separated	26.7	2.7	70.6	100.0	313
Widowed	22.5	0.5	77.1	100.0	220

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

Percent distribution of HIV-positive women, aged 15 years and older, diagnosed and on treatment based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, INSIDA 2021

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
Education					
No education	31.6	0.2	68.2	100.0	364
Primary	27.2	2.7	70.1	100.0	668
Secondary	20.1	1.5	78.4	100.0	336
More than secondary	*	*	*	*	21
Wealth quintile					
Lowest	40.5	3.6	55.9	100.0	152
Second	33.7	1.5	64.8	100.0	146
Middle	28.2	1.4	70.4	100.0	256
Fourth	22.7	1.2	76.1	100.0	380
Highest	19.7	2.1	78.2	100.0	456
Age					
15-19	(52.8)	(0.0)	(47.2)	(100.0)	48
20-24	39.6	2.3	58.0	100.0	143
25-29	27.6	0.4	72.0	100.0	183
30-34	23.4	2.4	74.2	100.0	205
35-39	20.5	4.4	75.0	100.0	224
40-44	17.7	1.4	80.9	100.0	177
45-49	20.7	0.5	78.8	100.0	144
50-54	25.9	1.6	72.5	100.0	92
55-59	22.0	2.2	75.8	100.0	75
60-64	(21.0)	(0.0)	(79.0)	(100.0)	44
65+	29.8	1.4	68.8	100.0	57
Total 15-24	43.6	1.6	54.8	100.0	191
Total 15-49	27.0	1.9	71.1	100.0	1,124
Total 50+	25.1	1.5	73.4	100.0	268
Total 15+	26.7	1.8	71.4	100.0	1,392

[1] Relates to Global AIDS Monitoring 2021 Indicator 1.2: People living with HIV on ART and PEPFAR TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving ART.
* Estimates based on a denominator less than 25 have been suppressed.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Table 7.2.C HIV diagnosis and treatment status: Total

Percent distribution of HIV-positive adults, aged 15 years and older, diagnosed and on treatment based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, INSIDA 2021

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
Residence					
Urban	24.2	2.9	72.9	100.0	972
Rural	31.8	2.4	65.9	100.0	1,061
Province					
Niassa	41.5	0.8	57.7	100.0	105
Cabo Delgado	46.8	3.2	50.0	100.0	98
Nampula	43.1	3.6	53.3	100.0	221
Zambézia	18.6	2.3	79.0	100.0	193
Tete	30.5	0.8	68.7	100.0	165
Manica	26.6	2.5	70.9	100.0	124
Sofala	41.4	2.5	56.0	100.0	179
Inhambane	25.7	4.2	70.1	100.0	169
Gaza	12.4	0.4	87.2	100.0	251
Maputo Província	14.2	3.9	81.9	100.0	278
Maputo Cidade	23.8	2.1	74.1	100.0	250
Marital status					
Never married	37.6	1.1	61.3	100.0	232
Married or living together	27.4	3.1	69.5	100.0	1,166
Divorced or separated	28.6	2.4	69.0	100.0	385
Widowed	22.7	1.9	75.4	100.0	245
Education					
No education	29.8	1.5	68.7	100.0	436
Primary	29.5	3.0	67.5	100.0	1,024
Secondary	25.9	2.4	71.7	100.0	529
More than secondary	(26.9)	(7.7)	(65.4)	(100.0)	39
Wealth quintile					
Lowest	40.9	3.8	55.3	100.0	207
Second	35.0	1.4	63.5	100.0	238
Middle	29.8	2.5	67.6	100.0	395
Fourth	25.4	3.0	71.5	100.0	549
Highest	21.6	2.2	76.2	100.0	642
Age					
15-19	50.8	0.0	49.2	100.0	66
20-24	44.1	1.8	54.1	100.0	178
25-29	31.9	0.6	67.6	100.0	228
30-34	33.1	2.0	64.9	100.0	290
35-39	21.7	6.1	72.2	100.0	327
40-44	22.0	2.6	75.4	100.0	280
45-49	18.8	2.8	78.4	100.0	231
50-54	23.8	4.3	71.9	100.0	139

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

Percent distribution of HIV-positive adults, aged 15 years and older, diagnosed and on treatment based on self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral in blood), by selected demographic characteristics, INSIDA 2021

Characteristic	Unaware of HIV status	Aware of HIV status and not on ART	Aware of HIV status and on ART[1]	Total	Number
55-59	16.2	1.2	82.6	100.0	118
60-64	26.4	4.0	69.5	100.0	84
65+	21.6	0.8	77.6	100.0	92
Total 15-24	46.2	1.3	52.6	100.0	244
Total 15-49	29.9	2.5	67.6	100.0	1,600
Total 50+	21.8	2.7	75.5	100.0	433
Total 15+	28.4	2.6	69.0	100.0	2,033

[1] Relates to Global AIDS Monitoring 2022 Indicator 1.2: People living with HIV on ART; and PEPFAR TX_CURR_NAT / SUBNAT: Percentage of adults and children currently receiving ART.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Figure 7.2
Proportion of adults living with HIV who reported awareness of HIV status and antiretroviral therapy use by sex and age, INSIDA 2021
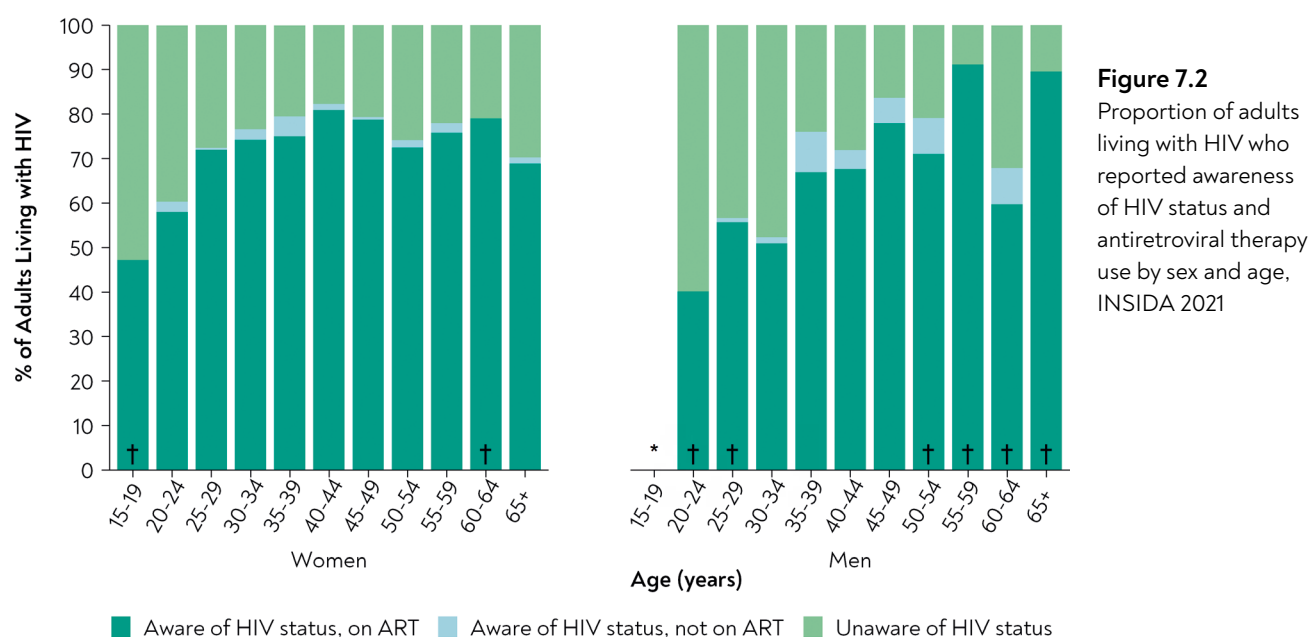
Abbreviation: ART, antiretroviral therapy.
Estimates based on a denominator less than 25 have been suppressed with an asterisk.
Estimates based on a denominator between 25 and 49 are marked by a dagger and should be interpreted with caution.

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

Percent distribution of HIV-positive men aged 15 years and older by presence of detectable antiretrovirals (ARVs) versus self-reported HIV treatment status, INSIDA 2021

Characteristic	ARV status		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	78.4	21.6	100.0	226
Previously diagnosed, not on ART	(85.0)	(15.0)	(100.0)	29
Previously diagnosed, on ART	12.2	87.8	100.0	379
Total 15-24	62.4	37.6	100.0	53
Total 15-49	46.1	53.9	100.0	475
Total 50+	26.9	73.1	100.0	164
Total 15+	42.0	58.0	100.0	639

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

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

Percent distribution of HIV-positive women aged 15 years and older by presence of detectable antiretrovirals (ARVs) versus self-reported HIV treatment status, INSIDA 2021

Characteristic	ARV status		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	75.5	24.5	100.0	434
Previously diagnosed, not on ART	(86.2)	(13.8)	(100.0)	26
Previously diagnosed, on ART	11.1	88.9	100.0	926
Total 15-24	56.4	43.6	100.0	191
Total 15-49	36.1	63.9	100.0	1,122
Total 50+	31.3	68.7	100.0	268
Total 15+	35.4	64.6	100.0	1,390

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

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

Percent distribution of HIV-positive adults aged 15 years and older by presence of detectable antiretrovirals (ARVs) versus self-reported HIV treatment status, INSIDA 2021

Characteristic	ARV status		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	76.6	23.4	100.0	660
Previously diagnosed, not on ART	85.5	14.5	100.0	55
Previously diagnosed, on ART	11.5	88.5	100.0	1,305
Total 15-24	57.8	42.2	100.0	244
Total 15-49	39.5	60.5	100.0	1,597
Total 50+	29.4	70.6	100.0	432
Total 15+	37.8	62.2	100.0	2,029

7.3 REFERENCES

1. World Health Organization. *Consolidated Guidelines on HIV Prevention, Testing, Treatment, Service Delivery and Monitoring: Recommendations for a Public Health Approach*. Geneva: World Health Organization; 2021. https://www.who.int/publications/i/item/9789240031593. Accessed February 1, 2022

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3. Tymejczyk O, Brazier E, Yiannoutsos CT, et al. Changes in rapid HIV treatment initiation after national "treat all" policy adoption in 6 sub-Saharan African countries: Regression discontinuity analysis. *PLoS Med*. 2019;16(6):e1002822. 2019 Jun 10. doi:10.1371/journal.pmed.1002822.
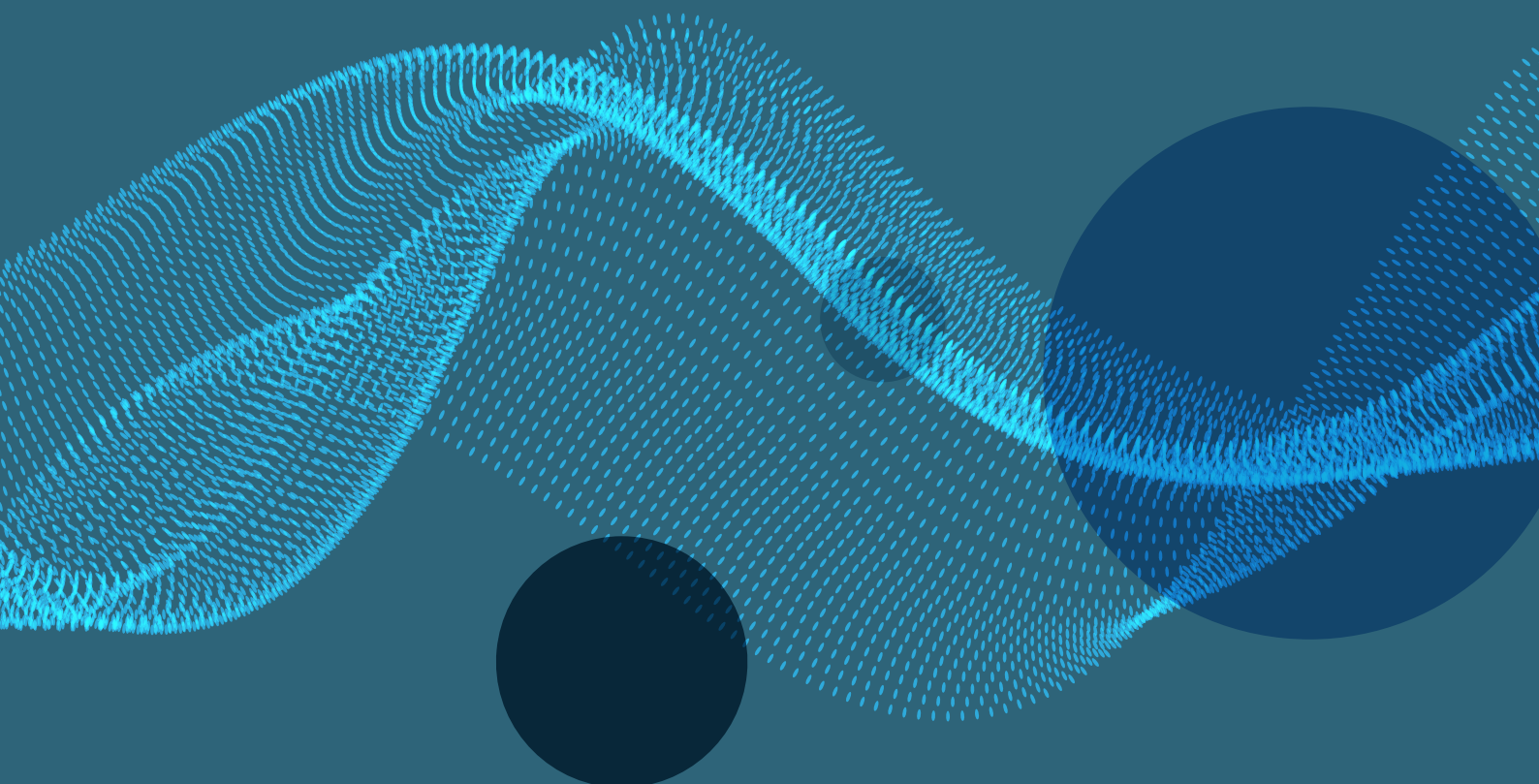
8. VIRAL LOAD SUPPRESSION

8.1 BACKGROUND

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

VLS among all people living with HIV is also an indicator of HIV programmatic success. In the 2016 *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection,* WHO set a threshold for VLS of less than 1,000 HIV RNA copies/mL.[1] This definition of VLS has been used by UNAIDS, PEPFAR, as well as across PHIAs to compare progress across countries and subnational areas.[2, 3] It should be noted that, to improve treatment monitoring in people living with HIV, WHO has since lowered the threshold for viral suppression, defining it as <50 copies/mL, while the threshold for treatment failure remains at 1,000 HIV RNA copies/mL or more.[4]

This chapter describes VLS among the population of HIV-positive adults by age, sex, province, and other demographic characteristics.

Recent research suggests other potential programmatic uses for viral load data. This chapter presents estimates by province, of the proportion of the population with HIV viremia, which may be correlated with HIV incidence.[5] Population viremia is the prevalence of unsuppressed viral load (defined here as ≥ 1,000 copies/mL) measured without regard to HIV status—the numerator is the number of people with unsuppressed viral loads, and the denominator is the entire population tested. Subnational areas with higher population viremia could be at risk of higher incidence.

INSIDA 2021 also reports on the proportion of people living with HIV with a viral load of less than 200 copies/mL. Although the current definition for VLS serves as a benchmark for monitoring global targets over time, using a lower viral load threshold for clinical monitoring has other potential benefits. Studies have shown that low level viremia (detectable ongoing viral replication at levels below 1,000 copies/mL) is associated with a significant risk of subsequent treatment failure and drug resistance.[6,7] WHO guidelines recommend enhanced adherence support for those with low level viremia, as well as repeat viral load monitoring at 3 months.[4]

Finally, INSIDA 2021 also evaluated access to viral load tests and receipt of results among people living with HIV in Mozambique. In addition to the clinical benefits that viral load monitoring offers, knowing one's own viral load could also help protect a sexual partner from HIV. Several recent studies of couples in which one partner had HIV and the other did not, found that there was no HIV transmission despite sexual activity when viral load was sustained below 200 copies/mL.[8] In addition, a recent WHO review of the HIV transmission on ART studies found low level viremia was not associated with sexual transmission.[4] These studies serve as the basis of the Undetectable = Untransmittable (U=U) strategy, which encourages people living with HIV on ART to maintain an undetectable viral load[*] for their own health, and to eliminate the risk of HIV transmission to their sexual partners.[4]

8.2 RESULTS

The following tables and figures present VLS data of people living with HIV in Mozambique, population viremia by province, and other viral load data at the time of the INSIDA 2021 survey.

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*When the U=U strategy was conceived, less than 200 copies/mL was commonly referred to as an undetectable viral load. Now, WHO defines the threshold for undetectable viral load as below 50 copies/mL; but for the purposes of U=U, maintaining a viral load below 200 copies/mL, or even below 1,000 copies/mL, is sufficient to prevent HIV transmission. Having an undetectable viral load remains the goal for clinical care.

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

Among HIV-positive adults aged 15 years and older, percentage with viral load suppression (VLS), by sex, self-reported HIV diagnosis and antiretroviral therapy (ART) use (adjusted by antiretroviral [ARV] biomarker testing), and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number
HIV diagnosis and treatment status[2]						
Unaware of HIV status	6.8	174	9.0	327	8.2	501
Aware of HIV status and not on ART	*	24	(12.8)	25	(8.0)	49
Aware of HIV status and on ART	87.6	442	90.4	1,040	89.4	1,482
Residence						
Urban	59.9	289	72.1	686	67.9	975
Rural	58.0	352	63.0	709	61.2	1,061
Province						
Niassa	(59.4)	35	59.5	70	59.5	105
Cabo Delgado	(39.9)	25	43.4	73	42.5	98
Nampula	42.8	88	51.3	136	47.9	224
Zambézia	69.7	85	78.5	109	74.5	194
Tete	(63.2)	48	66.5	117	65.4	165
Manica	64.9	52	77.4	72	71.8	124
Sofala	32.2	54	62.3	125	51.4	179
Inhambane	(68.3)	43	61.6	125	63.5	168
Gaza	70.1	54	83.6	197	80.3	251
Maputo Província	68.7	79	79.8	199	76.0	278
Maputo Cidade	74.1	78	66.9	172	69.3	250
Marital status						
Never married	44.6	66	57.6	166	53.6	232
Married or living together	61.4	477	69.6	692	66.0	1,169
Divorced or separated	55.9	72	62.2	313	60.7	385
Widowed	(57.3)	25	74.6	220	72.7	245
Education						
No education	62.5	72	62.6	366	62.5	438
Primary	58.2	356	66.2	669	63.0	1,025
Secondary	56.8	193	74.7	336	66.9	529
More than secondary	*	18	*	21	(71.2)	39
Wealth quintile						
Lowest	50.2	55	53.9	152	52.8	207
Second	53.8	91	62.8	147	59.1	238
Middle	59.1	139	63.7	257	62.0	396
Fourth	58.5	170	70.1	381	65.7	551
Highest	65.2	186	75.0	456	71.7	642
Total 15-24	42.4	53	45.2	192	44.5	245
Total 15-49	53.8	477	66.0	1,127	61.8	1,604
Total 50+	77.8	164	73.2	268	75.2	432
Total 15+	58.8	641	67.1	1,395	64.1	2,036

[1] Relates to Global AIDS Monitoring 2022 indicator 1.3: People living with HIV who have suppressed viral loads.
[2] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
* Estimates based on a denominator less than 25 have been suppressed.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.
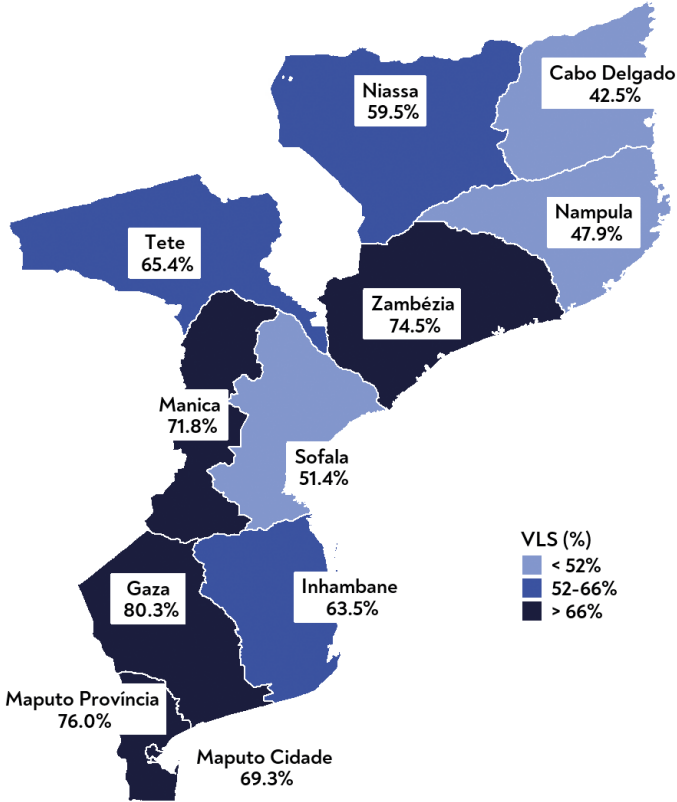
Figure 8.1.1
Viral load suppression among adults living with HIV (ages 15 years and older), by province, INSIDA 2021

Cabo Delgado
42.5%

Niassa
59.5%

Nampula
47.9%

Tete
65.4%

Zambézia
74.5%

Manica
71.8%

Sofala
51.4%

VLS (%)
< 52%
52-66%
> 66%

Gaza
80.3%

Inhambane
63.5%

Maputo Província
76.0%

Maputo Cidade
69.3%

Abbreviation: VLS, viral load suppression.
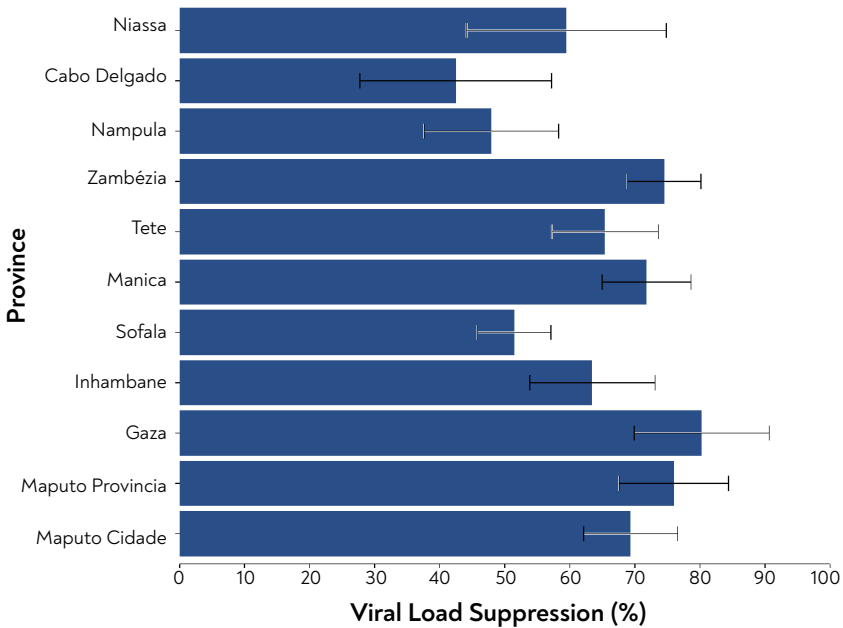
Figure 8.1.2
Viral load suppression among adults living with HIV (ages 15 years and older) by province, INSIDA 2021

Table 8.2 Viral load suppression (HIV RNA < 1,000 copies per milliliter) by age and sex

Among HIV-positive adults aged 15 years and older, percentage with viral load suppression (VLS) by sex and age, INSIDA 2021

Age	Men		Women		Total	
	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number	Percentage with VLS[1]	Number
15-19	*	18	(32.5)	48	35.8	66
20-24	(40.9)	35	50.6	144	48.4	179
25-29	(44.5)	45	67.1	183	61.0	228
30-34	42.6	85	70.5	206	59.4	291
35-39	56.1	103	71.0	225	65.9	328
40-44	66.7	103	75.4	177	71.7	280
45-49	68.4	88	79.7	144	74.8	232
50-54	(71.4)	46	74.5	92	73.2	138
55-59	(89.0)	43	76.2	75	81.9	118
60-64	(61.2)	40	(74.9)	44	68.1	84
65+	(88.2)	35	66.5	57	75.7	92
15-24	42.4	53	45.2	192	44.5	245
25-34	43.3	130	68.8	389	60.1	519
35-44	61.6	206	72.9	402	68.6	608
45-54	69.6	134	77.6	236	74.2	370
55-64	77.6	83	75.7	119	76.6	202
Total 15-49	53.8	477	66.0	1,127	61.8	1,604
Total 50+	77.8	164	73.2	268	75.2	432
Total 15+	58.8	641	67.1	1,395	64.1	2,036

[1] Relates to Global AIDS Monitoring 2022 indicator 1.3: People living with HIV who have suppressed viral loads.

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

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

Figure 8.2

Viral load suppression among adults living with HIV by age and sex, INSIDA 2021
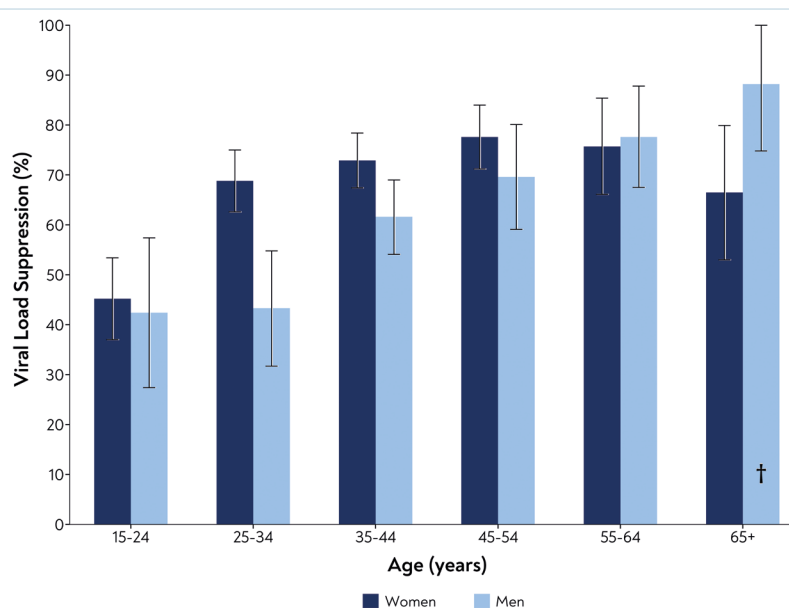
Estimates based on a denominator between 25 and 49 are marked by a dagger and should be interpreted with caution.

Table 8.3 Population viremia among the adult population in Mozambique, by province

Population viremia[1] (unsuppressed viral load [VL], defined as HIV RNA >= 1,000 copies/milliliter [mL]) among adults aged 15 years and older, by province, INSIDA 2021

	Percentage with VL ≥ 1000 copies/mL[1]	Number of adults tested for HIV	Mean log$_{10}$ VL	Number of HIV-positive individuals with VL results
Province				
Niassa	3.2	1,126	2.7	105
Cabo Delgado	6.0	891	3.4	98
Nampula	5.2	2,120	3.3	224
Zambézia	4.4	1,022	2.2	194
Tete				
Manica	2.2	1,277	2.4	124
Sofala	6.4	1,374	3.0	179
Inhambane	4.6	1,109	2.7	168
Gaza	4.1	950	1.9	251
Maputo Província	3.7	1,523	2.2	278
Maputo Cidade	5.0	1,266	2.3	250
Total 15+	4.5	14,488	2.6	2,036

[1] Population viremia is defined with a numerator of those with unsuppressed VL (>=1,000 copies/mL) and denominator of all adults tested (regardless of HIV status).
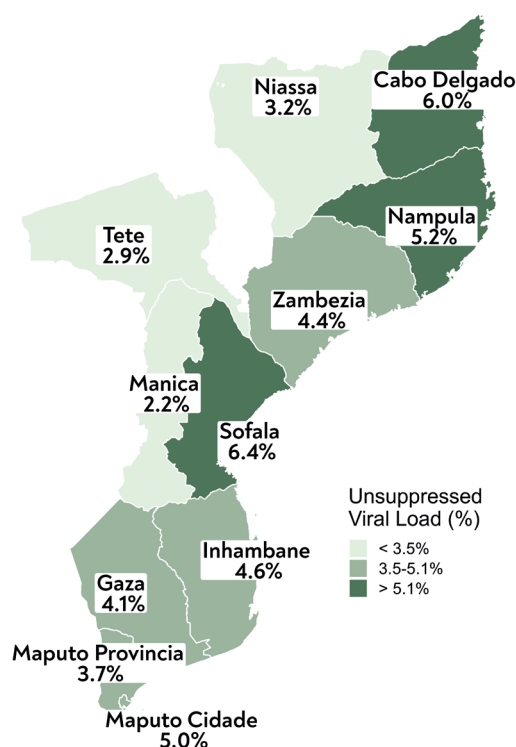
Figure 8.3
Population viremia (proportion of unsuppressed viral load in the adult population aged 15 years and older) by province, INSIDA 2021

Note: Population viremia is defined as unsuppressed viral load (HIV RNA ≥ 1,000 copies per milliliter) among all adults tested in INSIDA 2021 (regardless of HIV status). The numerator is the number of people with unsuppressed viral loads, and the denominator is the entire population tested. Subnational areas with higher population viremia could be at risk of higher incidence.

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

Among HIV-positive adults aged 15 years and older, percentage with viral load (VL) < 200 copies per milliliter, by sex, self-reported diagnosis and antiretroviral therapy (ART) use (adjusted by antiretroviral [ARV] biomarker testing), and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage with VL < 200 copies/ mL	Number	Percentage with VL < 200 copies/ mL	Number	Percentage with VL < 200 copies/ mL	Number
HIV diagnosis and treatment status'						
Unaware of HIV status	4.4	174	7.0	327	5.9	501
Aware of HIV status and not on ART	*	24	(0.0)	25	(2.2)	49
Aware of HIV status and on ART	78.2	441	84.7	1,037	82.6	1,478
Number of years since initiating ART						
Less than 12 months	68.6	55	81.4	103	76.2	158
12 months or more	79.7	304	85.1	748	83.3	1,052
1 to less than 5 years	78.0	154	84.5	334	82.2	488
5 to less than 10 years	85.3	81	84.1	215	84.4	296
More than 10 years	74.4	54	88.1	159	84.1	213
Residence						
Urban	54.5	288	66.2	683	62.1	971
Rural	50.1	352	59.1	709	55.8	1,061
Province						
Niassa	(53.5)	35	58.3	69	56.6	104
Cabo Delgado	(32.5)	25	36.9	73	35.7	98
Nampula	38.2	88	42.0	136	40.5	224
Zambézia	57.7	85	75.6	109	67.5	194
Tete	(59.8)	48	64.3	116	62.8	164
Manica	55.9	52	75.1	72	66.5	124
Sofala	28.4	54	58.5	125	47.7	179
Inhambane	(60.1)	43	57.1	125	57.9	168
Gaza	65.6	53	79.0	197	75.8	250
Maputo Província	62.2	79	73.0	198	69.3	277
Maputo Cidade	71.8	78	64.5	172	67.0	250
Marital status						
Never married	44.6	66	51.8	166	49.6	232
Married or living together	53.7	477	65.1	691	60.0	1,168
Divorced or separated	48.5	71	59.0	312	56.6	383
Widowed	(49.3)	25	66.8	219	64.9	244
Education						
No education	52.2	72	59.0	366	57.8	438
Primary	52.0	355	61.1	668	57.5	1,023
Secondary	49.8	193	68.7	335	60.5	528
More than secondary	*	18		20	(67.8)	38
Wealth quintile						
Lowest	44.6	55	51.6	152	49.6	207
Second	51.5	91	58.6	147	55.7	238
Middle	49.3	139	58.6	257	55.1	396

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

Among HIV-positive adults aged 15 years and older, percentage with viral load (VL) < 200 copies per milliliter, by sex, self-reported diagnosis and antiretroviral therapy (ART) use (adjusted by antiretroviral [ARV] biomarker testing), and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage with VL < 200 copies/mL	Number	Percentage with VL < 200 copies/mL	Number	Percentage with VL < 200 copies/mL	Number
Fourth	48.6	170	63.6	380	57.9	550
Highest	61.5	185	70.6	454	67.5	639
Age						
15-19	*	18	(29.3)	48	33.4	66
20-24	(31.3)	35	48.4	144	44.6	179
25-29	(38.2)	45	62.1	183	55.6	228
30-34	41.3	85	66.3	205	56.3	290
35-39	47.8	102	67.7	223	60.9	325
40-44	54.7	103	71.2	177	64.3	280
45-49	60.8	88	71.1	144	66.6	232
50-54	(70.2)	46	66.6	92	68.0	138
55-59	(86.3)	43	69.3	75	76.9	118
60-64	(56.1)	40	(69.9)	44	63.1	84
65+	(66.2)	35	55.1	57	59.8	92
Total 15-24	36.1	53	42.7	192	41.1	245
Total 15-49	46.9	476	61.7	1,124	56.6	1,600
Total 50+	71.0	164	65.2	268	67.7	432
Total 15+	52.0	640	62.3	1,392	58.6	2,032

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

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

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

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

Table 8.5 Self-reported viral load testing

Percentage of HIV-positive adults aged 15 years and older who reported they had ever had a viral load (VL) test, and among those who had a VL test, percentage who reported that they received VL results from their last test, by selected demographic characteristics, INSIDA 2021

Characteristic	Among all HIV-positive adults receiving HIV care		Among adults who had ever had a VL test	
	Percentage who had ever had a VL test	Number	Percentage who received VL results from their last test	Number
Sex				
Male	52.9	349	60.3	194
Female	63.2	776	62.6	494
Residence				
Urban	66.8	573	65.0	392
Rural	53.0	552	58.3	296

Table 8.5 Self-reported viral load testing (continued)

Percentage of HIV-positive adults aged 15 years and older who reported they had ever had a viral load (VL) test, and among those who had a VL test, percentage who reported that they received VL results from their last test, by selected demographic characteristics, INSIDA 2021

Characteristic	Among all HIV-positive adults receiving HIV care		Among adults who had ever had a VL test	
	Percentage who had ever had a VL test	Number	Percentage who received VL results from their last test	Number
Province				
Niassa	(63.2)	39	*	23
Cabo Delgado	(43.7)	36	*	15
Nampula	62.6	83	56.1	50
Zambézia	52.3	125	52.9	66
Tete	72.4	89	59.0	62
Manica	37.0	66	*	24
Sofala	34.5	78	(59.8)	26
Inhambane	61.3	86	59.0	52
Gaza	66.6	168	63.3	111
Maputo Província	68.5	199	64.7	133
Maputo Cidade	81.2	156	80.0	126
Marital status				
Never married	57.4	105	67.2	59
Married or living together	56.9	674	60.2	399
Divorced or separated	67.5	201	64.6	134
Widowed	66.7	141	61.4	95
Education				
No education	52.3	210	56.1	110
Primary	55.9	564	61.5	331
Secondary	68.4	325	64.5	227
More than secondary	*	23	*	18
Wealth quintile				
Lowest	54.6	82	(42.2)	40
Second	41.7	111	(37.6)	48
Middle	54.8	201	64.3	116
Fourth	55.6	321	65.1	183
Highest	74.1	409	67.4	301
Age				
15-19	*	18	*	11
20-24	37.5	67	(41.8)	28
25-29	53.9	110	62.8	57
30-34	61.6	166	54.4	100
35-39	66.1	205	71.1	131
40-44	61.4	159	66.2	101
45-49	61.8	139	61.4	93
50-54	63.7	85	60.3	53
55-59	60.1	75	(57.3)	46
60-64	69.1	55	(73.0)	41
65+	(47.3)	46	(49.3)	27

Table 8.5 Self-reported viral load testing (continued)

Percentage of HIV-positive adults aged 15 years and older who reported they had ever had a viral load (VL) test, and among those who had a VL test, percentage who reported that they received VL results from their last test, by selected demographic characteristics, INSIDA 2021

Characteristic	Among all HIV-positive adults receiving HIV care		Among adults who had ever had a VL test	
	Percentage who had ever had a VL test	Number	Percentage who received VL results from their last test	Number
Total 15-24	45.1	85	(49.4)	39
Total 15-49	59.3	864	62.3	521
Total 50+	60.4	261	60.3	167
Total 15+	59.5	1,125	61.9	688

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

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

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

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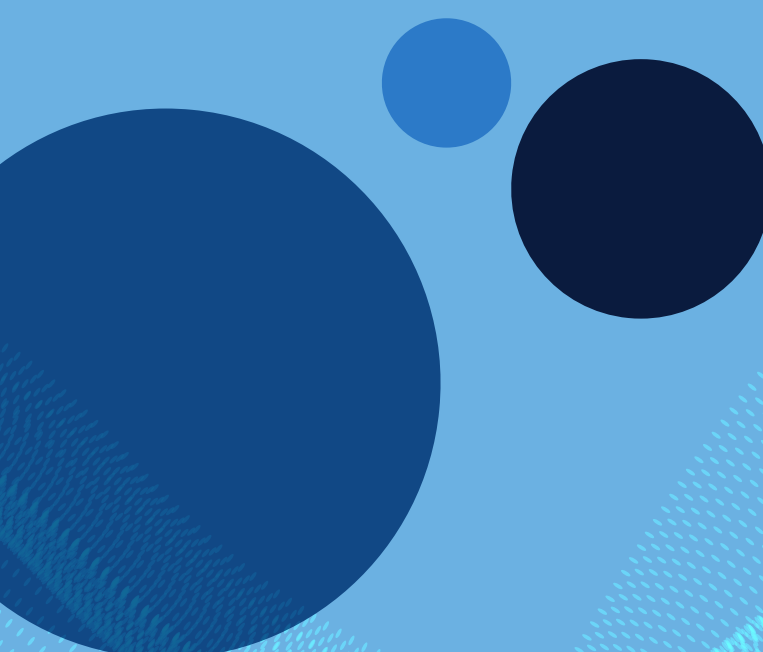
9. UNAIDS
95-95-95 TARGETS

9.1 BACKGROUND

To bring the HIV epidemic under control, UNAIDS has set targets that by 2025, 95% of all people living with HIV would know their HIV status; 95% of all persons diagnosed with HIV would receive sustained ART; and 95% of all persons receiving ART would have VLS, defined by UNAIDS as HIV RNA < 1,000 copies/mL.[1, 2]

While Chapter 7 provides results on coverage of HIV testing and treatment services, and Chapter 8 reports VLS among all HIV-positive individuals, irrespective of knowledge of status or ART use, this chapter presents the status of the 95-95-95 which reflects each stage of program performance. Awareness of HIV-positive status among people living with HIV and current ART use among those who are aware of their HIV-positive status are indicators of access to services. VLS among those who know their HIV-positive status and are on treatment not only provides an indication of access to and retention in care, but also provides a measure of program success. The overall 95-95-95 target of VLS among all HIV-positive individuals of 85.7% (the product of 95% of people living with HIV diagnosed, 95% of those diagnosed on treatment, and 95% of those on treatment achieving VLS) or greater is an indication of successful testing and treatment services.[1]

INSIDA 2021 measured the 95-95-95 indicators using self-reported data adjusted with one of two types of biomarker data: either ARV biomarker data or having a viral load result below 200 copies/mL. For instance, in the ARV-adjusted estimates at the national and subnational levels, individuals were defined as "aware" of their HIV-positive status if they reported knowing they had a positive HIV result before testing as part of INSIDA 2021 or if they had an ARV detectable in their blood. Individuals were categorized as "on treatment" if they reported ART use or if they had an ARV detectable in their blood. This chapter also presents 95-95-95 estimates at the national level using self-reported data adjusted for having a viral load below 200 copies/mL. Recent research suggests that a viral load measurement below 200 HIV RNA copies/mL may be a useful alternative to ARV-detection for determining awareness and treatment status since it has been believed that individuals are unlikely to have a viral load below 200 copies/mL if they are not on ART.[3]

The tables in this chapter present the 95-95-95 results in two ways: as conditional and overall percentages. In both the conditional and the overall cascade, the denominator for the first 95, awareness of HIV-positive status, is all the adults living with HIV in the country. However, in the conditional 95-95-95 cascade (shown in Tables 9.1.B and 9.2.B), the denominator for the second and third 95 indicator is the value of the target preceding it. In other words, the second 95 is the percentage of people on ART among those aware of their HIV-positive status (diagnosed), and the third 95 is the percentage of people with VLS among those on treatment.

In the 95-95-95 overall percentages tables (9.1.A and 9.2.A), the denominator is the same for each 95 indicator: the overall population of adults living with HIV in the country. Thus, while the first 95 is the same as in the conditional table, the second 95 estimate is the percentage of people receiving treatment among the overall population of adults living with HIV in the country, and the third 95 is the percentage of people achieving VLS on ART among all the adults living with HIV in Mozambique.

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

Note that in each 95-95-95 table, individuals with VLS who were not aware of their HIV-positive status or were not on ART were excluded from the numerator for the third 95 (VLS among those on ART). For this reason, the VLS estimates in the overall 95-95-95 are sometimes slightly lower than VLS estimates reported in the previous chapter, which may include VLS data from individuals with low viral loads who were not receiving treatment, such as individuals who have transiently low viral loads after seroconversion and elite controllers—a small subset of people living with HIV whose immune systems are able to maintain VLS for a period without treatment. Thus, the overall 95-95-95 VLS estimates represent the percentage of the adult population living with HIV known to have been reached by the national HIV program and who are benefiting at each step of the cascade.

9.2 RESULTS

The following tables and figures describe progress towards the 95-95-95 targets overall and by demographic characteristics.

Table 9.1.A Adult 95-95-95 (self-reported and antiretroviral biomarker data); overall percentages

95-95-95 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral (ART) use, both adjusted for a having a detectable antiretroviral (ARV) in blood, by sex and age, INSIDA 2021

	Diagnosed					
	Men		Women		Total	
Age	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
15-24	45.3	53	56.4	191	53.8	244
25-34	53.8	130	74.5	388	67.5	518
35-49	76.7	293	80.4	545	78.9	838
50+	82.4	165	74.9	268	78.2	433
15-49	64.7	476	73.0	1,124	70.1	1,600
15+	68.5	641	73.3	1,392	71.6	2,033
	On Treatment					
	Men		Women		Total	
Age	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
15-24	45.3	53	54.8	191	52.6	244
25-34	52.6	130	73.1	388	66.1	518
35-49	70.3	293	77.9	545	74.9	838
50+	78.2	165	73.4	268	75.5	433
15-49	60.9	476	71.1	1,124	67.6	1,600
15+	64.6	641	71.4	1,392	69.0	2,033
	Viral Load Suppression (VLS) on Treatment					
	Men		Women		Total	
Age	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
15-24	36.6	53	43.1	191	41.6	244
25-34	42.3	130	66.6	388	58.3	518
35-49	61.5	293	71.8	545	67.7	838
50+	75.1	165	69.9	268	72.2	433
15-49	51.6	476	63.6	1,124	59.5	1,600
15+	56.6	641	64.5	1,392	61.7	2,033

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
[2] Relates to Global AIDS Monitoring Indicator 2022 (GAM 2022) 1.1: People living with HIV who know their HIV status; and PEPFAR indicator DIAGNOSED_NAT: Percentage of adults and children living with HIV who know their status (have been diagnosed).
[3] Relates to GAM 2022 1.2: People living with HIV on ART; and PEPFAR indicator TX_CURR_NAT / SUBNAT: Number of adults and children currently receiving ART.
[4] Relates to GAM 2022 1.3: People living with HIV who have suppressed viral loads; and PEPFAR indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Table 9.1.B Adult 95-95-95 (self-reported and antiretroviral biomarker data); conditional percentages

95-95-95 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral (ART) use, both adjusted for a having a detectable antiretroviral (ART) in blood, by sex and age, INSIDA 2021

| | Diagnosed | | | | | |
| | Men | | Women | | Total | |
Age	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
15-24	45.3	53	56.4	191	53.8	244
25-34	53.8	130	74.5	388	67.5	518
35-49	76.7	293	80.4	545	78.9	838
50+	82.4	165	74.9	268	78.2	433
15-49	64.7	476	73.0	1,124	70.1	1,600
15+	68.5	641	73.3	1,392	71.6	2,033

| | On Treatment Among Those Diagnosed | | | | | |
| | Men | | Women | | Total | |
Age	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
15-24	(100.0)	25	97.1	107	97.7	132
25-34	97.7	74	98.1	293	98.0	367
35-49	91.7	228	96.9	452	94.9	680
50+	94.8	139	98.0	213	96.5	352
15-49	94.2	327	97.4	852	96.4	1,179
15+	94.3	466	97.5	1,065	96.4	1,531

| | Viral Load Suppression (VLS) Among Those on Treatment | | | | | |
| | Men | | Women | | Total | |
Age	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
15-24	(80.9)	25	78.6	103	79.1	128
25-34	80.4	71	91.1	287	88.2	358
35-49	87.4	211	92.1	440	90.4	651
50+	96.0	135	95.2	210	95.6	345
15-49	84.7	307	89.4	830	88.0	1,137
15+	87.6	442	90.4	1,040	89.4	1,482

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

[2] Relates to Global AIDS Monitoring Indicator 2022 (GAM 2022) 1.1: People living with HIV who know their HIV status; and PEPFAR DIAGNOSED_NAT: Percentage of adults and children living with HIV who know their status (have been diagnosed).

[3] Relates to GAM 2022 1.2: People living with HIV on ART; and PEPFAR TX_CURR_NAT / SUBNAT: Number of adults and children currently receiving ART.

[4] Relates to GAM 2022 1.3: People living with HIV who have suppressed viral loads; and PEPFAR indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

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

Figure 9.1

ARV-adjusted 95-95-95 among adults living with HIV (ages 15 years and older), by sex, INSIDA 2021
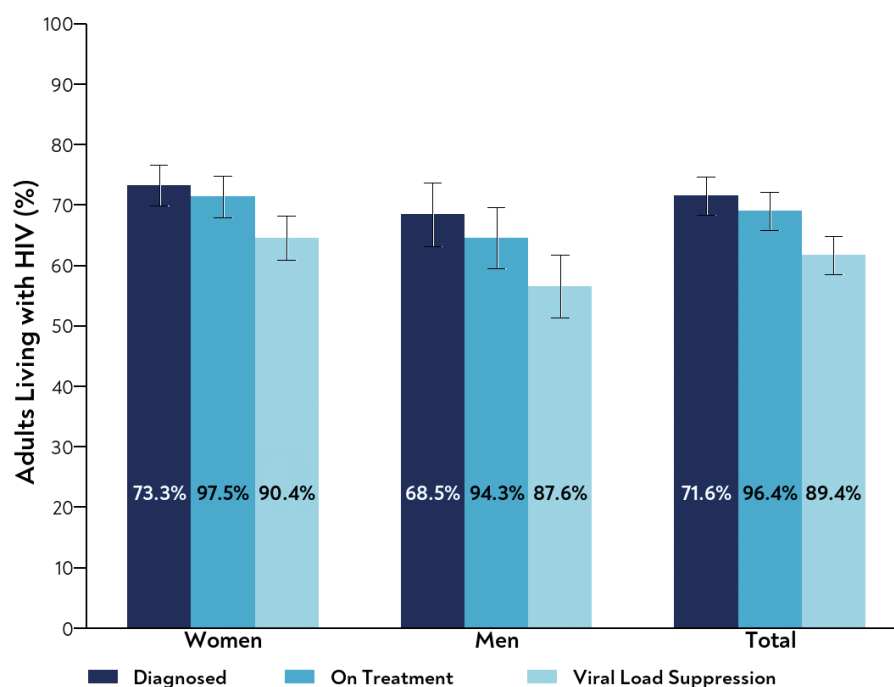
Note: In the antiretroviral (ARV)-adjusted 95-95-95, participants are classified as "aware" or "diagnosed" if they reported knowing their HIV-positive status before testing positive in INSIDA 2021 or had detectable antiretrovirals (ARVs) in their blood. Participants are classified as "on treatment" if they reported that they were on treatment or if they had detectable ARVs in their blood. Inset numbers are conditional proportions; the heights of the bars represent the unconditional proportions among all adults living with HIV.

Table 9.2.A Adult 95-95-95 (self-reported data adjusted for viral load < 200 HIV RNA copies per milliliter); overall percentages

95-95-95 targets among adults living with HIV aged 15 years and older, based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a viral load (VL) < 200 copies per milliliter (mL), by sex and age, INSIDA 2021

| | Diagnosed | | | | | |
| | Men | | Women | | Total | |
Age	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
15-24	45.2	53	55.4	191	53.0	244
25-34	50.3	129	74.9	388	66.5	517
35-49	75.9	291	81.1	546	79.0	837
50+	83.2	165	74.7	268	78.4	433
15-49	63.0	473	73.2	1,125	69.7	1,598
15+	67.3	638	73.4	1,393	71.2	2,031

Table 9.2.A Adult 95-95-95 (self-reported data adjusted for viral load < 200 HIV RNA copies per milliliter); overall percentages (continued)

95-95-95 targets among adults living with HIV aged 15 years and older, based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a viral load (VL) < 200 copies per milliliter (mL), by sex and age, INSIDA 2021

| | On Treatment | | | | | |
| | Men | | Women | | Total | |
Age	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
15-24	45.2	53	53.7	191	51.7	244
25-34	49.0	129	73.5	388	65.2	517
35-49	69.1	291	78.6	546	74.9	837
50+	78.5	165	73.2	268	75.5	433
15-49	59.0	473	71.3	1,125	67.1	1,598
15+	63.2	638	71.6	1,393	68.6	2,031

| | Viral Load Suppression (VLS) on Treatment | | | | | |
| | Men | | Women | | Total | |
Age	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
15-24	38.3	53	45.4	191	43.7	244
25-34	42.4	129	68.2	388	59.4	517
35-49	61.6	291	73.0	546	68.6	837
50+	77.1	165	70.8	268	73.5	433
15-49	51.9	473	65.1	1,125	60.6	1,598
15+	57.3	638	66.0	1,393	62.9	2,031

[1] Both awareness of HIV-positive status and on-treatment status were based upon self-report or having a VL < 200 copies/mL.
[2] Relates to Global AIDS Monitoring indicator 2022 (GAM 2022) 1.1: People living with HIV who know their HIV status and PEPFAR Indicator DIAGNOSED_NAT: The percentage of adults and children living with HIV who know their status (have been diagnosed).
[3] Relates to GAM 2022 1.2: People living with HIV on ART and PEPFAR TX_CURR_NAT / SUBNAT: Percentage of adults and children receiving ART.
[4] Relates to GAM 2022 1.3: People living with HIV who have suppressed viral loads and PEPFAR Indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

Table 9.2.B Adult 95-95-95 (self-reported data adjusted for viral load < 200 HIV RNA copies per milliliter); conditional percentages

95-95-95 targets among adults living with HIV aged 15 years and older, based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a viral load (VL) < 200 copies per milliliter (mL), by sex and age, INSIDA 2021

| | Diagnosed | | | | | |
| | Men | | Women | | Total | |
Age	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
15-24	45.2	53	55.4	191	53	244
25-34	50.3	129	74.9	388	66.5	517
35-49	75.9	291	81.1	546	79	837
50+	83.2	165	74.7	268	78.4	433
15-49	63	473	73.2	1,125	69.7	1,598
15+	67.3	638	73.4	1,393	71.2	2,031

Table 9.2.B Adult 95-95-95 (self-reported data adjusted for viral load < 200 HIV RNA copies per milliliter); conditional percentages (continued)

95-95-95 targets among adults living with HIV aged 15 years and older, based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a viral load (VL) < 200 copies per milliliter (mL), by sex and age, INSIDA 2021

	On Treatment Among Those Diagnosed					
	Men		Women		Total	
Age	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
15-24	(100)	25	97	107	97.6	132
25-34	97.5	72	98.1	293	98	365
35-49	91.1	225	97	457	94.8	682
50+	94.4	139	98	213	96.3	352
15-49	93.7	322	97.4	857	96.3	1,179
15+	93.9	461	97.5	1,070	96.3	1,531

	Viral Load Suppression (VLS) Among Those on Treatment					
	Men		Women		Total	
Age	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
15-24	(84.7)	25	84.5	103	84.5	128
25-34	86.5	69	92.8	287	91.2	356
35-49	89.2	209	92.8	445	91.5	654
50+	98.1	134	96.7	210	97.3	344
15-49	88	303	91.4	835	90.4	1,138
15+	90.7	437	92.2	1,045	91.7	1,482

[1] Both awareness of HIV-positive status and on-treatment status were based upon self-report or having a VL < 200 copies/mL.

[2] Relates to Global AIDS Monitoring indicator 2022 (GAM 2022) 1.1: People living with HIV who know their HIV status and PEPFAR Indicator DIAGNOSED_NAT: The percentage of adults and children living with HIV who know their status (have been diagnosed).

[3] Relates to GAM 2022 1.2: People living with HIV on ART and PEPFAR TX_CURR_NAT / SUBNAT: Percentage of adults and children receiving ART.

[4] Relates to GAM 2022 1.3: People living with HIV who have suppressed viral loads and PEPFAR Indicator VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

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

Figure 9.2
Viral load-adjusted 95-95-95 among adults living with HIV (ages 15 years and older), by sex, INSIDA 2021

Note: In the viral load-adjusted 95-95-95, participants are classified as "aware" or "diagnosed" if they reported knowing their HIV-positive status before testing positive in INSIDA 2021 or had a viral load < 200 copies/mL. Participants are classified as "on treatment" if they reported that they were on treatment or if they had a viral load < 200 copies/mL. Inset numbers are conditional proportions; the heights of the bars represent the unconditional proportions among all adults living with HIV.

Table 9.3.A Adult 95-95-95 by geography (self-reported and antiretroviral biomarker data); overall percentages

95-95-95 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, INSIDA 2021

| | Diagnosed | | | | | |
| | Men | | Women | | Total | |
	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
Residence						
Urban	72.0	288	77.8	684	75.8	972
Rural	65.8	353	69.6	708	68.2	1,061
Province						
Niassa	(61.8)	35	56.7	70	58.5	105
Cabo Delgado	(50.0)	25	54.3	73	53.2	98
Nampula	55.1	87	58.1	134	56.9	221
Zambézia	76.9	85	85.1	108	81.4	193
Tete	(65.8)	48	71.3	117	69.5	165
Manica	69.1	52	76.9	72	73.4	124
Sofala	44.9	54	66.2	125	58.6	179
Inhambane	(70.9)	44	75.6	125	74.3	169

Table 9.3.A Adult 95-95-95 by geography (self-reported and antiretroviral biomarker data); overall percentages (continued)

95-95-95 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, INSIDA 2021

	Diagnosed					
	Men		Women		Total	
	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
Gaza	84.3	54	88.7	197	87.6	251
Maputo Província	86.3	79	85.5	199	85.8	278
Maputo Cidade	80.7	78	73.9	172	76.2	250
	On Treatment					
	Men		Women		Total	
	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
Residence						
Urban	67.7	288	75.7	684	72.9	972
Rural	62.3	353	68.0	708	65.9	1,061
Province						
Niassa	(59.4)	35	56.7	70	57.7	105
Cabo Delgado	(38.1)	25	54.3	73	50.0	98
Nampula	50.6	87	55.1	134	53.3	221
Zambézia	74.8	85	82.7	108	79.0	193
Tete	(65.8)	48	70.1	117	68.7	165
Manica	65.2	52	75.5	72	70.9	124
Sofala	42.1	54	63.9	125	56.0	179
Inhambane	(65.3)	44	71.9	125	70.1	169
Gaza	84.3	54	88.1	197	87.2	251
Maputo Província	78.4	79	83.8	199	81.9	278
Maputo Cidade	78.8	78	71.8	172	74.1	250
	Viral Load Suppression (VLS) on Treatment					
	Men		Women		Total	
	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
Residence						
Urban	59.1	288	69.4	684	65.8	972
Rural	54.7	353	60.6	708	58.5	1,061
Province						
Niassa	(59.4)	35	56.7	70	57.7	105
Cabo Delgado	(33.7)	25	39.9	73	38.2	98
Nampula	40.2	87	47.7	134	44.8	221
Zambézia	66.4	85	77.7	108	72.5	193
Tete	(63.2)	48	61.9	117	62.3	165
Manica	61.7	52	74.3	72	68.7	124
Sofala	30.0	54	58.1	125	48.0	179

Table 9.3.A Adult 95-95-95 by geography (self-reported and antiretroviral biomarker data); overall percentages (continued)

95-95-95 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral therapy (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, INSIDA 2021

	Viral Load Suppression (VLS) on Treatment					
	Men		Women		Total	
	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
Inhambane	(61.0)	44	59.0	125	59.6	169
Gaza	70.1	54	81.8	197	79.0	251
Maputo Província	68.7	79	77.8	199	74.7	278
Maputo Cidade	73.2	78	66.2	172	68.6	250

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
[2] Relates to Global AIDS Monitoring indicator 2022 (GAM 2022) 1.1: People living with HIV who know their HIV status; and PEPFAR DIAGNOSED_NAT: Percentage of adults and children living with HIV who know their status (have been diagnosed).
[3] Relates to GAM 2022 1.2: People living with HIV on ART and PEPFAR TX_CURR_NAT / SUBNAT: Number of adults and children currently receiving ART
[4] Relates to GAM 2022 1.3: People living with HIV who have suppressed viral loads; and PEPFAR VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.

Table 9.3.B Adult 95-95-95 by geography (self-reported and antiretroviral biomarker data); conditional percentages

95-95-95 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral (ART) use, both adjusted for a having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, INSIDA 2021

	Diagnosed					
	Men		Women		Total	
	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number	Percentage aware of HIV status[1,2]	Number
Residence						
Urban	72.0	288	77.8	684	75.8	972
Rural	65.8	353	69.6	708	68.2	1,061
Province						
Niassa	(61.8)	35	56.7	70	58.5	105
Cabo Delgado	(50.0)	25	54.3	73	53.2	98
Nampula	55.1	87	58.1	134	56.9	221
Zambézia	76.9	85	85.1	108	81.4	193
Tete	(65.8)	48	71.3	117	69.5	165
Manica	69.1	52	76.9	72	73.4	124
Sofala	44.9	54	66.2	125	58.6	179
Inhambane	(70.9)	44	75.6	125	74.3	169
Gaza	84.3	54	88.7	197	87.6	251
Maputo Província	86.3	79	85.5	199	85.8	278
Maputo Cidade	80.7	78	73.9	172	76.2	250

Table 9.3.B Adult 95-95-95 by geography (self-reported and antiretroviral biomarker data); conditional percentages (continued)

95-95-95 targets among people living with HIV aged 15 years and older based upon their self-reported HIV status and antiretroviral (ART) use, both adjusted for a having a detectable antiretroviral (ARV) in blood, by sex, residence, and province, INSIDA 2021

	On Treatment Among Those Diagnosed[1]					
	Men		Women		Total	
	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number	Percentage on ART[1,3]	Number
Residence						
Urban	94.1	218	97.3	545	96.2	763
Rural	94.6	248	97.6	520	96.5	768
Province						
Niassa	96.2	23	(100.0)	40	98.6	63
Cabo Delgado	76.1	12	(100.0)	44	94.0	56
Nampula	(91.8)	47	94.9	79	93.7	126
Zambézia	97.2	69	97.1	92	97.1	161
Tete	(100.0)	33	98.3	86	98.8	119
Manica	(94.4)	37	98.3	57	96.6	94
Sofala	(93.7)	30	96.5	84	95.7	114
Inhambane	(92.1)	34	95.2	96	94.4	130
Gaza	(100.0)	47	99.4	178	99.6	225
Maputo Província	90.8	69	97.9	175	95.5	244
Maputo Cidade	97.7	65	97.1	134	97.3	199

	Viral Load Suppression (VLS) Among Those on Treatment					
	Men		Women		Total	
	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number	Percentage with VLS[4]	Number
Residence						
Urban	87.2	207	91.6	530	90.2	737
Rural	87.9	235	89.2	510	88.8	745
Province						
Niassa	100.0	22	(100.0)	40	100.0	62
Cabo Delgado	88.5	9	(73.5)	44	76.5	53
Nampula	(79.6)	44	86.6	75	83.9	119
Zambézia	88.8	67	94.0	90	91.8	157
Tete	(96.1)	33	88.3	84	90.8	117
Manica	(94.7)	35	98.4	56	96.9	91
Sofala	(71.3)	28	91.0	81	85.6	109
Inhambane	(93.4)	31	82.1	92	85.0	123
Gaza	(83.2)	47	92.8	177	90.6	224
Maputo Província	87.6	63	92.9	171	91.1	234
Maputo Cidade	92.9	63	92.3	130	92.5	193

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

[2] Relates to Global AIDS Monitoring indicator 2022 (GAM 2022) 1.1: People living with HIV who know their HIV status; and PEPFAR DIAGNOSED_NAT: Percentage of adults and children living with HIV who know their status (have been diagnosed).

[3] Relates to GAM 2022 1.2: People living with HIV on ART and PEPFAR TX_CURR_NAT / SUBNAT: Number of adults and children currently receiving ART.

[4] Relates to GAM 2022 1.3: People living with HIV who have suppressed viral loads; and PEPFAR VL_SUPPRESSION_NAT: Percentage of people living with HIV on ART with a suppressed viral load.

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

9.3 REFERENCES

1. Joint United Nations Programme on HIV/AIDS (UNAIDS). *90-90-90: An Ambitious Treatment Target to Help End the AIDS Epidemic*. Geneva: UNAIDS; 2014. https://www.unaids.org/sites/default/files/media_asset/90-90-90_en.pdf. Accessed February 2023.

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10. CLINICAL PERSPECTIVES ON PEOPLE LIVING WITH HIV

10.1 BACKGROUND

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

INSIDA 2021 provided a unique opportunity to gauge progress in the expansion of HIV clinical services in Mozambique, as well as identify gaps and future challenges. Indicators such as CD4 count at diagnosis and retention on ART can provide evidence of program coverage, the ability to reach vulnerable populations, and quality of care. The distribution of CD4 counts also reflects population health and the potential impact of HIV on mortality. For instance, a CD4 count below 350/µL is categorized as immune suppression, and a CD4 count of less than 200/µL is categorized as advanced HIV disease that requires more intensive care, treatment, and support services to manage. When HIV is diagnosed in someone with immune suppression or advanced HIV disease, it is also considered a late diagnosis. Tracking the proportion of late diagnoses can serve as an indicator of whether there are barriers to testing and can help programs allocate resources for the care of people living with advanced HIV disease.

Mobility with extended stays away from home among people living with HIV may also interfere with continuity of care and lead to treatment disruptions and failure, although this may be mitigated by differentiated approaches to treatment delivery. In addition, this survey gathered data on whether mental health issues affect health-seeking behavior, adherence, retention in care, and other clinical outcomes.[2]

10.2 RESULTS

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

Table 10.1 Median CD4 count by HIV diagnosis and antiretroviral therapy status

Among HIV-positive adults aged 15 years and older, median (quartile 1 [Q1], quartile 3 [Q3]) CD4 count (cells per microliter), by sex, and HIV diagnosis and treatment status based upon self-reported HIV-status and current antiretroviral therapy (ART) use, both adjusted for having a detectable antiretroviral (ARV) in blood, INSIDA 2021

Characteristic	Men			Women			Total		
	Median (Q1, Q3)	Range	Number	Median (Q1, Q3)	Range	Number	Median (Q1, Q3)	Range	Number
HIV diagnosis and treatment status[1]									
Unaware of HIV status	385 (234, 612)	7-1333	175	454 (291, 642)	63-1347	327	435 (262, 625)	7-1347	502
Aware of HIV status and not on ART	*	*	24	322 (169, 413)†	27-680†	25	314 (208, 424)†	27-680†	49
Aware of HIV status and on ART	467 (339, 619)	48-1318	441	612 (425, 819)	23-2080	1,037	551 (381, 763)	23-2080	1,478
Total 15-24	458 (330, 720)	75-1133	53	584 (425, 754)	89-1686	192	569 (418, 751)	75-1686	245
Total 15-49	442 (295, 622)	7-1333	476	575 (384, 767)	23-1775	1,127	522 (348, 723)	7-1775	1,603
Total 50+	441 (304, 599)	71-1041	165	500 (331, 720)	63-2080	266	473 (316, 660)	63-2080	431
Total 15+	442 (296, 619)	7-1333	641	567 (372, 765)	23-2080	1,393	515 (340, 717)	7-2080	2,034

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

Figure 10.1

CD4 count distribution among adults living with HIV (ages 15 years and older), by HIV diagnosis and ART status, INSIDA 2021
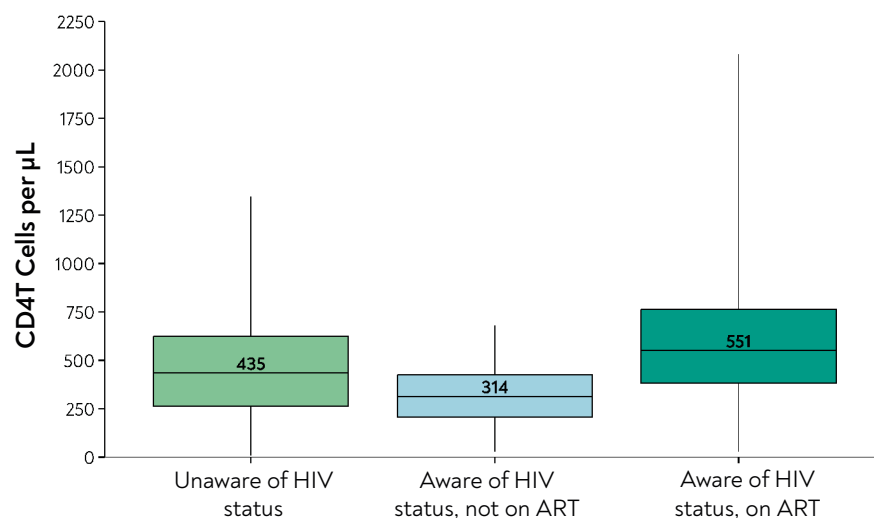
This box plot shows the CD4 count distribution among those who tested positive in the survey, based upon their self-reported awareness of HIV-positive status adjusted for evidence of antiretroviral therapy (ART) use in the blood. The band and number within each box represent the median CD4 count; the box represents the interquartile range (where half of the CD4 count measurements lie); while the whiskers (vertical lines) above and below the box show the range from the minimum to the maximum CD4 count.

Table 10.2 CD4 count distribution

Percent distribution of CD4 count among adults aged 15 years and older who tested HIV positive in the survey but reported an HIV-negative status and had no antiretroviral detectable in blood, by sex and selected demographic characteristics, INSIDA 2021

Characteristic	CD4 Count				
	< 200 cells/µL[1]	200-349 cells/µL	350-499 cells/µL	>= 500 cells/µL	Number
Sex					
Male	16.5	29.2	19.0	35.3	175
Female	12.5	20.4	22.7	44.4	327
Residence					
Urban	14.9	24.9	16.4	43.8	209
Rural	13.6	23.3	24.1	38.9	293
Province					
Niassa	(15.1)	(24.1)	(14.7)	(46.0)	42
Cabo Delgado	(9.7)	(16.0)	(31.4)	(42.9)	42
Nampula	10.5	16.3	25.4	47.8	95
Zambézia	(7.0)	(29.6)	(15.5)	(47.9)	32
Tete	(22.0)	(28.6)	(16.6)	(32.8)	46
Manica	(10.3)	(31.0)	(10.0)	(48.7)	30
Sofala	23.7	18.7	15.7	41.8	65
Inhambane	(22.2)	(27.8)	(26.3)	(23.8)	39

Table 10.2 CD4 count distribution (continued)

Percent distribution of CD4 count among adults aged 15 years and older who tested HIV positive in the survey but reported an HIV-negative status and had no antiretroviral detectable in blood, by sex and selected demographic characteristics, INSIDA 2021

Characteristic	CD4 Count				
	< 200 cells/µL[1]	200-349 cells/µL	350-499 cells/µL	>= 500 cells/µL	Number
Gaza	(7.6)	(27.5)	(37.7)	(27.2)	26
Maputo Província	(14.0)	(33.4)	(24.1)	(28.5)	34
Maputo Cidade	16.8	42.9	12.5	27.8	51
Age					
15-24	4.9	14.0	27.3	53.8	112
25-34	13.8	23.7	16.4	46.1	151
35-44	21.0	29.2	19.5	30.4	119
45-54	11.6	34.4	25.3	28.7	66
55-64	(22.0)	(30.5)	(20.6)	(26.9)	34
65+	*	*	*	*	20
Total 15-24	4.9	14.0	27.3	53.8	112
Total 15-49	12.7	22.8	21.4	43.1	421
Total 50+	23.0	30.9	20.4	25.6	81
Total 15+	14.1	23.9	21.2	40.7	502

[1] Relates to Global AIDS Monitoring indicator 2022 1.4: Late HIV Diagnosis.
* Estimates based on a denominator less than 25 have been suppressed.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.

Table 10.3 Retention on antiretroviral therapy

Among HIV-positive adults aged 15 years and older who reported initiating antiretroviral therapy (ART), percentage who reported they were still taking ART, by sex and years since initiating ART, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage still taking ART	Number	Percentage still taking ART	Number	Percentage still taking ART	Number
Number of years since initiating ART						
Less than 12 months	97.0	55	98.8	103	98.1	158
12 months or more	97.3	305	98.7	752	98.3	1,057
1 to less than 5 years	96.5	154	97.5	334	97.1	488
5 to less than 10 years	98.4	82	99.6	217	99.2	299
10 years or more	99.0	54	100.0	161	99.7	215
Total 15-24	100.0	18	97.0	84	97.6	102
Total 15-49	96.9	271	98.6	741	98.1	1,012
Total 50+	96.1	123	97.8	199	97.1	322
Total 15+	96.7	394	98.5	940	97.9	1,334

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

Among HIV-positive adults aged 15 years and older, percent distribution of HIV care and antiretroviral therapy (ART) status and receipt characteristics, by extended stay away from home, based upon self-report, INSIDA 2021

| Characteristic | Lived away from home for more than one month at a time in the year before the survey | | | |
	Yes	Number	No	Number
HIV diagnosis and treatment status[1]				
Unaware of HIV status	27.8	35	28.2	378
Aware of HIV status and not on ART	2.4	3	2.8	38
Aware of HIV status and on ART	69.8	93	69.0	1,131
Viral load suppression (VLS)				
Yes	63.0	85	64.6	1,070
No	37.0	46	35.4	480
Treatment interrupted				
Yes	8.9	6	NA	NA
No	88.5	77	NA	NA
Never on ART	2.6	2	NA	NA
Was ART changed				
Yes	49.6	46	48.5	496
No	47.8	36	48.8	462
Never on ART	2.6	2	2.7	21
How normally receive ART				
Pick up at the health facility	98.7	83	96.4	973
From the community support group/ adherence club (GAAC)	0.0	0	0.6	8
Distributed by community mobile team	0.0	0	0.1	1
Community health workers	0.0	0	0.2	2
A family member or friend collects them	0.0	0	0.2	3
Pharmacy	0.0	0	0.1	1
Not currently on ART	1.3	1	2.4	21
Total 15+	100.0	131	100.0	1,552

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

Table 10.5 Mental health and HIV care and treatment

Percent distribution of care and treatment outcomes among HIV-positive adults by mental health screening symptoms, INSIDA 2021

| Characteristic | Screened likely for depressive symptoms[2] | | Did not screen likely for depressive symptoms | | Screened likely for generalized anxiety symptoms[3] | | Did not screen likely for generalized anxiety symptoms | |
	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number
HIV diagnosis and treatment status[1]								
Unaware of HIV status	(27.8)	9	28.8	491	19.6	11	29.0	479
Aware of HIV status and not on antiretroviral therapy (ART)	(8.8)	4	2.5	44	6.5	4	2.4	43
Aware of HIV status and on ART	(63.4)	32	68.7	1,416	73.9	49	68.6	1,379

Table 10.5 Mental health and HIV care and treatment (continued)

Percent distribution of care and treatment outcomes among HIV-positive adults by mental health screening symptoms, INSIDA 2021

Characteristic	Screened likely for depressive symptoms[2]		Did not screen likely for depressive symptoms		Screened likely for generalized anxiety symptoms[3]		Did not screen likely for generalized anxiety symptoms	
	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number
Presence of a detectable antiretroviral (ARV)								
Detectable	(61.7)	31	61.7	1,294	70.5	46	61.6	1,261
Not detectable	(38.3)	14	38.3	657	29.5	18	38.4	639
Viral load suppression (VLS)								
Yes	(55.5)	28	63.9	1,337	69.9	46	63.6	1,298
No	(44.5)	17	36.1	617	30.1	18	36.4	605
Ever on ART								
Yes	(88.4)	29	97.4	1,276	92.7	47	97.3	1,238
No	(11.6)	4	2.6	25	7.3	3	2.7	25
Retention (among those who reported ever initiating ART)								
Reported current ART use	(96.8)	28	97.9	1,250	(98.3)	46	98.0	1,213
Reported initiating but not on ART at time of the survey	(3.2)	1	2.1	25	(1.7)	1	2.0	24
Adherence (among those who reported current ART use)								
Adherent	(83.1)	23	86.6	1,075	(78.7)	39	86.6	1,041
Non-adherent	(16.9)	5	13.4	156	(21.3)	7	13.4	154
Total 15+	(100.0)	45	100.0	1,956	100.0	64	100.0	1,905

[1] Both awareness of HIV-positive status and on treatment status were based upon self-report or having a detectable ARV in the blood.
[2] Patient Health Questionnaire 2 score over 3 indicating depressive symptoms.
[3] Generalized Anxiety Disorder 2-item score over 3 indicating generalized anxiety symptoms.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.

10.3 REFERENCES

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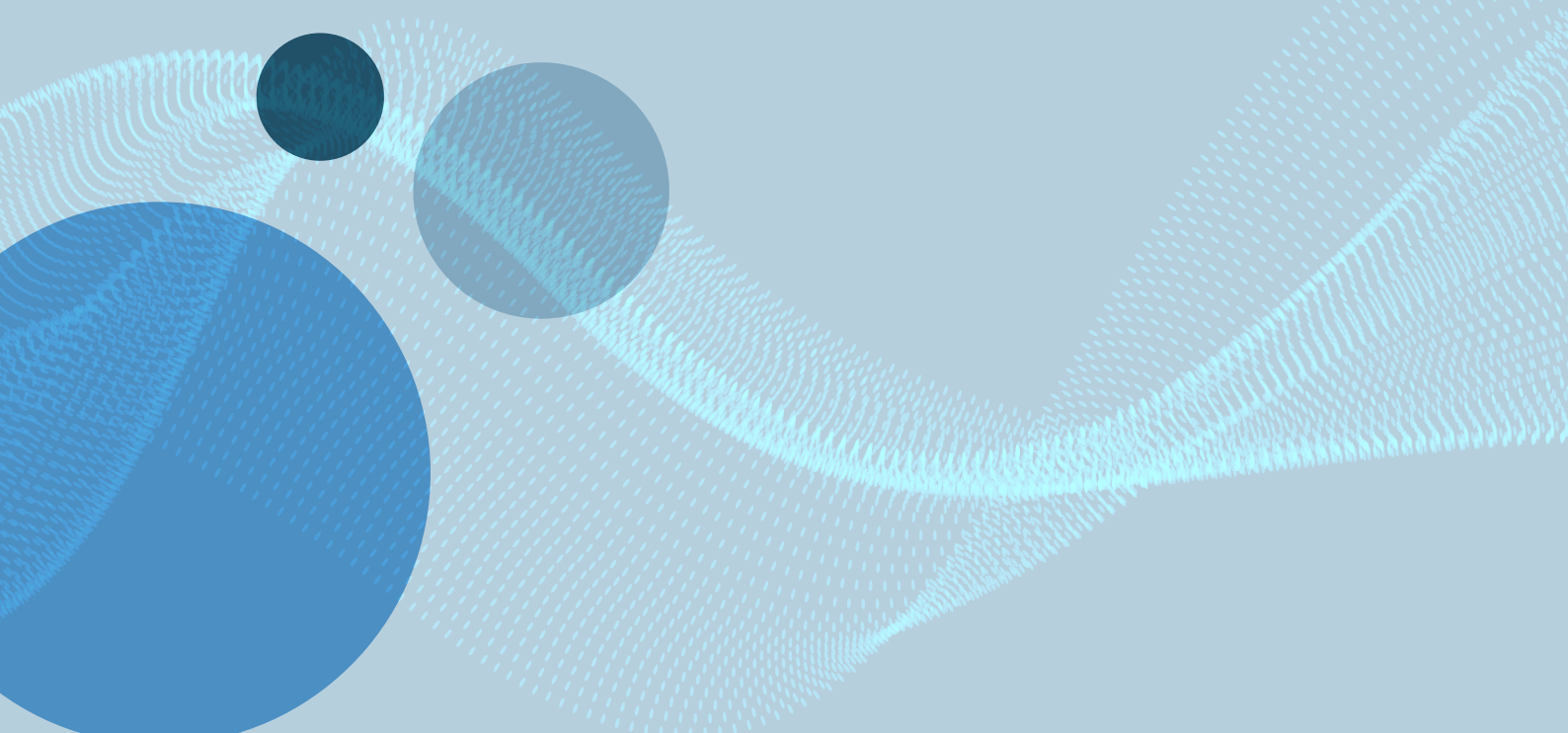
11. PREVENTION OF MOTHER-TO-CHILD TRANSMISSION

11.1 BACKGROUND

Pregnant women living with HIV who are not on ART are at higher risk of transmitting HIV to their infants during pregnancy, birth, or through breastfeeding. Over 90% of new HIV infections among infants and young children occur through vertical transmission.[1] Without any interventions, between 15% to 45% of infants may become infected with HIV, with an estimated risk of 5% to 10% during pregnancy, 10% to 20% during labor and delivery, and 5% to 20% through breastfeeding.[1] In 2010, global targets were set to decrease new HIV infections in children and reduce mortality among mothers living with HIV, including a 90% reduction in child HIV infections, a 50% reduction in AIDS-related maternal deaths, and virtual elimination of vertical transmission of HIV.[2]

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

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

11.2 RESULTS

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

Table 11.1 Antenatal care

Among women aged 15-49 years who delivered in the three years before the survey, percentage who reported attending at least one antenatal care (ANC) visit for her most recent birth, by selected demographic characteristics, INSIDA 2021

Characteristic	Percentage who attended at least one ANC visit	Number
Residence		
Urban	95.0	782
Rural	88.1	1,434
Province		
Niassa	89.7	178
Cabo Delgado	94.1	152
Nampula	79.3	320
Zambézia	88.7	171
Tete	91.1	346
Manica	91.9	243
Sofala	92.1	182
Inhambane	94.1	142
Gaza	97.3	154
Maputo Província	100.0	209
Maputo Cidade	99.2	119

Table 11.1 Antenatal care (continued)

Among women aged 15-49 years who delivered in the three years before the survey, percentage who reported attending at least one antenatal care (ANC) visit for her most recent birth, by selected demographic characteristics, INSIDA 2021

Characteristic	Percentage who attended at least one ANC visit	Number
Marital status		
Never married	89.7	207
Married or living together	90.5	1,705
Divorced or separated	89.7	267
Widowed	(96.9)	33
Education		
No education	77.7	504
Primary	92.8	1,039
Secondary	97.0	610
More than secondary	100.0	55
Wealth quintile		
Lowest	83.7	399
Second	86.5	435
Middle	88.8	424
Fourth	94.7	516
Highest	99.0	435
Age		
15-19	93.3	250
20-24	91.4	650
25-29	88.5	555
30-34	90.3	400
35-39	89.6	231
40-44	86.8	102
45-49	(85.0)	28
Total 15-24	92.0	900
Total 15-49	90.3	2,216

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

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

Among women aged 15-49 years who gave birth within the 12 months before the survey, percentage who reported that they were tested for HIV during antenatal care (ANC) and received their results or that they already knew they were HIV positive during their last pregnancy, by selected demographic characteristics, INSIDA 2021

Characteristic	Tested for HIV during ANC and received results		Percentage who already knew they were HIV positive	Total percentage with known HIV status[1]	Number of women who gave birth within the 12 months before the survey
	Percentage who tested HIV positive	Percentage who tested HIV negative			
Residence					
Urban	2.7	69.4	7.0	79.0	279
Rural	2.3	61.0	6.0	69.2	546

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

Among women aged 15-49 years who gave birth within the 12 months before the survey, percentage who reported that they were tested for HIV during antenatal care (ANC) and received their results or that they already knew they were HIV positive during their last pregnancy, by selected demographic characteristics, INSIDA 2021

Characteristic	Tested for HIV during ANC and received results		Percentage who already knew they were HIV positive	Total percentage with known HIV status[1]	Number of women who gave birth within the 12 months before the survey
	Percentage who tested HIV positive	Percentage who tested HIV negative			
Province					
Niassa	1.2	46.3	1.6	49.1	83
Cabo Delgado	2.9	79.8	4.1	86.8	53
Nampula	2.7	52.2	5.4	60.4	95
Zambézia	5.8	59.4	8.3	73.5	72
Tete	1.3	72.1	3.0	76.4	128
Manica	1.7	70.8	4.6	77.1	99
Sofala	3.0	48.8	4.0	55.8	66
Inhambane	0.0	71.4	9.2	80.6	60
Gaza	1.4	69.5	15.0	86.0	63
Maputo Província	0.0	77.9	9.9	87.8	67
Maputo Cidade	(0.0)	(78.0)	(11.5)	(89.5)	39
Marital status					
Never married	0.8	65.6	2.1	68.5	85
Married or living together	2.6	64.1	6.8	73.5	643
Divorced or separated	1.8	58.3	7.2	67.3	85
Widowed	*	*	*	*	9
Education					
No education	3.5	46.6	6.5	56.6	187
Primary	1.5	64.5	5.9	71.8	386
Secondary	3.4	74.9	7.6	85.8	230
More than secondary	*	*	*	*	19
Wealth quintile					
Lowest	1.8	49.6	3.3	54.7	143
Second	0.4	54.2	5.3	59.9	181
Middle	4.4	69.1	4.7	78.2	160
Fourth	4.1	70.2	9.0	83.2	191
Highest	1.0	79.0	9.1	89.1	146
Age					
15-19	0.0	71.2	0.5	71.6	119
20-24	2.7	61.1	2.8	66.6	249
25-29	4.2	63.2	9.5	76.9	211
30-34	3.2	60.8	10.7	74.8	149
35-39	0.7	62.8	12.5	75.9	66
40-44	(0.0)	(64.0)	(13.6)	(77.6)	26
45-49	*	*	*	*	5

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

Among women aged 15-49 years who gave birth within the 12 months before the survey, percentage who reported that they were tested for HIV during antenatal care (ANC) and received their results or that they already knew they were HIV positive during their last pregnancy, by selected demographic characteristics, INSIDA 2021

Characteristic	Tested for HIV during ANC and received results		Percentage who already knew they were HIV positive	Total percentage with known HIV status[1]	Number of women who gave birth within the 12 months before the survey
	Percentage who tested HIV positive	Percentage who tested HIV negative			
Total 15-24	1.7	64.8	1.9	68.4	368
Total 15-49	2.4	63.6	6.3	72.3	825

[1] Relates to PEPFAR indicator PMTCT_STAT_NAT / SUBNAT: Percentage of pregnant women with known HIV status and Global AIDS Monitoring indicator 2022 2.6: HIV testing in pregnant women.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

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

Among self-reported HIV-positive women aged 15-49 years who gave birth within the 12 months before the survey, percentage who reported they had received antiretroviral therapy (ART) during their last pregnancy to reduce the risk of mother-to-child-transmission, by selected demographic characteristics, INSIDA 2021

Characteristic	Percentage who were already on ART prior to pregnancy	Percentage who were newly initiated on ART during pregnancy or labor and delivery	Total percentage who received ART[1]	Number of HIV-positive women who gave birth within the 12 months before the survey
Residence				
Urban	(65.9)	(31.4)	(97.2)	31
Rural	(67.0)	(28.3)	(95.2)	40
Province				
Niassa	*	*	*	3
Cabo Delgado	*	*	*	4
Nampula	*	*	*	7
Zambézia	*	*	*	11
Tete	*	*	*	6
Manica	*	*	*	7
Sofala	*	*	*	3
Inhambane	*	*	*	6
Gaza	*	*	*	12
Maputo Província	*	*	*	7
Maputo Cidade	*	*	*	5
Marital status				
Never married	*	*	*	3
Married or living together	69.3	29.6	98.8	59
Divorced or separated	*	*	*	6
Widowed	*	*	*	3

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

Among self-reported HIV-positive women aged 15-49 years who gave birth within the 12 months before the survey, percentage who reported they had received antiretroviral therapy (ART) during their last pregnancy to reduce the risk of mother-to-child-transmission, by selected demographic characteristics, INSIDA 2021

Characteristic	Percentage who were already on ART prior to pregnancy	Percentage who were newly initiated on ART during pregnancy or labor and delivery	Total percentage who received ART[1]	Number of HIV-positive women who gave birth within the 12 months before the survey
Education				
No education	*	*	*	15
Primary	(66.9)	(23.2)	(90.2)	33
Secondary	*	*	*	23
More than secondary	*	*	*	0
Wealth quintile				
Lowest	*	*	*	7
Second	*	*	*	8
Middle	*	*	*	14
Fourth	*	*	*	24
Highest	*	*	*	17
Age				
15-19	*	*	*	1
20-24	*	*	*	11
25-29	(60.9)	(30.7)	(91.6)	25
30-34	*	*	*	20
35-39	*	*	*	11
40-44	*	*	*	3
45-49	*	*	*	0
Total 15-24	*	*	*	12
Total 15-49	66.6	29.4	95.9	71

[1] Relates to Global AIDS Monitoring indicator 2022 2.3: Preventing mother-to-child transmission of HIV; and PEPFAR indicator PMTCT_ARV_NAT / SUBNAT: Number and percentage of HIV-positive pregnant women who received antiretroviral medicine during pregnancy to reduce the risk of mother-to-child transmission.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Figure 11.3

Self-reported HIV testing status and antiretroviral therapy use during antenatal care among mothers aged 15-49 years who delivered in the 12 months before the survey, INSIDA 2021

HIV Result at ANC

63.6%
6.3%
2.4%
27.7%

ART Status Among HIV-Positive Women

95.9%
4.1%

- Tested HIV negative
- Unknown HIV status
- Tested HIV positive
- Already aware of HIV-positive status

- On ART
- Not on ART
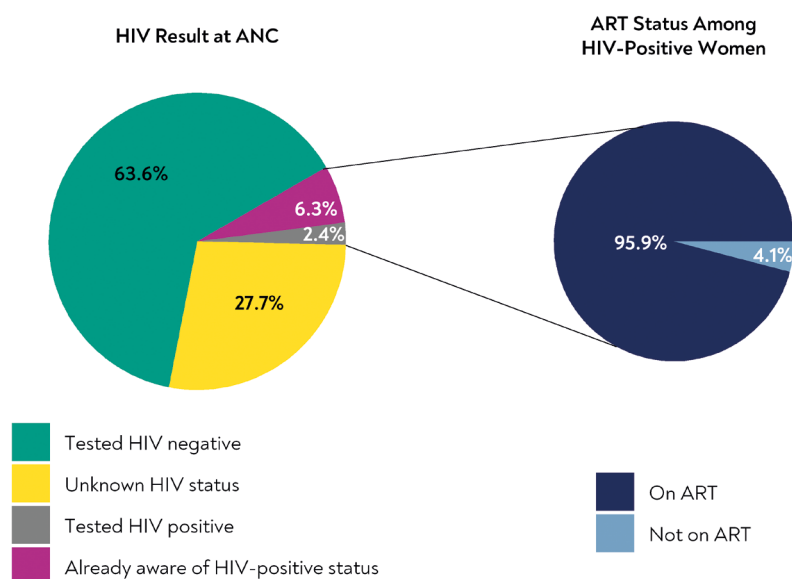
Abbreviations: ANC, antenatal care; ART, antiretroviral therapy.

Having an unknown HIV status was based upon the answers to two questions on the questionnaire, including 1) all those who said "no," "don't know," or who refused to answer when asked whether they were tested for HIV in the ANC for their last pregnancy, and 2) those who answered "unknown/inconclusive," "did not receive results," "don't know," or who refused to answer when asked what their test results were when they tested in the ANC for their last pregnancy.

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

Percent distribution of last-born children born to women aged 15-49 years in the three years before the survey by breastfeeding status reported by their mothers, by child's age, and mother's HIV status, INSIDA 2021

Characteristic	Never breastfed	Ever breastfed, but not currently breastfeeding	Currently breastfeeding	Total	Number
Child's age (months)					
0-1	3.0	6.7	90.4	100.0	147
2-3	0.0	5.8	94.2	100.0	123
4-5	0.0	6.1	93.9	100.0	137
6-8	1.3	8.7	90.0	100.0	215
9-11	1.7	15.7	82.6	100.0	184
12-17	1.6	18.8	79.7	100.0	342
18-23	0.2	56.5	43.3	100.0	322
24-36	1.9	86.3	11.8	100.0	625
Result of mother's INSIDA survey HIV test					
HIV positive	5.5	51.0	43.5	100.0	243
HIV negative	0.9	39.7	59.4	100.0	1,587
Not tested	1.3	39.1	59.5	100.0	388
Total	1.5	40.8	57.7	100.0	2,218

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

Among self-reported HIV-positive women aged 15-49 years who delivered within the 3 years before the survey, percentage who reported their last-born infant had an HIV test done within 2 months of birth and within 12 months of birth, by result of infant's first HIV test, INSIDA 2021

Characteristic	Percentage of infants who had an HIV test within 2 months of age[1,2]	Percentage of infants who had an HIV test between 2 and 12 months of age[2]	Number of infants born in the 3 years before the survey to HIV-positive women[3]
Result of infant's HIV test			
HIV positive	*	*	10
HIV negative	29.3	56.6	142
Don't know/other	*	*	2
Total	26.0	47.1	173

[1] Relates to Global AIDS Monitoring indicator 2022 2.1: Early infant diagnosis.
[2] Relates to PEPFAR indicator PMTCT_EID: Percentage of infants born to HIV-positive women who received a first virologic HIV test (sample collected) by 12 months of age.
[3] Includes only last-born infants.
* Estimates based on a denominator less than 25 have been suppressed.

Table 11.6 Viral load suppression in HIV-positive women of childbearing age (ages 15-49), by pregnancy status and other characteristics

Among HIV-positive women aged 15-49 years, percentage with viral load suppression (VLS)(HIV RNA < 1,000 copies/milliliter), by self-reported pregnancy, breastfeeding status and time since last birth, INSIDA 2021

Characteristic	Percentage with VLS	Number
Ever pregnant		
Yes	68.0	959
No	57.0	161
Pregnancy status		
Pregnant at time of the survey	61.1	59
Not pregnant at time of the survey	66.2	1,052
Delivered in the 12 months before the survey		
Delivered in the 12 months before the survey	75.5	80
Did not deliver in the 12 months before the survey	67.5	843
Delivered in the 3 years before the survey		
Delivered in the 3 years before the survey	65.3	243
Did not deliver in the 3 years before the survey	69.8	679
Breastfeeding status		
Never breastfed	*	18
Ever breastfed, but not currently breastfeeding	63.1	200
Currently breastfeeding	73.9	99

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

Figure 11.6

Viral load suppression among women aged 15-49 years by pregnancy status, time since last birth, and breastfeeding status at time of survey, INSIDA 2021
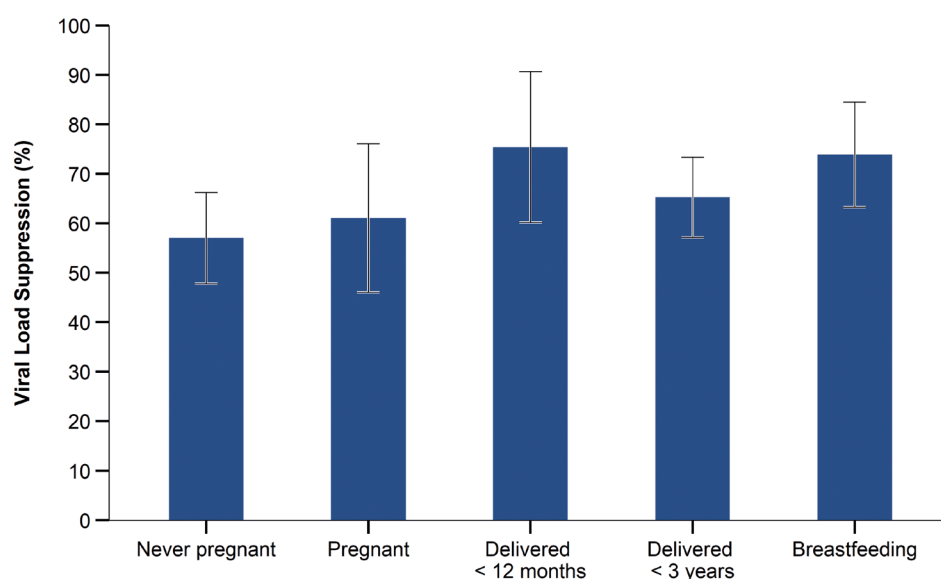
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12. HIV RISK FACTORS AND PREVENTION INTERVENTIONS

12.1 BACKGROUND

This chapter describes the prevalence of sexual behaviors that increase the risk of HIV infection as well as the uptake of key HIV prevention methods. INSIDA 2021 provides evidence on high-risk behaviors, including early sexual debut, number of lifetime sexual partners, and recent engagement in multiple sexual partnerships among adults in Mozambique. The report also presents data on the use of proven HIV prevention interventions including condom use, male circumcision, and PrEP (pre-exposure prophylaxis—the use of ARVs to prevent HIV acquisition).

Risk-taking behavior among young adolescents (ages 10-14 years) and young people (ages 15-24 years) is a particularly important challenge for long-term epidemic control. Young people are particularly more likely to engage in risky sexual behaviors than older adults and have less frequent contact with the healthcare system.[1] Although young adolescents were not included in INSIDA 2021, Table 12.3 shows the prevalence of early sexual debut before 15 years of age, self-reported by young people in Mozambique, by sex, province, and other selected sociodemographic characteristics that may identify where young adolescents and young people may benefit from enhanced HIV education and prevention efforts.

Although the scale-up of universal testing and treatment is expected to lead to reduced HIV transmission, eliminating HIV transmission will require a combination of prevention options that can meet the current needs of different people.[2] Condoms remain an inexpensive and effective tool that can prevent HIV, sexually transmitted infections, and may reduce the frequency of unwanted pregnancies (particularly when used in combination with other contraception methods). INSIDA 2021 asked participants about their condom use at last sexual intercourse, particularly with nonmarital, noncohabiting partners (Tables 12.4.A, 12.4.B, and 12.4.C). Since 2007, WHO and UNAIDS have also recommended voluntary medical male circumcision (VMMC) as a cost-effective strategy to reduce male acquisition of HIV.[3] To inform the national VMMC program, INSIDA 2021 asked men whether they had been medically or traditionally circumcised (Table 12.5). Finally, PrEP, the use of ARVs by people at risk for HIV to prevent HIV acquisition, has become an important prevention tool among some populations and in provinces with the highest HIV prevalence.[4] Tables 12.6, 12.7, and 12.8 describe the knowledge levels, acceptability of, and uptake of PrEP among adults in Mozambique at the time of the survey.

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

12.2 RESULTS

The following tables present INSIDA 2021 data on HIV risk factors and uptake of prevention interventions by demographic characteristics.

Table 12.1 Sexual behavior by demographic characteristics

Percent distribution of self-reported sexual behavior characteristics among adults aged 15 years and older by sex, INSIDA 2021						
	Men		Women		Total	
Characteristic	Percent	Number	Percent	Number	Percent	Number
Ever had sex						
Yes	91.9	6,641	94.7	9,349	93.4	15,990
No	8.1	455	5.3	421	6.6	876
Had sex in the 12 months before the survey						
Yes	78.9	5,521	76.8	6,859	77.8	12,380
No	12.7	908	17.5	1,818	15.2	2,726
Never had sex	8.4	455	5.7	421	7.0	876

Table 12.1 Sexual behavior by demographic characteristics (continued)

Percent distribution of self-reported sexual behavior characteristics among adults aged 15 years and older by sex, INSIDA 2021

Characteristic	Men		Women		Total	
	Percent	Number	Percent	Number	Percent	Number
Had sexual intercourse before the age of 15						
Yes	15.9	932	15.4	1,099	15.7	2,031
No	75.0	5,042	78.4	6,926	76.8	11,968
Never had sex	9.0	455	6.2	421	7.5	876
Total 15-24	37.9	2,320	35.5	2,963	36.6	5,283
Total 15-49	83.6	5,808	82.7	7,771	83.1	13,579
Total 50+	16.4	1,484	17.3	2,042	16.9	3,526
Total 15+	100.0	7,292	100.0	9,813	100.0	17,105

Table 12.2 HIV prevalence by sexual behavior

Prevalence of HIV among adults aged 15 years and older by sex and self-reported sexual behavior characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Age at first sexual intercourse						
Under 15	5.2	763	16.8	934	11.2	1,697
15-19	9.5	3,390	15.6	5,146	12.9	8,536
20-24	13.5	755	19.6	600	16.0	1,355
25+	15.3	227	25.8	81	18.0	308
Number of lifetime sexual partners						
0	2.7	377	2.1	358	2.4	735
1	5.5	942	9.5	3,124	8.4	4,066
2+	9.7	4,032	20.5	4,078	14.7	8,110
Number of sexual partners in the 12 months before the survey						
0	8.4	796	19.4	1,510	15.0	2,306
1	10.0	3,403	14.8	5,385	12.9	8,788
2+	10.4	1,313	22.6	291	12.5	1,604
Condom use at last sexual intercourse in the 12 months before the survey						
Used condom	9.1	1,135	20.9	970	14.0	2,105
Did not use condom	10.5	3,567	14.1	4,680	12.5	8,247
No sexual intercourse in the 12 months before the survey	8.4	796	19.4	1,510	15.0	2,306
Total 15-24	2.6	1,981	8.0	2,498	5.4	4,479
Total 15-49	9.0	4,907	15.4	6,536	12.4	11,443
Total 50+	12.3	1,326	13.3	1,719	12.9	3,045
Total 15+	9.5	6,233	15.0	8,255	12.5	14,488

Table 12.3 Sex before the age of 15 years

Percentage of young people aged 15-24 years who reported that they had sexual intercourse before the age of 15 years by sex and selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage who had sex before the age of 15 years	Number	Percentage who had sex before the age of 15 years	Number	Percentage who had sex before the age of 15 years	Number
Residence						
Urban	22.3	1,060	10.9	1,353	16.5	2,413
Rural	21.1	1,125	20.6	1,445	20.9	2,570
Province						
Niassa	34.4	160	16.6	212	25.0	372
Cabo Delgado	34.5	140	40.7	208	37.9	348
Nampula	22.1	286	19.1	314	20.7	600
Zambézia	30.8	135	22.7	181	26.4	316
Tete	13.7	275	14.0	329	13.9	604
Manica	11.3	201	7.2	269	9.2	470
Sofala	13.2	217	8.2	248	10.7	465
Inhambane	21.4	140	12.8	254	16.3	394
Gaza	21.8	134	12.9	202	17.0	336
Maputo Província	18.7	252	8.2	308	13.3	560
Maputo Cidade	17.3	245	4.6	273	11.2	518
Marital status						
Never married	20.5	1,649	10.2	1,341	16.3	2,990
Married or living together	25.9	438	21.5	1,201	22.8	1,639
Divorced or separated	23.6	97	23.9	241	23.8	338
Widowed	*	0	*	13	*	13
Education						
No education	24.0	137	29.6	273	27.4	410
Primary	22.5	841	21.2	1,122	21.8	1,963
Secondary	20.7	1,153	8.8	1,338	14.9	2,491
More than secondary	19.4	54	1.2	60	10.2	114
Wealth quintile						
Lowest	23.0	259	26.3	334	24.7	593
Second	22.9	340	21.4	419	22.2	759
Middle	20.0	333	18.0	452	18.9	785
Fourth	20.3	507	15.3	707	17.6	1,214
Highest	22.3	736	8.1	878	15.2	1,614
Age						
15-19	20.8	1,127	16.7	1,352	18.7	2,479
20-24	22.8	1,058	15.8	1,446	19.1	2,504
Total 15-24	21.6	2,185	16.3	2,798	18.9	4,983

* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

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

Among men aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, INSIDA 2021

Characteristic	Among men who reported having sex in the 12 months before the survey		Among men who reported having sex with a nonmarital, noncohabitating partner	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with a such a partner[2]	Number
Residence				
Urban	58.6	2,119	60.2	1,196
Rural	38.3	3,386	34.6	1,136
Province				
Niassa	43.0	434	32.4	163
Cabo Delgado	50.0	396	17.2	176
Nampula	40.0	916	19.5	336
Zambézia	37.5	410	48.0	123
Tete	35.3	836	58.5	259
Manica	37.0	513	60.8	165
Sofala	42.4	396	58.0	157
Inhambane	55.8	337	57.7	164
Gaza	58.1	277	67.1	142
Maputo Província	65.8	523	67.1	331
Maputo Cidade	70.9	467	66.5	316
Marital status				
Never married	92.4	1,374	56.2	1,267
Married or living together	18.7	3,663	40.6	619
Divorced or separated	96.4	419	26.2	399
Widowed	(98.4)	45	27.7	44
Education				
No education	29.9	616	21.2	170
Primary	36.4	2,700	29.4	870
Secondary	63.1	1,922	62.8	1,152
More than secondary	54.1	256	62.8	140
Wealth quintile				
Lowest	32.5	805	27.5	227
Second	35.3	1,088	25.7	334
Middle	39.3	1,088	33.6	382
Fourth	49.4	1,099	48.7	503
Highest	65.8	1,413	67.7	882
Age				
15-19	92.1	589	55.4	546
20-24	66.5	928	52.5	627
25-29	49.7	783	45.0	381
30-34	36.5	614	44.5	217
35-39	27.7	608	41.7	167
40-44	25.7	471	27.5	124

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

Among men aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, INSIDA 2021

Characteristic	Among men who reported having sex in the 12 months before the survey		Among men who reported having sex with a nonmarital, noncohabitating partner	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with a such a partner[2]	Number
45-49	21.4	441	22.3	97
50-54	18.2	259	30.2	49
55-59	19.6	240	30.7	39
60-64	17.5	218	14.2	39
65+	12.7	354	10.9	46
Total 15-24	77.8	1,517	54.0	1,173
Total 15-49	51.6	4,434	48.5	2,159
Total 50+	16.7	1,071	22.8	173
Total 15+	46.0	5,505	47.0	2,332

[1] For individuals with more than three partners, having sex with a nonmarital noncohabitating partner is determined using information about the last three partners.
[2] Relates to Global AIDS Monitoring indicator 2022 3.18: Condom use at last high-risk sex.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

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

Among women aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, INSIDA 2021

Characteristic	Among women who reported having sex in the 12 months before the survey		Among women who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with such a partner[2]	Number
Residence				
Urban	43.1	2,828	47.2	1,166
Rural	25.0	3,887	24.6	932
Province				
Niassa	23.8	464	33.0	106
Cabo Delgado	32.7	489	18.6	158
Nampula	28.1	906	15.8	244
Zambézia	27.6	449	37.1	113
Tete	23.7	899	43.6	191
Manica	15.7	595	37.5	85

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

Among women aged 15 years and older, self-reported condom use with nonmarital, noncohabiting partners in the 12 months before the survey by selected demographic characteristics, INSIDA 2021

Characteristic	Among women who reported having sex in the 12 months before the survey		Among women who reported having sex with a nonmarital, noncohabiting partner in the 12 months before the survey	
	Percentage who reported having sex with a nonmarital, noncohabiting partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with such a partner[2]	Number
Sofala	31.6	514	35.6	160
Inhambane	43.2	522	47.0	212
Gaza	38.8	473	43.0	175
Maputo Província	45.0	795	48.8	346
Maputo Cidade	53.4	609	51.8	308
Marital status				
Never married	86.2	1,106	52.0	953
Married or living together	7.5	4,731	18.8	333
Divorced or separated	94.3	725	22.9	685
Widowed	85.8	138	29.4	118
Education				
No education	19.1	1,607	9.5	295
Primary	26.6	2,909	27.1	738
Secondary	51.1	1,943	52.1	954
More than secondary	48.8	236	48.4	110
Wealth quintile				
Lowest	23.1	974	14.5	215
Second	21.2	1,102	15.5	213
Middle	24.4	1,174	26.2	280
Fourth	37.7	1,534	39.0	536
Highest	46.0	1,915	52.8	849
Age				
15-19	60.9	866	53.2	531
20-24	37.9	1,310	34.3	517
25-29	26.4	1,161	26.7	318
30-34	23.3	910	24.3	208
35-39	23.4	712	34.0	174
40-44	22.6	580	22.6	138
45-49	22.4	434	29.1	100
50-54	16.2	304	13.0	50
55-59	14.0	188	(16.0)	30
60-64	15.8	133	*	22
65+	7.6	117	*	10

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

Among women aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, INSIDA 2021

Characteristic	Among women who reported having sex in the 12 months before the survey		Among women who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with such a partner[2]	Number
Total 15-24	48.3	2,176	45.0	1,048
Total 15-49	33.9	5,973	37.4	1,986
Total 50+	14.0	742	12.1	112
Total 15+	32.0	6,715	36.4	2,098

[1] For individuals with more than three partners, having sex with a nonmarital noncohabitating partner is determined using information about the last three partners.
[2] Relates to Global AIDS Monitoring indicator 2022 3.18: Condom use at last high-risk sex.
( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

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

Among adults aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, INSIDA 2021

Characteristic	Among adults who reported having sex in the 12 months before the survey		Among adults who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with a such a partner[2]	Number
Residence				
Urban	50.5	4,947	54.4	2,362
Rural	31.5	7,273	30.5	2,068
Province				
Niassa	33.1	898	32.6	269
Cabo Delgado	40.9	885	17.8	334
Nampula	34.2	1,822	18.0	580
Zambézia	32.6	859	43.4	236
Tete	29.7	1,735	52.7	450
Manica	26.1	1,108	53.6	250
Sofala	36.7	910	47.8	317
Inhambane	48.6	859	52.2	376
Gaza	46.8	750	55.4	317
Maputo Província	54.4	1,318	58.7	677
Maputo Cidade	61.7	1,076	59.8	624

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

Among adults aged 15 years and older, self-reported condom use with nonmarital, noncohabitating partners in the 12 months before the survey by selected demographic characteristics, INSIDA 2021

Characteristic	Among adults who reported having sex in the 12 months before the survey		Among adults who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the 12 months before the survey[1]	Number	Percentage who reported using a condom the last time they had sex with a such a partner[2]	Number
Marital status				
Never married	89.9	2,480	54.6	2,220
Married or living together	12.6	8,394	33.5	952
Divorced or separated	95.2	1,144	24.3	1,084
Widowed	88.9	183	28.9	162
Education				
No education	22.2	2,223	14.1	465
Primary	31.6	5,609	28.4	1,608
Secondary	57.7	3,865	58.6	2,106
More than secondary	51.8	492	56.8	250
Wealth quintile				
Lowest	27.5	1,779	21.7	442
Second	28.5	2,190	22.0	547
Middle	31.9	2,262	30.8	662
Fourth	43.1	2,633	44.1	1,039
Highest	55.5	3,328	61.3	1,731
Age				
15-19	74.9	1,455	54.4	1,077
20-24	51.1	2,238	45.2	1,144
25-29	36.8	1,944	37.6	699
30-34	29.5	1,524	35.9	425
35-39	25.5	1,320	38.1	341
40-44	24.1	1,051	25.1	262
45-49	21.9	875	25.7	197
50-54	17.2	563	22.8	99
55-59	17.4	428	25.7	69
60-64	16.9	351	13.2	61
65+	11.3	471	8.9	56
Total 15-24	61.7	3,693	50.2	2,221
Total 15-49	42.1	10,407	43.7	4,145
Total 50+	15.6	1,813	19.1	285
Total 15+	38.8	12,220	42.5	4,430

[1] For individuals with more than three partners, having sex with a nonmarital noncohabitating partner is determined using information about the last three partners.
[2] Relates to Global AIDS Monitoring indicator 2022 3.18: Condom use at last high-risk sex.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Figure 12.4

Self-reported sex and condom use among adults aged 15 years and older at last sex with a nonmarital, noncohabitating partner in the 12 months before the survey, INSIDA 2021

■ Did no report sex with a nonmarital, noncohabitating partner

■ Reported sex with a nonmarital, noncohabitating partner

■ Did no report using a condom

■ Reported using a condom
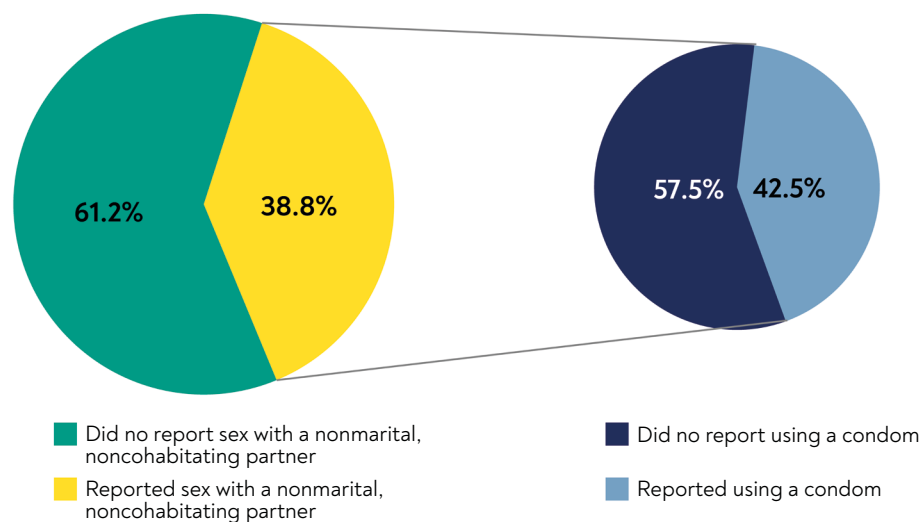
Table 12.5 Male circumcision

Percent distribution of men aged 15 years and older by self-reported circumcision status, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Circumcised[1]		Uncircumcised	Total	Number
	Medical circumcision	Nonmedical circumcision			
Result of INSIDA HIV test					
HIV positive	27.4	34.1	38.5	100.0	625
HIV negative	40.8	33.1	26.1	100.0	5,482
Not tested	43.0	33.3	23.7	100.0	1,030
Residence					
Urban	53.3	28.3	18.5	100.0	2,823
Rural	31.4	36.4	32.2	100.0	4,314
Province					
Niassa	18.3	76.9	4.9	100.0	618
Cabo Delgado	35.2	58.7	6.1	100.0	511
Nampula	39.5	57.0	3.5	100.0	1,125
Zambézia	40.1	26.7	33.2	100.0	503
Tete	26.5	1.3	72.2	100.0	986
Manica	33.4	2.9	63.7	100.0	630
Sofala	46.0	6.1	47.8	100.0	624
Inhambane	22.4	69.3	8.3	100.0	443
Gaza	62.5	5.5	32.0	100.0	363
Maputo Província	55.4	25.9	18.6	100.0	709
Maputo Cidade	61.5	18.7	19.7	100.0	625

Table 12.5 Male circumcision (continued)

Percent distribution of men aged 15 years and older by self-reported circumcision status, by result of INSIDA HIV test and selected demographic characteristics, INSIDA 2021

Characteristic	Circumcised[1]		Uncircumcised	Total	Number
	Medical circumcision	Nonmedical circumcision			
Marital status					
Never married	56.0	24.9	19.2	100.0	2,236
Married or living together	30.7	37.5	31.8	100.0	4,243
Divorced or separated	34.0	40.7	25.3	100.0	529
Widowed	21.8	37.4	40.9	100.0	118
Education					
No education	22.2	45.3	32.4	100.0	860
Primary	28.4	39.1	32.5	100.0	3,478
Secondary	57.8	22.7	19.5	100.0	2,478
More than secondary	73.1	19.0	7.9	100.0	306
Wealth quintile					
Lowest	27.3	41.4	31.3	100.0	1,040
Second	25.8	38.5	35.7	100.0	1,380
Middle	29.4	36.7	33.8	100.0	1,361
Fourth	45.1	32.9	22.0	100.0	1,442
Highest	62.3	21.4	16.3	100.0	1,891
Age					
15-19	56.8	24.6	18.6	100.0	1,155
20-24	50.6	27.3	22.1	100.0	1,123
25-29	45.6	29.5	24.9	100.0	899
30-34	39.7	33.1	27.3	100.0	708
35-39	30.8	34.8	34.4	100.0	713
40-44	26.9	40.6	32.5	100.0	562
45-49	22.0	43.0	35.0	100.0	535
50-54	25.8	41.8	32.4	100.0	323
55-59	22.0	42.3	35.7	100.0	303
60-64	17.6	50.0	32.4	100.0	285
65+	14.9	49.5	35.6	100.0	531
Total 15-24	54.1	25.8	20.1	100.0	2,278
Total 15-49	43.8	30.8	25.4	100.0	5,695
Total 50+	19.8	45.9	34.3	100.0	1,442
Total 15+	39.9	33.2	26.8	100.0	7,137

[1] Relates to Global AIDS Monitoring indicator 2022 3.16: Prevalence of male circumcision; and PEPFAR indicator VMMC_TOTALCIRC NAT / SUBNAT: Total number of men ever circumcised.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

Figure 12.5

Self-reported male circumcision status among men aged 15 years and older by survey HIV test result, INSIDA 2021

Table 12.6 Self-reported knowledge of pre-exposure prophylaxis

Among persons aged 15 years and older, percentage who reported they had heard of pre-exposure prophylaxis (PrEP), by selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage who had heard of PrEP	Number	Percentage who had heard of PrEP	Number	Percentage who had heard of PrEP	Number
Residence						
Urban	10.6	2,884	9.9	3,952	10.2	6,836
Rural	5.7	4,306	4.5	5,666	5.1	9,972
Province						
Niassa	4.1	618	2.1	684	3.1	1,302
Cabo Delgado	6.3	509	2.5	652	4.3	1,161
Nampula	6.4	1,131	7.9	1,192	7.1	2,323
Zambézia	4.7	493	6.6	594	5.7	1,087
Tete	9.9	973	7.7	1,279	8.7	2,252
Manica	8.4	628	6.3	873	7.2	1,501
Sofala	8.0	626	5.3	835	6.6	1,461
Inhambane	9.1	446	8.7	849	8.9	1,295
Gaza	7.3	372	4.9	758	5.8	1,130
Maputo Província	11.1	737	8.9	1,030	9.9	1,767
Maputo Cidade	11.9	657	10.3	872	11.0	1,529
Marital status						
Never married	6.0	2,264	6.5	1,910	6.2	4,174
Married or living together	8.4	4,250	7.1	5,344	7.7	9,594
Divorced or separated	10.1	544	6.8	1,322	7.9	1,866
Widowed	4.2	121	3.3	1,020	3.4	1,141

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

Among persons aged 15 years and older, percentage who reported they had heard of pre-exposure prophylaxis (PrEP), by selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage who had heard of PrEP	Number	Percentage who had heard of PrEP	Number	Percentage who had heard of PrEP	Number
Education						
No education	2.4	854	2.5	2,693	2.4	3,547
Primary	4.9	3,473	5.5	4,072	5.2	7,545
Secondary	10.5	2,533	11.0	2,546	10.7	5,079
More than secondary	30.5	315	28.1	279	29.5	594
Wealth quintile						
Lowest	4.0	1,028	3.1	1,466	3.5	2,494
Second	5.0	1,364	4.0	1,617	4.5	2,981
Middle	5.2	1,360	5.3	1,713	5.2	3,073
Fourth	8.9	1,471	7.7	2,150	8.3	3,621
Highest	12.6	1,944	11.0	2,646	11.8	4,590
Age						
15-19	3.3	1,161	4.3	1,384	3.8	2,545
20-24	7.7	1,128	9.3	1,531	8.5	2,659
25-29	10.8	904	8.3	1,352	9.4	2,256
30-34	12.9	721	10.4	1,086	11.6	1,807
35-39	8.9	711	8.4	910	8.6	1,621
40-44	9.3	572	5.8	758	7.4	1,330
45-49	9.5	536	4.4	626	6.8	1,162
50-54	6.1	329	3.1	537	4.5	866
55-59	5.8	307	3.9	422	4.8	729
60-64	7.1	284	3.8	344	5.4	628
65+	3.5	537	1.7	668	2.5	1,205
Total 15-24	5.2	2,289	6.6	2,915	5.9	5,204
Total 15-49	8.1	5,733	7.4	7,647	7.7	13,380
Total 50+	5.3	1,457	2.9	1,971	4.0	3,428
Total 15+	7.6	7,190	6.6	9,618	7.1	16,808

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

Table 12.7 Willingness to take pre-exposure prophylaxis

Among persons aged 15 years and older who are HIV negative, percentage who reported they would take pre-exposure prophylaxis (PrEP) to prevent HIV by selected demographics characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage who would take PrEP	Number	Percentage who would take PrEP	Number	Percentage who would take PrEP	Number
Heard of PrEP						
Yes	84.0	302	86.3	318	85.1	620
No	71.6	4,731	69.2	5,665	70.4	10,396
Residence						
Urban	74.0	1,938	72.7	2,350	73.3	4,288
Rural	71.8	3,143	68.7	3,686	70.2	6,829
Province						
Niassa	58.2	460	57.6	456	57.9	916
Cabo Delgado	75.8	371	80.6	387	78.3	758
Nampula	64.7	877	58.1	838	61.6	1,715
Zambézia	70.9	310	58.6	332	64.8	642
Tete	81.1	721	74.6	830	77.9	1,551
Manica	66.7	472	74.1	627	70.7	1,099
Sofala	69.5	476	70.4	574	69.9	1,050
Inhambane	76.4	274	65.4	500	69.9	774
Gaza	83.6	222	79.8	404	81.4	626
Maputo Província	87.3	493	84.4	611	85.8	1,104
Maputo Cidade	79.5	405	82.8	477	81.1	882
Marital status						
Never married	73.1	1,712	67.9	1,334	71.0	3,046
Married or living together	72.2	2,910	72.0	3,378	72.1	6,288
Divorced or separated	72.2	376	72.1	747	72.1	1,123
Widowed	73.9	76	61.6	564	63.1	640
Education						
No education	66.9	612	64.8	1,712	65.4	2,324
Primary	70.7	2,479	68.6	2,510	69.7	4,989
Secondary	76.9	1,795	77.7	1,635	77.2	3,430
More than secondary	72.8	185	80.8	163	76.3	348
Wealth quintile						
Lowest	66.1	773	63.7	970	64.8	1,743
Second	68.3	1,028	64.9	1,082	66.6	2,110
Middle	72.9	985	68.0	1,064	70.5	2,049
Fourth	75.1	1,005	73.8	1,340	74.4	2,345
Highest	78.4	1,274	77.7	1,560	78.0	2,834
Age						
15-19	72.9	897	71.6	1,026	72.3	1,923
20-24	75.5	852	72.0	1,023	73.8	1,875
25-29	74.4	657	72.6	847	73.5	1,504
30-34	70.8	472	74.9	619	72.9	1,091

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

Among persons aged 15 years and older who are HIV negative, percentage who reported they would take pre-exposure prophylaxis (PrEP) to prevent HIV by selected demographics characteristics, INSIDA 2021

	Men		Women		Total	
Characteristic	Percentage who would take PrEP	Number	Percentage who would take PrEP	Number	Percentage who would take PrEP	Number
35-39	72.0	457	73.2	476	72.6	933
40-44	75.9	352	68.4	426	72.0	778
45-49	72.4	346	69.5	363	70.9	709
50-54	65.4	229	62.3	332	63.8	561
55-59	68.0	218	68.5	257	68.3	475
60-64	71.1	190	63.2	235	66.9	425
65+	67.5	411	56.0	432	61.3	843
Total 15-24	74.0	1,749	71.8	2,049	72.9	3,798
Total 15-49	73.6	4,033	72.0	4,780	72.8	8,813
Total 50+	67.6	1,048	61.2	1,256	64.2	2,304
Total 15+	72.6	5,081	70.2	6,036	71.4	11,117

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

Table 12.8 Ever taken pre-exposure prophylaxis

Among persons aged 15 years and older who were HIV negative and reported having heard of preexposure profilaxis (PrEP), percentage who reported they had ever taken pre-exposure prophylaxis (PrEP) to prevent HIV by selected demographic characteristics, INSIDA 2021

	Men		Women		Total	
Characteristic	Percentage who had ever taken PrEP	Number	Percentage who had ever taken PrEP	Number	Percentage who had ever taken PrEP	Number
Residence						
Urban	26.1	222	14.7	240	20.8	462
Rural	24.1	177	18.2	157	21.5	334
Province						
Niassa	*	22	*	9	(6.7)	31
Cabo Delgado	*	16	*	10	(26.8)	26
Nampula	22.0	62	17.0	67	19.4	129
Zambézia	*	15	*	19	(30.7)	34
Tete	15.2	62	(18.1)	49	16.4	111
Manica	(31.9)	44	(18.1)	36	25.4	80
Sofala	(36.8)	33	(22.3)	28	32.0	61
Inhambane	*	22	(0.0)	36	3.2	58
Gaza	*	16	*	24	(11.5)	40
Maputo Província	36.2	60	14.3	54	27.0	114
Maputo Cidade	(19.2)	47	10.2	65	14.7	112

Table 12.8 Ever taken pre-exposure prophylaxis (continued)

Among persons aged 15 years and older who were HIV negative and reported having heard of preexposure profilaxis (PrEP), percentage who reported they had ever taken pre-exposure prophylaxis (PrEP) to prevent HIV by selected demographic characteristics, INSIDA 2021

Characteristic	Men		Women		Total	
	Percentage who had ever taken PrEP	Number	Percentage who had ever taken PrEP	Number	Percentage who had ever taken PrEP	Number
Marital status						
Never married	26.3	116	12.1	103	20.2	219
Married or living together	25.1	245	19.7	235	22.7	480
Divorced or separated	(24.0)	34	9.9	50	16.9	84
Widowed	*	3	*	9	*	12
Education						
No education	*	15	(30.0)	31	(27.5)	46
Primary	22.0	126	15.2	143	18.5	269
Secondary	26.2	196	17.1	174	22.5	370
More than secondary	28.4	62	(6.4)	49	20.0	111
Wealth quintile						
Lowest	(20.3)	37	(20.9)	32	20.6	69
Second	17.0	57	(14.7)	40	16.1	97
Middle	(30.1)	49	(27.0)	48	28.6	97
Fourth	20.4	83	15.3	93	18.1	176
Highest	30.0	172	12.6	184	22.2	356
Age						
15-19	(6.8)	40	(15.3)	48	11.5	88
20-24	26.4	73	13.1	101	19.2	174
25-29	29.5	70	29.7	82	29.6	152
30-34	25.3	63	13.5	58	20.4	121
35-39	(36.4)	41	(13.2)	42	26.3	83
40-44	(30.3)	29	*	21	25.3	50
45-49	(14.2)	32	*	17	(9.5)	49
50-54	*	8	*	10	*	18
55-59	*	9	*	7	*	16
60-64	*	16	*	5	*	21
65+	*	18	*	6	*	24
Total 15-24	19.2	113	13.9	149	16.3	262
Total 15-49	25.3	348	16.8	369	21.4	717
Total 50+	24.4	51	(3.1)	28	17.6	79
Total 15+	25.2	399	16.1	397	21.1	796

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

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13. TUBERCULOSIS, CERVICAL CANCER, AND CHRONIC CONDITIONS

13.1 BACKGROUND

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

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.[1] Among women living with HIV, WHO recommends that priority should be given to screening those aged 25-49 years, and that when tools are available to manage women living with HIV aged 50-65 years, those in that age bracket who have never been screened should also be prioritized. INSIDA 2021 provides population-based rates of screening unavailable from routine clinic data. This chapter presents cervical cancer screening rates by age and sociodemographic characteristics.

With changes in lifestyle and diet, noncommunicable health conditions, including diabetes, hypertension, heart disease, kidney disease, cancers, lung diseases, and depression or other mental health issues have become increasingly common causes of illness and mortality in many communities in low and middle-income countries.[2] While it is not clear whether these conditions are more common among people living with HIV, there are some data to suggest that people living with HIV may develop comorbidities at younger ages and may be at higher risk of developing multiple chronic comorbidities.[3] Regardless, as people live longer with HIV on treatment, their care is more likely to require prevention and/or management of chronic health comorbidities.[4] In order to inform national program planning, INSIDA 2021 asked both HIV-negative and HIV-positive participants whether they have been told by a doctor or health worker that they have a chronic health condition.

Finally, TB remains the leading cause of death for people living with HIV, particularly in Africa.[5] HIV infection increases a person's susceptibility to TB infection and dramatically increases the risk of progression of latent TB to active disease.[6,7] A UNAIDS model estimates there were 4,200 (95% CI 2,300-6,700) TB-related deaths among HIV-positive persons in Mozambique in 2020.[8]

Information regarding health-seeking behavior and access to services among people living with HIV, particularly for TB health services, can help the HIV program decrease the impact of TB on people living with HIV. This chapter describes the self-reported uptake of TB services (TB clinic attendance, TB diagnosis, and TB treatment initiation) among people living with HIV in Mozambique. In addition, this chapter presents data on the performance of two of the key collaborative TB/HIV activities recommended by WHO: (1) HIV testing of all of those visiting a TB clinic who are not already aware of their HIV-positive status; and (2) TB symptom screening of all people living with HIV at every HIV clinic visit.[9]

13.2 RESULTS

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

Table 13.1 Cervical cancer screening among women living with HIV

Among HIV-positive women aged 15 years and older, percentage who reported they had ever received a cervical cancer screening test by selected demographic characteristics, INSIDA 2021

Characteristic	Among HIV-positive women		Among HIV-positive women who reported they had received a cervical cancer screening test	
	Percentage who reported they had ever received a cervical cancer screening test	Number	Percentage with an abnormal result	Number
Residence				
Urban	28.2	677	9.0	206
Rural	14.9	689	7.8	96

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

Among HIV-positive women aged 15 years and older, percentage who reported they had ever received a cervical cancer screening test by selected demographic characteristics, INSIDA 2021

Characteristic	Among HIV-positive women		Among HIV-positive women who reported they had received a cervical cancer screening test	
	Percentage who reported they had ever received a cervical cancer screening test	Number	Percentage with an abnormal result	Number
Province				
Niassa	8.3	65	*	6
Cabo Delgado	14.5	73	*	12
Nampula	21.2	131	*	23
Zambézia	12.8	108	*	15
Tete	12.3	114	*	17
Manica	17.0	72	*	13
Sofala	18.4	117	*	23
Inhambane	7.0	120	*	6
Gaza	26.3	196	19.9	54
Maputo Província	34.1	199	1.4	63
Maputo Cidade	42.9	171	3.5	70
Marital status				
Never married	11.7	161	*	23
Married or living together	20.0	676	7.2	153
Divorced or separated	25.2	310	11.2	74
Widowed	27.3	215	7.5	52
Education				
No education	12.0	355	(1.5)	37
Primary	22.8	654	9.8	157
Secondary	26.0	332	9.5	96
More than secondary	*	22	*	11
Wealth quintile				
Lowest	9.4	145	*	12
Second	12.3	141	*	13
Middle	12.3	248	(27.4)	29
Fourth	22.8	376	6.3	89
Highest	34.1	454	5.7	159
Age				
15-19	(8.6)	44	*	3
20-24	13.1	143	*	18
25-29	20.6	177	(12.8)	38
30-34	20.9	200	(9.7)	47
35-39	28.2	225	4.6	63
40-44	27.1	173	(10.9)	49
45-49	25.0	143	(7.8)	40
50-54	14.9	92	*	15
55-59	21.8	72	*	13

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

Among HIV-positive women aged 15 years and older, percentage who reported they had ever received a cervical cancer screening test by selected demographic characteristics, INSIDA 2021

Characteristic	Among HIV-positive women		Among HIV-positive women who reported they had received a cervical cancer screening test	
	Percentage who reported they had ever received a cervical cancer screening test	Number	Percentage with an abnormal result	Number
60-64	(18.1)	43	*	7
65+	16.8	54	*	9
Total 15-24	11.9	187	*	21
Total 15-49	21.5	1,105	9.3	258
Total 30-49	25.3	741	7.9	199
Total 50+	17.5	261	(3.7)	44
Total 15+	20.9	1,366	8.6	302

[1] Relates to Global AIDS Monitoring indicator 2022 10.8: Cervical cancer screening among women living with HIV; and PEPFAR indicator CXCA_SCRN NAT/SUBNAT: Percentage of HIV-positive women on antiretroviral therapy screened for cervical cancer.
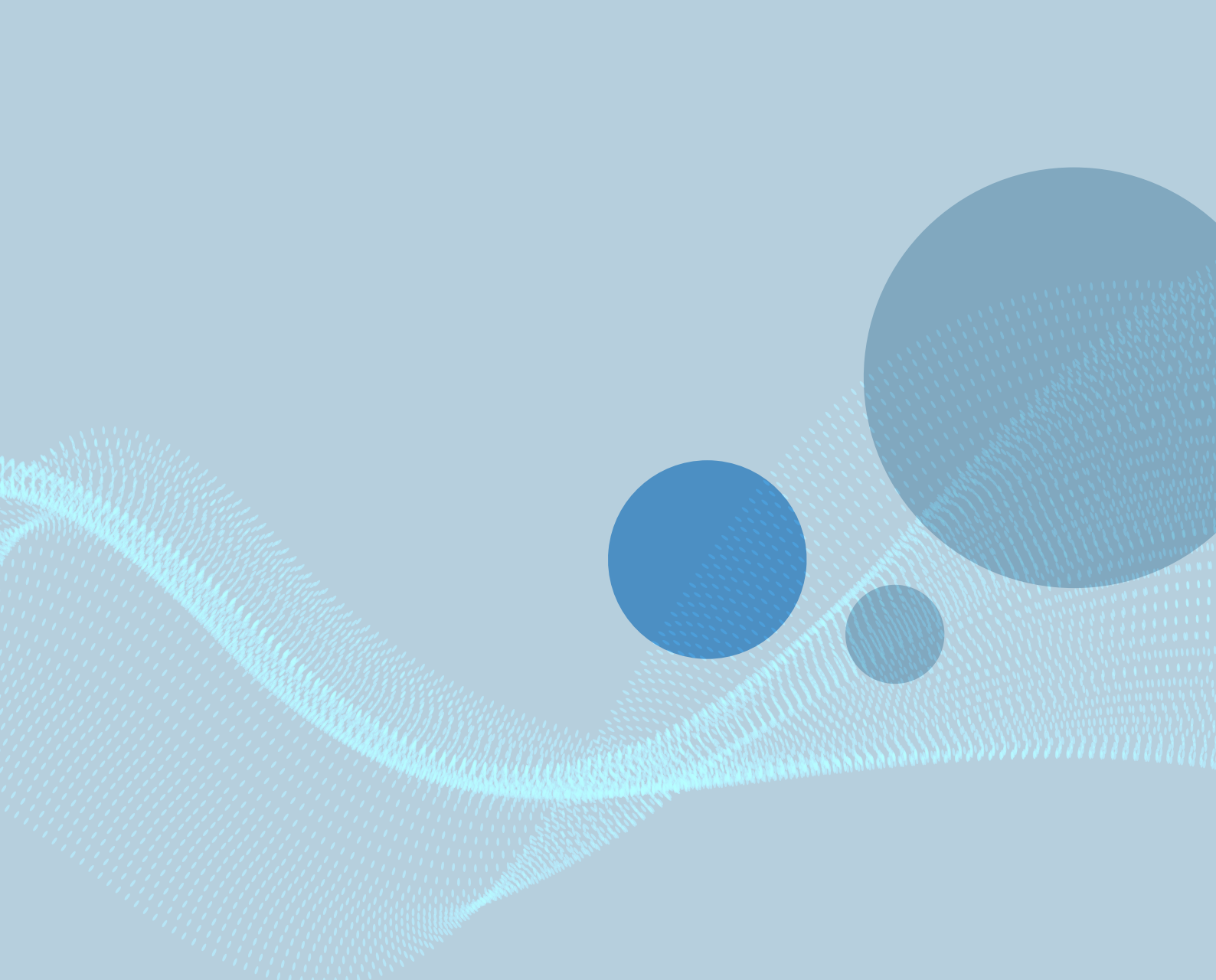( ) Estimates based on a denominator of 25-49 are included in parentheses and should be interpreted with caution.
* Estimates based on a denominator less than 25 have been suppressed.
Note: Education categories refer to the highest level of education attended, whether or not that level was completed.
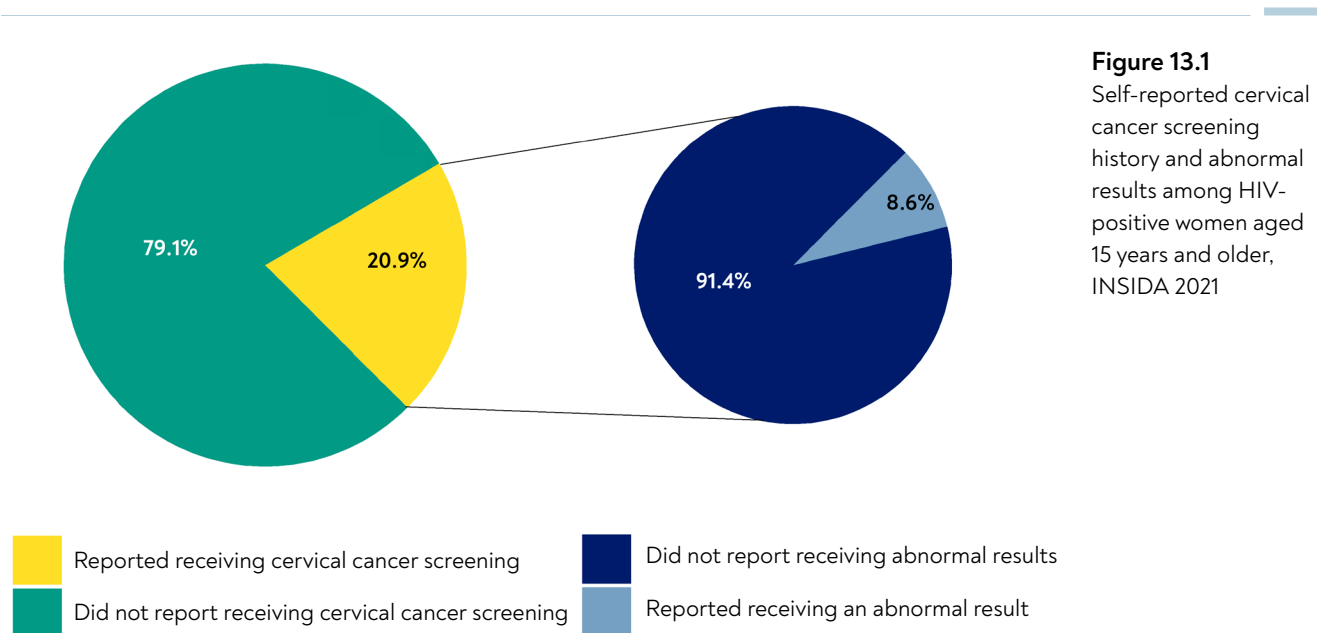
Figure 13.1
Self-reported cervical cancer screening history and abnormal results among HIV-positive women aged 15 years and older, INSIDA 2021

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

Among HIV-positive and HIV-negative adults aged 15 years and older, percentage indicating that they have ever been told by a doctor or health worker that they have chronic health conditions, by self-reported HIV status and antiretroviral therapy (ART) use (adjusted by detection of an antiretroviral [ARV] in blood), INSIDA 2021

Chronic health conditions	HIV negative		HIV positive						Total	
			Unaware of HIV status[1]		Aware of HIV status and not on ART[1]		Aware of HIV status and on ART[1]			
	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number
High blood sugar or diabetes										
Yes	0.8	108	0.6	3	(4.4)	1	1.1	18	1.0	22
No	99.2	11,970	99.4	487	(95.6)	47	98.9	1,428	99.0	1,967
High blood pressure or hypertension										
Yes	6.6	991	6.6	44	(15.2)	8	13.7	244	11.7	297
No	93.4	11,087	93.4	446	(84.8)	40	86.3	1,202	88.3	1,692
Heart disease or chronic heart condition										
Yes	1.0	140	1.1	7	(0.0)	0	1.3	0	1.2	29
No	99.0	11,938	98.9	483	(100.0)	48	98.7	1,424	98.8	1,960
Kidney disease										
Yes	1.2	124	1.7	6	(8.1)	4	1.4	17	1.6	27
No	98.8	11,954	98.3	484	(91.9)	44	98.6	1,429	98.4	1,962
Cancer or tumor										
Yes	0.2	19	0.1	1	(1.1)	1	0.4	5	0.3	7
No	99.8	12,059	99.9	489	(98.9)	47	99.6	1,441	99.7	1,982
Lung disease or chronic lung condition										
Yes	0.7	86	1.8	8	(3.4)	1	0.9	15	1.2	24
No	99.3	11,992	98.2	482	(96.6)	47	99.1	1,431	98.8	1,965
Depression or mental health condition										
Yes	0.3	31	0.1	1	(0.0)	0	0.8	9	0.6	10
No	99.7	12,047	99.9	489	(100.0)	48	99.2	1,437	99.4	1,979
Total 15+	100.0	12,078	100.0	490	(100.0)	48	100.0	1,446	100.0	1,989

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

Table 13.3 HIV testing in tuberculosis clinics

Among adults aged 15 years and older who reported visiting a tuberculosis (TB) clinic in the 12 months before the survey, percentage who reported that they were tested for HIV during a TB clinic visit in that period, by sex and self-reported TB diagnosis, INSIDA 2021

Characteristic	Tested for HIV during a TB clinic visit in the 12 months before the survey	Not tested for HIV during a TB clinic visit in the 12 months before the survey		Total	Number
		Already knew they were HIV positive	Did not know their status		
Sex					
Men	55.1	42.0	2.9	100.0	233
Women	56.6	40.2	3.2	100.0	357
TB diagnosis in the 12 months before the survey					
Diagnosed with TB	62.6	28.9	8.5	100.0	135
Not diagnosed with TB	54.2	44.4	1.4	100.0	447
Total 15+	55.9	41.0	3.1	100.0	590
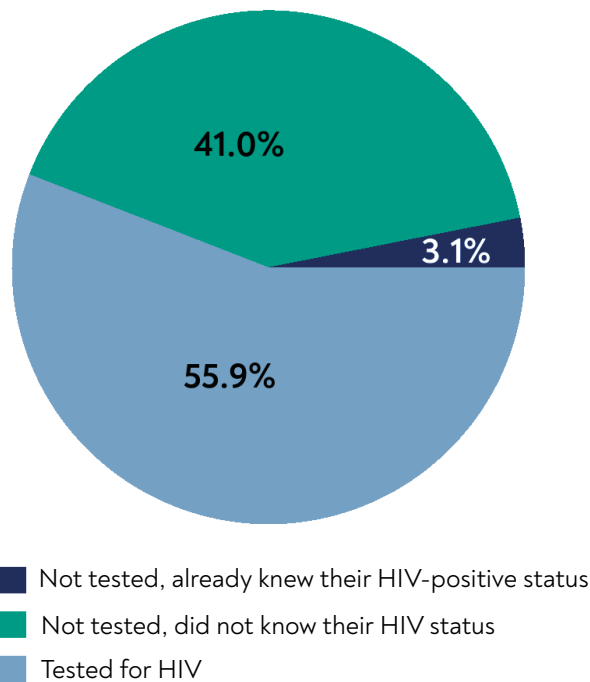
Figure 13.3
Self-reported receipt of HIV testing among adults aged 15 years and older in tuberculosis clinics in the 12 months before the survey, INSIDA 2021

- Not tested, already knew their HIV-positive status
- Not tested, did not know their HIV status
- Tested for HIV

Table 13.4 Tuberculosis clinic attendance and services among HIV-positive adults

Among self-reported HIV-positive adults aged 15 years and older, percentage who reported that they had visited a tuberculosis (TB) clinic in the 12 months before the survey; among those who visited a TB clinic during that period, percentage who were diagnosed for TB; and among those diagnosed with TB in that period, percentage who reported receiving treatment for TB, by sex and selected demographic characteristics, INSIDA 2021

Characteristic	Among HIV-positive adults		Among HIV-positive adults who visited a TB clinic in the 12 months before the survey		Among HIV-positive adults diagnosed with TB in the 12 months before the survey	
	Percentage who visited a TB clinic in the 12 months before the survey	Number	Percentage diagnosed with TB in the 12 months before the survey	Number	Percentage treated for TB in the 12 months before the survey	Number
Sex						
Men	9.2	471	(56.5)	45	*	24
Women	8.1	1,063	35.3	90	(76.5)	26
Residence						
Urban	8.1	787	35.9	66	*	19
Rural	8.8	747	49.6	69	(87.1)	31
Province						
Niassa	4.8	53	*	3	*	0
Cabo Delgado	15.2	55	*	7	*	3
Nampula	8.1	123	*	11	*	4
Zambézia	7.8	168	*	13	*	7
Tete	6.4	119	*	9	*	6
Manica	15.0	91	*	13	*	3
Sofala	2.6	114	*	4	*	2
Inhambane	11.5	118	*	13	*	3
Gaza	11.5	232	*	24	*	11
Maputo Província	6.3	251	*	16	*	7
Maputo Cidade	9.3	210	*	22	*	4
Age						
15-24	6.1	126	*	9	*	3
25-34	5.4	370	*	21	*	9
35-44	10.7	492	37.0	52	*	16
45-54	7.1	299	*	21	*	9
55-64	14.0	171	*	21	*	8
65+	12.5	76	*	11	*	5
Pregnancy status						
Currently pregnant	(1.7)	39	*	1	*	0
Not currently pregnant	8.4	1,014	35.6	89	(76.5)	26
Total 15-24	6.1	126	*	9	*	3
Total 15-49	7.8	1,171	43.8	95	(87.5)	35
Total 50+	11.0	363	(42.4)	40	*	15
Total 15+	8.5	1,534	43.4	135	88.2	50

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

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

Table 13.5 Tuberculosis symptom screening in HIV clinics

Among self-reported HIV-positive adults aged 15 years and older currently in HIV care, percentage who reported that they were screened for tuberculosis (TB) symptoms during their last HIV clinic visit, by sex, INSIDA 2021

Characteristic	Percentage screened for TB symptoms[1]	Number
Sex		
Men	47.9	415
Women	45.1	985
Total 15+	46.1	1,400

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

Figure 13.5
Self-reported tuberculosis symptom screening at last clinic visit among adults living with HIV (ages 15 years and older), based on self-report, INSIDA 2021

53.9%

46.1%

■ Did not report TB symptom screening

■ Reported TB symptom screening
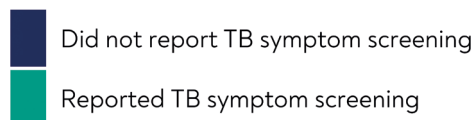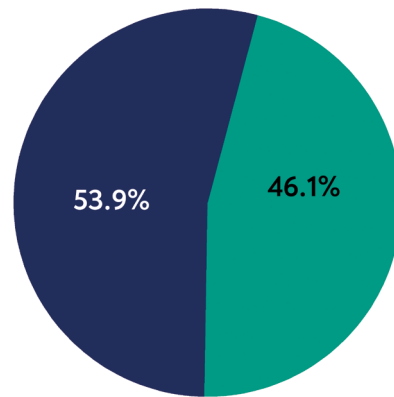
Abbreviation: TB, tuberculosis.

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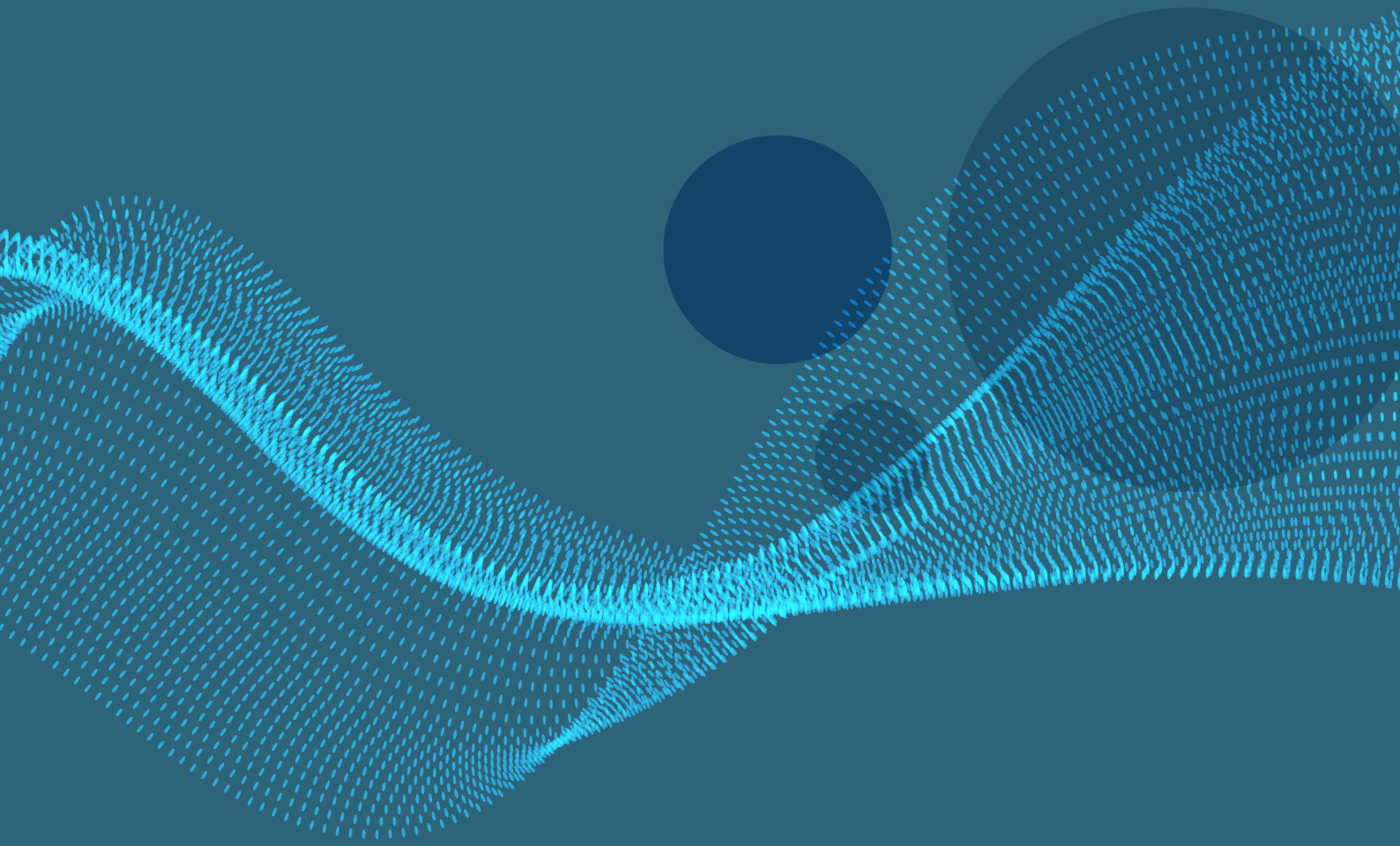
APPENDICES

APPENDIX A SAMPLE DESIGN AND IMPLEMENTATION

Appendix A provides a high-level overview of sampling and weighting procedures for INSIDA 2021. In-depth details are provided in the INSIDA 2021 Sampling and Weighting Technical Report, which may be found on the PHIA Project website.

A.1 SAMPLE DESIGN

Overview

INSIDA 2021 used a four-stage probability sample design, that first selected CAs (or PSUs) within each of the country's 11 provinces, based on a national sample frame maintained by INE with probabilities proportionate to size. The MOS was the number of households in the CA derived from the 2017 Mozambique Population and Housing Census.[1] In the second-stage sampling, one enumeration area (EA) (or SSU) was randomly selected with equal probability from each of the 324 selected CAs. There was one out-of-scope SSU deemed ineligible due to flooding. In the third stage, a list of dwelling units was compiled; however, the listing staff could not enter 12 EAs (considered as nonresponding) due to security concerns. During the fourth stage, one household was selected for each sampled dwelling unit. After this sampling process, there were 311 remaining EAs with an average of 28 households selected per EA, except for Cabo Delgado province, where an average of 39 HHs were selected per EA.

The allocation of the sample SSUs/EAs to the 11 provinces was made in a manner designed to achieve specified precision levels for (a) estimate province-level VLS prevalence among HIV-positive persons aged 15-49 years, (b) a national estimate of HIV incidence among adults aged 15-49 years, (c) national estimates of VLS rates among adults living with HIV aged 15-49 years, and (d) a national estimate of VLS among HIV-positive young women aged 15-24 years.

Within the sampled households, all eligible adults, defined as those aged 15 years and older, who were present in the household on the night prior to the interview, were included in the study sample for data collection.

Population of Inference

The population of inference for the INSIDA 2021 is comprised of the de facto household population. The de facto population is comprised of individuals who were present in households (ie, slept in the household) on the night prior to the household interview. In contrast, the *de jure* population is comprised of individuals who are usual residents of the household, irrespective of whether or not they slept in the household on the night prior to the household interview.

INSIDA also allowed individuals 15 years of age and older who were usual residents but not present in the night before the interview (*de jure* and not de facto) to have their data collected, however these individuals were coded as not eligible for weighting.

Precision Specifications and Assumptions

The following specifications were used to develop the sample design for the INSIDA 2021:

· Relative standard error (RSE) of the national estimate of HIV incidence among adults 15 to 49 years old should be 30% or less.

· 95% confidence interval (CI) bounds around provincial-level estimates of VLS rate among adults aged 15 to 49 years living with HIV should be ±10% or less.

· 95% CI bounds around the national estimate of VLS rate among all adults aged 15 to 49 years living with HIV should be ±3% or less.

· 95% CI bounds around the national estimate of VLS rate among all young women aged 15 to 24 years living with HIV should be ±6%.

The following assumptions were used to develop the sample design for the INSIDA 2021.

· National HIV prevalence rate of 0.128 (12.8%) for adults 15-49 years that varies by province (see Table 2.2). Sources: INE, 2019; INE, 1996-2022.
· National HIV prevalence rate of 9.8% for young women aged 15 to 24 years that varies by province (see Table 2.2). Source: INE, 2019.
· Annual national incidence rate for adults aged 15-49 yearsof Pa = 0.0046 (0.46%). Source: INE, 2018.
· Stratum-level (provincial) incidence rates of P_{ah}, h = 1, 2, ..., 11,which are obtained by adjusting the national incidence rate using the provincial prevalence rates as follows:

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

where p_h and p are the HIV prevalence rates for province h and the country, respectively, and Pa is the annual national incidence rate obtained from the IMASIDA 2015.

·   Mean duration of recent infection of 130 days, yielding an annualization rate of 365/130= 2.8077.

·   Estimated incidence rate for mean duration of infection = 130 days of p_m= 0.0046/2.8077 = 0.00164 (0.164%), and the corresponding stratum-level (provincial) estimates obtained by p_{mh} = p_{ah} /2.8077.

·   VLS rate among adult aged 15-49 years living with HIV of p_{VLS} = 0.50 (50%) in each province, which yields a conservative estimate of the underlying population variance associated with VLS rate.

·   Intracluster correlation (ICC) of 0.069 for VLS and 0.039 for prevalence. Source: tabulations of 2015 IMASIDA 2015 data.

·   ICC of 0.000 for incidence. Source: analyses of prior PHIA surveys.

·   Overall sex-age distributions based on IMASIDA 2015.

·   Population distributions by province based on published 2017 Mozambique census projections.

Selection of the Primary and Secondary Sampling Units

The PSUs were INE-CAs selected by INE from a nationally representative master sample of CAs it maintains. The INSIDA 2021 master sample had over 1,800 CAs, with each CA consisting of about three to four EAs and their number of households in the 2017 census. A stratified sample of 324 CAs was selected from this master sample.

For the SSUs, an equal probability random sample of one EA was selected from each CA. The sampling frame consisted of 68,114 EAs containing an estimated 6,145,684 households as of 2017.

A stratified sample of 324 EAs was selected from the sampling frame. The 11 strata specified for sampling were the 11 provinces of Mozambique. Within each province, the EAs in the sampling frame were sorted to the extent feasible, by: district within province, admin post within district, locality within district, etc. The sorting of EAs prior to sample selection induces an implicit geographic substratification within each province.

Of the 324 EAs selected, one EA was ineligible for the survey due to flooding and 12 other EAs (11 in Cabo Delgado and 1 in Sofala) were inaccessible due to security concerns. This left 311 in-scope PSUs that were included in the study. Further details may be found in the INSIDA 2021 Sampling and Weighting Technical Report available on the PHIA Project website.

Selection of Dwelling Units and 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 a collection of eligible households meeting the above definition sharing structure. Households were eligible for participation in the study if they were located within the sampled EA.

The selection of dwelling units for the INSIDA 2021 involved the following steps: (1) listing the dwelling units and households within the sampled EAs; (2) assigning eligibility codes to the listed dwelling unit and household records; (3) creating a dwelling unit sampling frame; and (4) selecting the sample of dwelling units with probabilities proportionate to the number of eligible households in each dwelling unit.

The selection of households involved the following steps: (1) relisting the households within the responding selected dwelling units, and (2) randomly selecting one household from each responding dwelling unit.

A description of the household listing process as well as a summary of household eligibility may be found in the INSIDA 2021 Sampling and Weighting Technical Report.

Selection of Individuals

The selection of individuals for the INSIDA 2021 involved the following steps: (1) compiling a list of all individuals known to reside in the household or who slept in the household during the night prior to data collection; (2) identifying those rostered individuals who were eligible for data collection; and (3) selecting for the study those individuals who met the age and residency requirements. However, only those individuals who slept in the household the night before the household interview (ie, the de facto population) were retained for subsequent weighting and analysis. Data was collected for usual residents of the household who had not slept in the household the previous night, but these people are not included in the weighting and analysis.

The INSIDA 2021 Sampling and Weighting Technical Report provides a brief description of the process for listing and selecting individuals for participation in the INSIDA 2021 and presents detailed summaries of the distributions of eligible individuals and participants in individual interviews and HIV testing by strata and age.

A.2 WEIGHTING

Overview

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

Nonresponse is unavoidable in virtually all surveys of human populations. For INSIDA 2021, 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 INSIDA 2021 included several steps. Methods and results for each of the steps below are detailed in the INSIDA 2021 Sampling and Weighting Technical Report.

Initial checks: Checks of the data files were carried out as part of the survey and data quality check, and the probabilities of selection for PSUs and SSUs, dwelling units, 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 SSU sample was selected. All 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 base weights as the reciprocals of the overall PSU probabilities of selection.

Calculation of SSU Weights: The next step was the calculation and checking of the sample SSU base weights. The SSU base weights were the product of the PSU base weights and the reciprocal of the within-PSU SSU selection probabilities. The SSU base weights were adjusted first to account for nonresponding eligible SSUs. This adjustment was generally made within the stratum in which the SSUs are located. The resulting weight is the final SSU weight.

Calculation of dwelling unit weights: The next step was to calculate dwelling unit weights. The dwelling unit base weights were calculated as the product of the nonresponse adjusted SSU weights and the reciprocal of the within-SSU dwelling unit selection probabilities. The dwelling unit base weights were adjusted first to account for nonresponding dwelling units for which it could not be determined whether the dwelling unit was in-scope (unknown eligibility). These adjusted dwelling unit weights were then adjusted for nonresponse amongst the eligible dwelling units. Adjustments were made within the SSU (or sometimes group of SSUs if collapsing was needed) in which the dwelling unit was located. The resulting weight was the final dwelling unit weight.

Calculation of household weights: The next step was to calculate household weights. The household base weights were calculated as the product of the nonresponse adjusted dwelling unit weights and the adjusted number of households within the dwelling unit. The household base weights were adjusted first to account for households for which it could not be determined whether the household was in-scope (unknown eligibility). These adjusted household weights were then adjusted for nonresponse amongst the eligible households. This adjustment was made based on the SSU or groups of SSUs in which the households were located, and the resulting weight was the final household weight.

Calculation of person-level interview weights: Once the household weights were determined, they were used to calculate the individual base weights. The individual base weights were then adjusted for nonresponse among the eligible individuals, with a final adjustment for the individual weights to compensate for under-coverage in the sampling process by post-stratifying (ie, weighting up) to 2021 population projections.

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

Application of weighting adjustments to jackknife replicates: All 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. National Institute of Statistics (INE) (Mozambique). *Mozambique Population and Housing Census Report – 2017*. Maputo, Mozambique: INE Mozambique; 2019. https://www.ine.gov.mz/en/web/guest/d/iv-recenseamento-geral-da-populacao-e-habitacao-2017-indicadores-socio-demograficos-mocambique_. Accessed August 24, 2023.

APPENDIX B HIV TESTING METHODOLOGY

B.1 SPECIMEN COLLECTION AND HANDLING

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

Blood samples were labeled with a unique barcoded participant identification number and stored in temperature-controlled cooler boxes. At the end of each day, samples were transported to a satellite laboratory for registration in a laboratory information management system, processing into plasma and DBS, and storage at -20ºCelsius within 24 hours of blood collection. Approximately weekly, samples were transported to the central laboratory for additional testing and long-term storage at -80ºCelsius.

B.2 HOUSEHOLD-BASED PROCEDURES

HIV Rapid Testing

HIV rapid testing was conducted in each household in accordance with Mozambique's national guidelines which applies two tests in sequence (Figure B.1). As per these guidelines, the survey used a sequential rapid-testing algorithm in the field.

Determine™ HIV-1/2 (Abbott Molecular Inc., Des Plaines, Illinois, United States) was used as a screening test and Uni-Gold™ (Trinity Biotech, plc. Wicklow, Ireland) as a confirmatory test. Individuals with a nonreactive result on the screening test were reported as HIV negative. Individuals with a reactive screening test underwent subsequent testing with Uni-Gold™. Those with reactive results on both the screening and confirmatory tests were classified as HIV positive. Individuals with a reactive Determine™ test followed by a nonreactive Uni-Gold™ test were immediately retested in parallel in the field. If the results during the parallel testing were repeatedly discordant, the individual was classified as indeterminate and referred to a local health facility for repeat testing within four weeks as per the national guidelines. Those with an indeterminate or HIV-positive result were given the MISAU referral form which provided different instructions to the health facility for retesting if indeterminate; for ART initiation if positive, and not on ART; and to pick up additional laboratory results if positive.

Figure B.1
Household-based
HIV testing algorithm,
INSIDA 2021
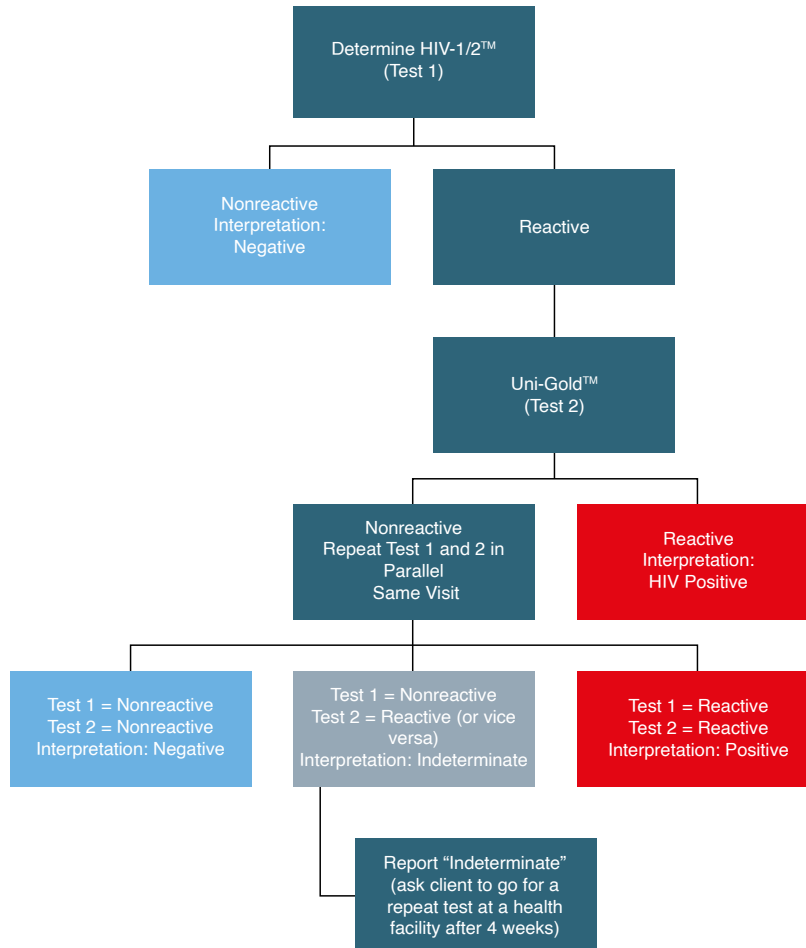
Counseling, Referral to Care, and Active Linkage to Care

Pre- and post-test counseling were conducted in each household in accordance with Mozambique's national guidelines. Survey staff communicated results directly to participants aged 15 years or older. Although parental consent was required for their participation in the survey, adolescents aged 15-17 years could receive their HIV testing results without their parents being present.

As they were told their HIV test results, if the participant consented, his/her contact information was shared with a CBO or health facility responsible for ALTC in that EA. The health facilities and CBOs participating in linkage to care were sensitized by Provincial HIV Focal Points and informed about the detailed procedures on the survey ALTC, including eligibility for linkage to care, how contact information would be shared with the facility, mechanisms of facilitated linkage, and documentation of linkage to care. Those who tested HIV negative received information on available prevention services in the community.

Those who tested HIV-positive received a referral form to the health facility of their choice so they could seek HIV treatment and care. If they consented, they could have their names and age added when their viral load and CD4 results were returned to the clinic. Those who were not on ART were also counseled on the possibility of receiving facilitated linkage to a clinic for ART, care, and support. They were asked to provide written consent for their information to be shared with a trained healthcare worker or counselor to facilitate linkage. If the participant consented, the field staff completed the ALTC form. All survey staff, healthcare workers, and counselors participating in linkage to care were trained in confidentiality procedures and detailed procedures on ALTC. This included eligibility for linkage to care, how contact information should be shared with the linkage-to-care coordinator, and documentation of linkage to care.

If a person who self-reported an HIV-positive status tested HIV negative in the survey, additional testing was performed at the satellite lab to confirm their status (see below). Once the participant's status was confirmed, survey staff returned to the household after consultation with MISAU to share the results and provide counseling to these participants. In other rare cases where participants were provided an incorrect HIV test result 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 and satellite laboratory staff performing HIV testing conducted QC testing of a panel of HIV-positive and HIV-negative DTS on a biweekly basis.

In addition, to assure the quality of the performance of field staff conducting HIV testing, proficiency testing was conducted twice during 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. Additionally, sample re-testing was conducted at a satellite lab for the first 25 samples tested by each field staff member.

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

B.3 LABORATORY-BASED PROCEDURES

There were 25 laboratory sites for the national survey, one of which was fixed, and 24 others that were serviced by five mobile laboratories. One central reference laboratory was chosen for more specialized tests. At each satellite laboratory, trained technicians performed CD4 testing, HIV retesting, QC/QA testing, and processing of whole blood specimens into plasma aliquots and DBS cards for temporary storage at -20°C.

Geenius Testing

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

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

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

Classification of Final HIV Status

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

Figure B.2
Final HIV status classification algorithm, INSIDA 2021
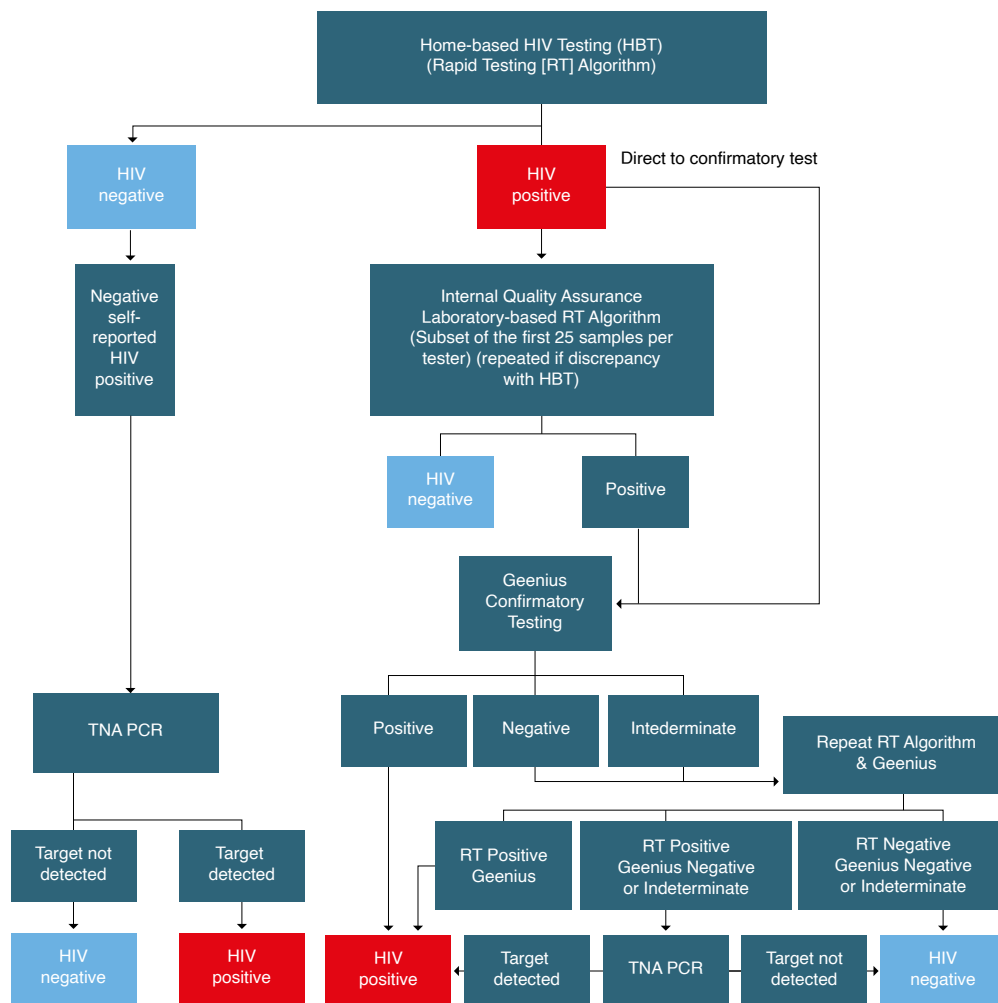
Abbreviations: TNA PCR, Total Nucleic Acid polymerase chain reaction.

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

CD4 Count Measurement

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

Viral Load Testing

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

Return of CD4 and Viral Load Results

The return-of-results coordinator delivered CD4 and viral load results within approximately 8 to 12 weeks to the health facility chosen by each HIV-positive participant. HIV-positive participants were provided with a referral form during HBTC for subsequent retrieval of their results. Survey staff also contacted each participant via mobile phones, informing them that their CD4 and viral load results were available at the chosen facility and further advising them to seek care and treatment.

HIV Recency Testing

Estimation of annualized HIV-1 incidence was based on the classification of confirmed HIV-positive cases as recent or long-term HIV infections. To distinguish recent from long-term HIV infections, the survey used a laboratory-based testing algorithm that employed a combination of assays: an HIV-1 LAg avidity EIA, viral load, and ARV detection.[1]

The Sedia HIV-1 LAg-Avidity EIA, (Sedia Biosciences Corporation, Portland, Oregon, United States) was used on plasma specimens, while the Maxim HIV-1 Limiting Antigen-Avidity DBS EIA (Maxim Biomedical, Bethesda, Maryland, United States) was used on DBS specimens.

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

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

Viral load results were assessed for the samples with a median ODn ≤ 1.5 for plasma and ODn ≤ 1.0 for DBS. Specimens with viral load <1,000 copies/mL were classified as long-term infections. ARV detection data were assessed for those with viral load ≥ 1,000 copies/mL. Specimens with a detectable ARV were classified as long-term infections and those without were classified as recent infections (Figure B.3).
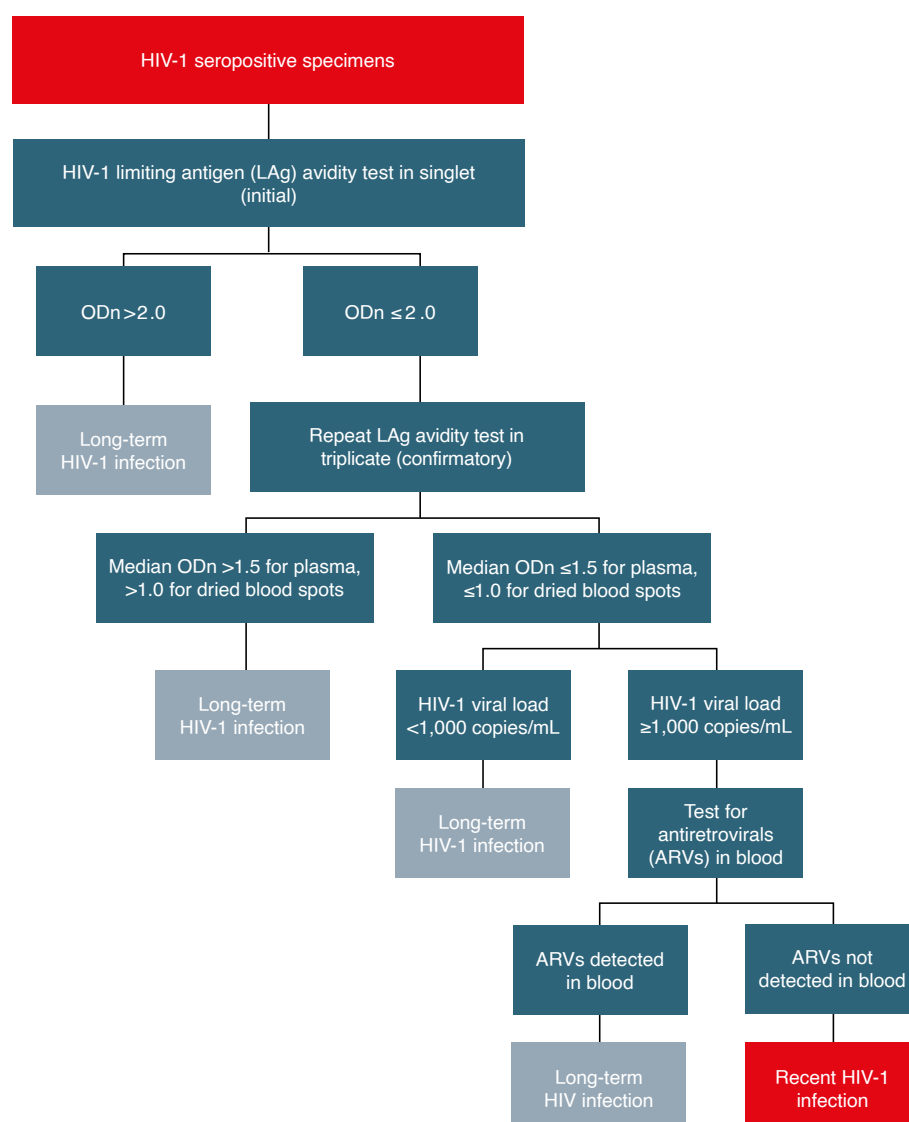
Figure B.3
HIV-1 recent infection testing algorithm, INSIDA 2021

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

HIV Incidence Estimation

Incidence estimates were based on the number of HIV infections identified as recent with the HIV-1 LAg avidity plus viral load and ARV detection algorithm and obtained using the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays (CEPHIA) but with adjusted assay performance characteristics.[2]

Weighted counts for HIV-negative persons (N); HIV-positive persons (P); numbers tested on the LAg assay (Q); and numbers HIV recent (R) were provided for use in incidence calculations or the UNAIDS Spectrum models (Table B.1). Incidence estimates were calculated using the following parameters: mean duration recent infection = 130 days (95% CI: 118-142 days); proportion false recent = 0.000001%; and time cutoff = 1 year. In-depth details are provided in the INSIDA 2021 Technical Report, which may be found online on the PHIA Project website.

Table B.1   Annual HIV incidence auxiliary data

Annual incidence of HIV among adults aged 15-49 and 15 years and older, by sex and age, using the recent infection testing algorithm (limiting antigen plus viral load plus antiretroviral biomarker testing), INSIDA 2021

Age (years)	Number HIV negative[1] (N)	Number HIV positive[1] (P)	Number tested on LAg assay[1] (Q)	Number HIV recent[1] (R)
Men				
15-24	1,930.1	50.9	50.9	1.9
25-34	1,207.8	149.2	149.2	0.6
35-49	1,287.5	281.5	281.5	1.0
50+	1,163.1	162.9	162.1	1.2
15-49	4,464.8	442.2	442.2	3.6
15+	5,637.8	595.2	594.6	4.8
Women				
15-24	2,298.4	199.6	199.6	5.9
25-34	1,683.7	366.3	366.3	4.1
35-49	1,502.4	485.6	483.3	4.1
50+	1,489.7	229.3	228.4	0.6
15-49	5,529.9	1,006.1	1,004.1	14.1
15+	7,013.6	1,241.4	1,238.6	15.3
Total				
15-24	4,238.8	240.2	240.2	7.6
25-34	2,904.9	502.1	502.1	4.4
35-49	2,795.7	761.3	759.2	4.9
50+	2,653.5	391.5	389.9	1.9
15-49	10,025.7	1,417.3	1,415.4	17.1
15+	12,682.0	1,806.0	1,802.7	19.5

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

Detection of Antiretrovirals

Qualitative screening for detectable concentrations of ARVs was conducted on DBS specimens from all HIV-positive participants and participants who reported a previous positive HIV result but tested HIV negative in the survey, 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] 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, United States). Each ARV was detected using an API 4000 LC/MS/MS instrument (Applied Biosystems, Foster City, California, United States). Internal standards and in-house QC cut-off samples, including negative controls, were utilized in each run.

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

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

Genotyping for Detection of Antiretroviral Drug Resistance and HIV Subtyping

HIV resistance to ARVs was assessed for all HIV-positive participants including recent cases, those without VLS (≥1,000 copies/mL; both on treatment and not on treatment), and those with a viral load of 200-999 copies/mL. The findings will be presented in a separate addendum to this report.

B.4 REFERENCES

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3. 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. doi.org/10.1002/rcm.2158.

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 (eg, misinterpretation of an HIV test result) and data management (eg, transcription errors in data entry). While INSIDA 2021 implemented numerous QA and QC measures to 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 INSIDA 2021 is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

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

INSIDA 2021 utilized a multistage stratified sample design, which required complex calculations to obtain sampling errors. Specifically, a variant of the jackknife replication method was implemented in SAS to estimate variance for proportions (eg, HIV prevalence), rates (eg, annual HIV incidence), and counts (eg, numbers of people living with HIV). Each replication considered all but one cluster in the calculation of the estimates. Pseudo-independent replications were thus created. In INSIDA 2021, a jackknife replicate was created by randomly deleting one cluster from each variance-estimation stratum and retaining all the clusters in the remaining strata. A total of 159 variance-estimation strata were created by pairing (or occasionally tripling) the sample clusters in the systematic order in which they had been selected. Hence, 159 replicates were created. The variance of a sample-based statistic, y, was calculated as follows:

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

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

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

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

where t(0.975; K) is the 97.5th percentile of a t-distribution with K degrees of freedom, were also computed. Sampling errors for selected variables from the INSIDA 2021 are presented in tables C.1 through C.8, and sampling errors for all survey estimates may be found online on the PHIA website. For each variable, sampling error tables include the weighted estimate, unweighted denominator, standard error, design effect, and lower and upper 95% confidence limits.

Table C.1 : Sampling errors: Annual HIV incidence by age, INSIDA 2021

Age (years)	Weighted estimate (%)	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
			Men			
15-24	0.28	0.21	1.09	0.73	0.00	0.69
25-34	0.15	0.18	0.64	1.25	0.00	0.51
35-49	0.21	0.21	0.97	1.01	0.00	0.63
50+	0.29	0.28	1.13	0.96	0.00	0.84
15-49	0.23	0.12	1.03	0.53	0.00	0.47
15+	0.24	0.11	1.06	0.47	0.02	0.46
			Women			
15-24	0.72	0.29	0.58	0.41	0.14	1.29
25-34	0.68	0.37	1.20	0.54	0.00	1.40
35-49	0.76	0.51	1.83	0.67	0.00	1.75
50+	0.12	0.15	0.60	1.27	0.00	0.41
15-49	0.72	0.19	1.02	0.27	0.34	1.10
15+	0.61	0.16	1.08	0.27	0.29	0.93
			Total			
15-24	0.50	0.18	0.71	0.36	0.15	0.85
25-34	0.43	0.20	1.01	0.48	0.03	0.83
35-49	0.49	0.28	1.59	0.57	0.00	1.04
50+	0.20	0.14	0.99	0.73	0.00	0.48
15-49	0.48	0.12	0.97	0.24	0.25	0.71
15+	0.43	0.10	1.04	0.23	0.23	0.63

Table C.2 Sampling errors: HIV prevalence by age, INSIDA 2021

Ages	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
				Men			
15-19	1.58	1,005	0.40	1.02	0.25	0.76	2.40
20-24	3.81	976	0.72	1.36	0.19	2.34	5.29
25-29	7.05	765	1.28	1.92	0.18	4.41	9.70
30-34	15.94	592	1.74	1.34	0.11	12.35	19.53
35-39	15.88	612	1.81	1.50	0.11	12.16	19.61
40-44	19.58	491	2.42	1.82	0.12	14.59	24.56
45-49	18.89	466	2.15	1.40	0.11	14.47	23.31
50-54	15.40	295	2.25	1.14	0.15	10.77	20.03
55-59	15.36	277	2.42	1.24	0.16	10.38	20.35
60-64	13.79	258	2.30	1.14	0.17	9.05	18.53
65+	7.36	496	1.81	2.38	0.25	3.63	11.09

Table C.2 Sampling errors: HIV prevalence by age, INSIDA 2021 (continued)

Ages	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Total 15-24	2.57	1,981	0.38	1.16	0.15	1.78	3.36
Total 15-49	9.01	4,907	0.54	1.71	0.06	7.91	10.11
Total 50+	12.29	1,326	1.07	1.40	0.09	10.09	14.49
Total 15+	9.55	6,233	0.50	1.82	0.05	8.52	10.58
Women							
15-19	4.53	1,195	0.68	1.27	0.15	3.13	5.93
20-24	11.84	1,303	1.21	1.82	0.10	9.35	14.33
25-29	15.37	1,142	1.25	1.38	0.08	12.79	17.95
30-34	21.27	908	1.65	1.48	0.08	17.87	24.68
35-39	26.60	763	2.04	1.63	0.08	22.39	30.81
40-44	23.55	667	2.10	1.63	0.09	19.22	27.87
45-49	22.32	558	2.14	1.47	0.10	17.91	26.73
50-54	18.97	476	2.01	1.25	0.11	14.83	23.10
55-59	16.55	363	1.89	0.94	0.11	12.65	20.44
60-64	12.63	314	1.94	1.06	0.15	8.64	16.61
65+	7.86	566	1.13	0.99	0.14	5.54	10.18
Total 15-24	7.99	2,498	0.65	1.45	0.08	6.65	9.34
Total 15-49	15.39	6,536	0.60	1.81	0.04	14.16	16.63
Total 50+	13.34	1,719	0.91	1.22	0.07	11.47	15.21
Total 15+	15.04	8,255	0.53	1.84	0.04	13.94	16.14
Total							
15-19	3.06	2,200	0.38	1.07	0.12	2.28	3.84
20-24	8.09	2,279	0.79	1.94	0.10	6.45	9.73
25-29	11.65	1,907	0.97	1.74	0.08	9.65	13.65
30-34	18.78	1,500	1.21	1.43	0.06	16.29	21.27
35-39	21.61	1,375	1.43	1.66	0.07	18.66	24.56
40-44	21.71	1,158	1.57	1.69	0.07	18.47	24.96
45-49	20.70	1,024	1.53	1.47	0.07	17.54	23.86
50-54	17.32	771	1.63	1.43	0.09	13.95	20.68
55-59	16.00	640	1.54	1.12	0.10	12.84	19.16
60-64	13.17	572	1.59	1.26	0.12	9.90	16.44
65+	7.64	1,062	1.03	1.61	0.14	5.51	9.77
Total 15-24	5.36	4,479	0.41	1.51	0.08	4.51	6.22
Total 15-49	12.39	11,443	0.50	2.62	0.04	11.36	13.41
Total 50+	12.86	3,045	0.82	1.81	0.06	11.18	14.54
Total 15+	12.47	14,488	0.46	2.80	0.04	11.52	13.41

Table C.3 Sampling errors: HIV prevalence by residence and region among adults aged 15 years and older, INSIDA 2021

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Men							
Residence							
Urban	10.40	2,429	0.99	2.56	0.10	8.36	12.44
Rural	9.00	3,804	0.77	2.74	0.09	7.42	10.58
Province							
Niassa	5.71	540	1.29	1.67	0.23	3.05	8.37
Cabo Delgado	6.09	412	1.48	1.58	0.24	3.04	9.14
Nampula	7.72	1,044	1.35	2.65	0.17	4.95	10.49
Zambézia	16.33	455	1.98	1.30	0.12	12.26	20.40
Tete	5.78	813	0.92	1.26	0.16	3.89	7.67
Manica	7.73	546	1.04	0.83	0.13	5.58	9.87
Sofala	10.15	586	1.92	2.37	0.19	6.19	14.10
Inhambane	9.28	366	1.43	0.89	0.15	6.34	12.23
Gaza	12.97	310	2.28	1.42	0.18	8.28	17.66
Maputo Província	11.36	635	1.76	1.95	0.15	7.74	14.99
Maputo Cidade	11.63	526	1.22	0.76	0.11	9.12	14.15
Women							
Residence							
Urban	17.67	3,362	0.83	1.61	0.05	15.95	19.39
Rural	13.42	4,893	0.82	2.83	0.06	11.73	15.11
Province							
Niassa	10.32	586	1.59	1.60	0.15	7.04	13.60
Cabo Delgado	14.29	479	1.91	1.42	0.13	10.36	18.21
Nampula	12.29	1,076	1.38	1.91	0.11	9.44	15.13
Zambézia	17.75	567	2.44	2.32	0.14	12.71	22.78
Tete	10.87	1,017	0.91	0.86	0.08	9.00	12.74
Manica	8.03	731	1.19	1.39	0.15	5.59	10.47
Sofala	15.78	788	1.55	1.43	0.10	12.58	18.97
Inhambane	14.61	743	1.33	1.06	0.09	11.86	17.35
Gaza	25.95	640	2.25	1.68	0.09	21.31	30.58
Maputo Província	18.88	888	1.15	0.77	0.06	16.51	21.25
Maputo Cidade	20.25	740	1.45	0.96	0.07	17.27	23.23
Total							
Residence							
Urban	14.21	5,791	0.79	3.00	0.06	12.57	15.85
Rural	11.37	8,697	0.74	4.78	0.07	9.83	12.90
Province							
Niassa	8.05	1,126	1.31	2.61	0.16	5.35	10.75
Cabo Delgado	10.51	891	1.61	2.45	0.15	7.20	13.82
Nampula	9.97	2,120	1.23	3.56	0.12	7.44	12.50
Zambézia	17.07	1,022	1.99	2.87	0.12	12.96	21.18
Tete	8.42	1,830	0.83	1.62	0.10	6.72	10.12
Manica	7.89	1,277	0.91	1.44	0.11	6.02	9.76

Table C.3 Sampling errors: HIV prevalence by residence and region among adults aged 15 years and older, INSIDA 2021 (continued)

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Sofala	13.15	1,374	1.58	3.01	0.12	9.89	16.41
Inhambane	12.60	1,109	1.02	1.04	0.08	10.50	14.69
Gaza	20.86	950	2.00	2.30	0.10	16.74	24.98
Maputo Província	15.36	1,523	1.02	1.22	0.07	13.26	17.47
Maputo Cidade	16.19	1,266	1.21	1.37	0.07	13.70	18.69

Table C.4 Sampling errors: Viral load suppression by age, INSIDA 2021

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
				Men			
15-19	*	18	*	*	*	*	*
20-24	(40.90)	35	(8.38)	(0.99)	(0.20)	(23.64)	(58.17)
25-29	(44.46)	45	(8.61)	(1.32)	(0.19)	(26.73)	(62.20)
30-34	42.60	85	7.03	1.70	0.17	28.12	57.08
35-39	56.13	103	4.50	0.84	0.08	46.86	65.41
40-44	66.67	103	5.31	1.29	0.08	55.73	77.60
45-49	68.43	88	6.03	1.47	0.09	56.01	80.86
50-54	(71.40)	46	(8.95)	(1.77)	(0.13)	(52.97)	(89.83)
55-59	(88.98)	43	(4.84)	(1.00)	(0.05)	(79.02)	(98.94)
60-64	(61.16)	40	(8.95)	(1.31)	(0.15)	(42.73)	(79.59)
65+	(88.23)	35	(6.51)	(1.39)	(0.07)	(74.81)	(100.00)
15-24	42.39	53	7.29	1.13	0.17	27.38	57.39
25-34	43.26	130	5.62	1.66	0.13	31.69	54.84
35-44	61.56	206	3.60	1.13	0.06	54.14	68.99
45-54	69.56	134	5.09	1.63	0.07	59.07	80.05
55-64	77.65	83	4.91	1.14	0.06	67.55	87.75
Total 15-49	53.79	477	2.79	1.49	0.05	48.05	59.54
Total 50+	77.77	164	3.81	1.37	0.05	69.92	85.62
Total 15+	58.83	641	2.45	1.58	0.04	53.80	63.87
				Women			
15-19	(32.51)	48	(6.34)	(0.86)	(0.19)	(19.46)	(45.56)
20-24	50.56	144	4.72	1.27	0.09	40.85	60.28
25-29	67.10	183	4.40	1.60	0.07	58.04	76.16
30-34	70.47	206	4.26	1.79	0.06	61.69	79.25
35-39	70.96	225	3.81	1.58	0.05	63.10	78.81
40-44	75.36	177	3.77	1.34	0.05	67.61	83.12

Table C.4 Sampling errors: Viral load suppression by age, INSIDA 2021 (continued)

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
45-49	79.67	144	3.69	1.20	0.05	72.07	87.27
50-54	74.51	92	5.31	1.35	0.07	63.58	85.44
55-59	76.23	75	5.83	1.39	0.08	64.23	88.23
60-64	(74.89)	44	(7.95)	(1.44)	(0.11)	(58.52)	(91.26)
65+	66.49	57	6.53	1.07	0.10	53.05	79.94
15-24	45.17	192	3.98	1.22	0.09	36.98	53.37
25-34	68.80	389	3.00	1.63	0.04	62.61	74.99
35-44	72.89	402	2.68	1.46	0.04	67.36	78.41
45-54	77.59	236	3.09	1.29	0.04	71.22	83.96
55-64	75.74	119	4.68	1.41	0.06	66.10	85.39
Total 15-49	65.97	1,127	1.82	1.66	0.03	62.22	69.72
Total 50+	73.23	268	3.52	1.69	0.05	65.97	80.48
Total 15+	67.08	1,395	1.79	2.02	0.03	63.40	70.76
Total							
15-19	35.80	66	5.12	0.74	0.14	25.24	46.35
20-24	48.44	179	4.30	1.31	0.09	39.59	57.28
25-29	60.98	228	3.97	1.51	0.07	52.79	69.16
30-34	59.41	291	3.63	1.58	0.06	51.94	66.87
35-39	65.88	328	3.16	1.45	0.05	59.38	72.39
40-44	71.75	280	3.29	1.49	0.05	64.96	78.53
45-49	74.80	232	3.54	1.53	0.05	67.52	82.09
50-54	73.24	138	4.81	1.62	0.07	63.33	83.15
55-59	81.89	118	4.25	1.43	0.05	73.13	90.64
60-64	68.14	84	7.14	1.95	0.10	53.44	82.85
65+	75.74	92	5.11	1.29	0.07	65.21	86.26
15-24	44.53	245	3.35	1.11	0.08	37.63	51.43
25-34	60.11	519	2.69	1.56	0.04	54.57	65.65
35-44	68.62	608	2.31	1.50	0.03	63.87	73.37
45-54	74.19	370	2.92	1.64	0.04	68.17	80.21
55-64	76.62	202	3.94	1.74	0.05	68.51	84.73
Total 15-49	61.79	1,604	1.59	1.71	0.03	58.52	65.06
Total 50+	75.20	432	2.86	1.89	0.04	69.30	81.10
Total 15+	64.12	2,036	1.57	2.19	0.02	60.88	67.36

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

Table C.5 Sampling errors: Viral load suppression among adults aged 15 years and older by residence and region, INSIDA 2021

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Men							
Residence							
Urban	59.95	289	3.56	1.52	0.06	52.61	67.29
Rural	58.01	352	3.22	1.49	0.06	51.37	64.64
Province							
Niassa	(59.42)	35	(8.20)	(0.95)	(0.14)	(42.54)	(76.30)
Cabo Delgado	(39.91)	25	(6.78)	(0.46)	(0.17)	(25.94)	(53.87)
Nampula	42.79	88	5.78	1.19	0.14	30.89	54.68
Zambézia	69.65	85	5.62	1.25	0.08	58.08	81.23
Tete	(63.21)	48	(9.04)	(1.65)	(0.14)	(44.59)	(81.83)
Manica	64.89	52	5.49	0.67	0.08	53.59	76.19
Sofala	32.18	54	6.63	1.07	0.21	18.52	45.83
Inhambane	(68.28)	43	(7.07)	(0.97)	(0.10)	(53.71)	(82.85)
Gaza	70.12	54	9.01	2.06	0.13	51.56	88.69
Maputo Província	68.71	79	6.79	1.68	0.10	54.71	82.70
Maputo Cidade	74.07	78	6.33	1.61	0.09	61.04	87.11
Women							
Residence							
Urban	72.11	686	2.04	1.42	0.03	67.91	76.31
Rural	63.00	709	2.83	2.43	0.04	57.18	68.83
Province							
Niassa	59.50	70	8.55	2.09	0.14	41.89	77.10
Cabo Delgado	43.38	73	8.75	2.24	0.20	25.36	61.40
Nampula	51.26	136	6.90	2.57	0.13	37.06	65.47
Zambézia	78.55	109	2.96	0.56	0.04	72.46	84.64
Tete	66.48	117	4.10	0.88	0.06	58.04	74.93
Manica	77.41	72	4.10	0.68	0.05	68.96	85.87
Sofala	62.26	125	3.74	0.74	0.06	54.55	69.97
Inhambane	61.64	125	5.58	1.63	0.09	50.14	73.13
Gaza	83.55	197	4.71	3.17	0.06	73.84	93.26
Maputo Província	79.83	199	3.78	1.76	0.05	72.04	87.61
Maputo Cidade	66.91	172	3.89	1.17	0.06	58.89	74.93
Total							
Residence							
Urban	67.87	975	1.85	1.53	0.03	64.06	71.69
Rural	61.17	1,061	2.41	2.58	0.04	56.21	66.12
Province							
Niassa	59.47	105	7.45	2.40	0.13	44.12	74.82
Cabo Delgado	42.45	98	7.15	2.03	0.17	27.73	57.18
Nampula	47.93	224	5.02	2.25	0.10	37.60	58.26
Zambézia	74.50	194	2.75	0.77	0.04	68.85	80.16
Tete	65.40	165	3.97	1.14	0.06	57.23	73.57
Manica	71.79	124	3.32	0.67	0.05	64.95	78.63
Sofala	51.43	179	2.75	0.54	0.05	45.77	57.09

Table C.5 Sampling errors: Viral load suppression among adults aged 15 years and older by residence and region, INSIDA 2021 (continued)

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Inhambane	63.46	168	4.67	1.57	0.07	53.83	73.08
Gaza	80.28	251	5.03	4.00	0.06	69.91	90.64
Maputo Província	75.98	278	4.09	2.54	0.05	67.56	84.40
Maputo Cidade	69.33	250	3.50	1.44	0.05	62.12	76.54

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

Table C.6 Sampling errors: ARV-adjusted 95-95-95 by age (conditional percentages), INSIDA 2021

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Men							
Diagnosed							
15-24	45.28	53	6.73	0.95	0.15	31.41	59.14
25-34	53.83	130	5.70	1.68	0.11	42.10	65.56
35-49	76.68	293	2.98	1.45	0.04	70.54	82.83
50+	82.44	165	3.52	1.41	0.04	75.19	89.70
15-49	64.71	476	2.96	1.82	0.05	58.61	70.81
15+	68.46	641	2.53	1.90	0.04	63.24	73.67
On Treatment							
15-24	(100.00)	25	(0.00)	(0.00)	(0.00)	(100.00)	(100.00)
25-34	97.67	74	1.37	0.60	0.01	94.86	100.00
35-49	91.72	228	1.92	1.10	0.02	87.76	95.67
50+	94.81	139	2.50	1.75	0.03	89.66	99.96
15-49	94.18	327	1.36	1.09	0.01	91.39	96.97
15+	94.34	466	1.15	1.15	0.01	91.97	96.71
Viral Load Suppression							
15-24	(80.86)	25	(7.75)	(0.93)	(0.10)	(64.91)	(96.82)
25-34	80.43	71	5.38	1.29	0.07	69.35	91.51
35-49	87.38	211	2.27	0.98	0.03	82.71	92.06
50+	96.03	135	1.69	1.00	0.02	92.55	99.51
15-49	84.68	307	2.16	1.10	0.03	80.23	89.13
15+	87.58	442	1.69	1.16	0.02	84.10	91.07
Women							
Diagnosed							
15-24	56.41	191	4.24	1.39	0.08	47.68	65.14
25-34	74.52	388	2.81	1.61	0.04	68.74	80.30
35-49	80.37	545	1.81	1.13	0.02	76.64	84.10
50+	74.93	268	3.03	1.30	0.04	68.70	81.17
15-49	72.99	1,124	1.76	1.77	0.02	69.36	76.62
15+	73.29	1,392	1.65	1.94	0.02	69.88	76.69

Table C.6 Sampling errors: ARV-adjusted 95-95-95 by age (conditional percentages), INSIDA 2021 (continued)

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
			On Treatment				
15-24	97.10	107	2.02	1.53	0.02	92.94	100.00
25-34	98.12	293	0.81	1.05	0.01	96.44	99.80
35-49	96.92	452	0.88	1.16	0.01	95.11	98.73
50+	98.00	213	1.17	1.48	0.01	95.60	100.00
15-49	97.38	852	0.60	1.20	0.01	96.14	98.62
15+	97.48	1,065	0.57	1.42	0.01	96.29	98.66
			Viral Load Suppression				
15-24	78.63	103	4.36	1.16	0.06	69.64	87.62
25-34	91.09	287	1.75	1.08	0.02	87.49	94.69
35-49	92.14	440	1.41	1.21	0.02	89.23	95.05
50+	95.22	210	1.62	1.20	0.02	91.89	98.55
15-49	89.44	830	1.34	1.58	0.02	86.68	92.21
15+	90.36	1,040	1.24	1.84	0.01	87.80	92.92
			Total				
			Diagnosed				
15-24	53.82	244	3.73	1.36	0.07	46.12	61.51
25-34	67.46	518	2.76	1.79	0.04	61.78	73.13
35-49	78.93	838	1.53	1.18	0.02	75.77	82.09
50+	78.21	433	2.45	1.52	0.03	73.17	83.24
15-49	70.14	1,600	1.68	2.15	0.02	66.69	73.60
15+	71.55	2,033	1.55	2.40	0.02	68.36	74.74
			On Treatment				
15-24	97.67	132	1.62	1.51	0.02	94.33	100.00
25-34	98.00	367	0.79	1.16	0.01	96.37	99.62
35-49	94.94	680	0.99	1.39	0.01	92.90	96.99
50+	96.54	352	1.31	1.81	0.01	93.83	99.24
15-49	96.36	1,179	0.65	1.43	0.01	95.02	97.71
15+	96.40	1,531	0.60	1.58	0.01	95.16	97.63
			Viral Load Suppression				
15-24	79.08	128	3.76	1.09	0.05	71.33	86.82
25-34	88.20	358	1.96	1.32	0.02	84.16	92.24
35-49	90.39	651	1.21	1.10	0.01	87.90	92.89
50+	95.59	345	1.21	1.19	0.01	93.10	98.07
15-49	87.97	1,137	1.06	1.20	0.01	85.79	90.14
15+	89.42	1,482	0.95	1.40	0.01	87.47	91.37

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

Table C.7 Sampling errors: ARV-adjusted 95-95-95 by age (overall percentages), INSIDA 2021

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Men							
Diagnosed							
15-24	45.28	53	6.73	0.95	0.15	31.41	59.14
25-34	53.83	130	5.70	1.68	0.11	42.10	65.56
35-49	76.68	293	2.98	1.45	0.04	70.54	82.83
50+	82.44	165	3.52	1.41	0.04	75.19	89.70
15-49	64.71	476	2.96	1.82	0.05	58.61	70.81
15+	68.46	641	2.53	1.90	0.04	63.24	73.67
On Treatment							
15-24	45.28	53	6.73	0.95	0.15	31.41	59.14
25-34	52.58	130	5.65	1.65	0.11	40.94	64.22
35-49	70.33	293	3.04	1.29	0.04	64.07	76.59
50+	78.16	165	4.00	1.54	0.05	69.93	86.40
15-49	60.94	476	2.83	1.59	0.05	55.12	66.77
15+	64.58	641	2.45	1.69	0.04	59.53	69.64
Viral Load Suppression							
15-24	36.61	53	6.52	0.95	0.18	23.19	50.03
25-34	42.29	130	5.62	1.67	0.13	30.70	53.87
35-49	61.46	293	3.19	1.25	0.05	54.89	68.03
50+	75.06	165	4.16	1.52	0.06	66.49	83.63
15-49	51.61	476	2.90	1.61	0.06	45.63	57.59
15+	56.57	641	2.55	1.70	0.05	51.31	61.83
Women							
Diagnosed							
15-24	56.41	191	4.24	1.39	0.08	47.68	65.14
25-34	74.52	388	2.81	1.61	0.04	68.74	80.30
35-49	80.37	545	1.81	1.13	0.02	76.64	84.10
50+	74.93	268	3.03	1.30	0.04	68.70	81.17
15-49	72.99	1124	1.76	1.77	0.02	69.36	76.62
15+	73.29	1392	1.65	1.94	0.02	69.88	76.69
On Treatment							
15-24	54.77	191	4.27	1.40	0.08	45.98	63.56
25-34	73.12	388	2.82	1.57	0.04	67.31	78.93
35-49	77.89	545	1.82	1.05	0.02	74.15	81.64
50+	73.44	268	3.27	1.46	0.04	66.71	80.17
15-49	71.07	1124	1.75	1.68	0.02	67.46	74.68
15+	71.44	1392	1.65	1.86	0.02	68.04	74.84

Table C.7 Sampling errors: ARV-adjusted 95-95-95 by age (overall percentages), INSIDA 2021 (continued)

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Design effect	Relative standard error	Lower confidence limit (%)	Upper confidence limit (%)
Viral Load Suppression							
15-24	43.07	191	3.94	1.20	0.09	34.95	51.18
25-34	66.61	388	3.02	1.58	0.05	60.39	72.82
35-49	71.77	545	2.18	1.27	0.03	67.29	76.25
50+	69.93	268	3.56	1.61	0.05	62.60	77.25
15-49	63.57	1124	1.82	1.60	0.03	59.83	67.31
15+	64.55	1392	1.77	1.90	0.03	60.90	68.19
Total							
Diagnosed							
15-24	53.82	244	3.73	1.36	0.07	46.12	61.51
25-34	67.46	518	2.76	1.79	0.04	61.78	73.13
35-49	78.93	838	1.53	1.18	0.02	75.77	82.09
50+	78.21	433	2.45	1.52	0.03	73.17	83.24
15-49	70.14	1600	1.68	2.15	0.02	66.69	73.60
15+	71.55	2033	1.55	2.40	0.02	68.36	74.74
On Treatment							
15-24	52.56	244	3.73	1.36	0.07	44.87	60.25
25-34	66.11	518	2.61	1.57	0.04	60.73	71.49
35-49	74.94	838	1.59	1.12	0.02	71.67	78.20
50+	75.50	433	2.75	1.77	0.04	69.83	81.16
15-49	67.59	1600	1.62	1.92	0.02	64.26	70.93
15+	68.97	2033	1.51	2.15	0.02	65.87	72.07
Viral Load Suppression							
15-24	41.56	244	3.43	1.17	0.08	34.51	48.62
25-34	58.31	518	2.76	1.62	0.05	52.63	63.99
35-49	67.74	838	1.81	1.25	0.03	64.01	71.47
50+	72.16	433	2.96	1.89	0.04	66.06	78.27
15-49	59.46	1600	1.62	1.74	0.03	56.13	62.79
15+	61.68	2033	1.57	2.11	0.03	58.45	64.90

Table C.8 Sampling errors: Number of new infections annually and number of people living with HIV by age, INSIDA 2021

Age (years)	Weighted estimate	Standard error	Design effect	Relative standard error	Lower confidence limit	Upper confidence limit
Number of new infections annually						
15-24	29,128	10,230.19	2.62	0.35	8,018	50,238
25-34	14,922	6,834.07	2.60	0.46	820	29,025
35-49	14,464	7,009.31	3.16	0.48	0	30,732
50+	4,878	2,363.88	1.21	0.48	0	11,936
15-49	58,550	13,822.79	2.63	0.24	30,027	87,073
15+	63,454	14,310.43	2.74	0.23	33,924	92,983
People living with HIV						
15-24	330,410	25,526.63	1.51	0.08	277,837	382,983
25-34	603,224	34,505.20	1.93	0.06	532,159	674,289
35-49	798,758	38,753.89	2.28	0.05	718,943	878,573
50+	364,935	23,138.07	1.81	0.06	317,282	412,589
15-49	173,239.2	69,751.20	2.62	0.04	1,588,737	1,876,047
15+	209,732.7	77,201.65	2.80	0.04	1,938,328	2,256,327

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Gili Hrusa Castillo	Natasha McLeod	Theo Smart
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APPENDIX E HOUSEHOLD QUESTIONNAIRE

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

HOUSEHOLD SCHEDULE (continued)

CODES FOR COLUMN 3: RELATIONSHIP TO HOUSEHOLD HEAD

01 = HEAD	08 = BROTHER/SISTER
02 = WIFE/HUSBAND/PARTNER	09 = CO-WIFE
03 = SON OR DAUGHTER	10 = OTHER RELATIVE
04 = SON-IN-LAW/DAUGHTER-IN-LAW	11 = ADOPTED/
05 = GRANDCHILD	FOSTER/STEPCHILD
06 = PARENT	12 = NOT RELATED
07 = PARENT-IN-LAW	-8 = DON'T KNOW

LINE NO.	IF AGED 15-17 YEARS EMANCIPATION STATUS	LAST TIME USUAL RESIDENT SLEPT IN HOUSEHOLD		LIVES AWAY	COUNTRY OR PROVINCE	SICK PERSON
		CHECK COLUMN 6, IF NO, when was the last time, **(NAME)** slept the night in the household?				
	Is (**NAME**) emancipated? Emancipated minors are those under the age of 18 who are or have been married, pregnant, live alone or are heads of household. Emancipated minors aged 15-17 years in this survey may give consent; they will not require permission from a parent or a guardian.	MONTH (SEE CODES BELOW)	YEAR	Is (**NAME**) in another province or country?	Which province or country is (**NAME**) in currently? (SEE CODES BELOW)	Has (**NAME**) been very sick for at least 3 months during the past 12 months, that is (**NAME**) was too sick to work or do normal activities?
(1)	(9)	(10)		(11)	(12)	(13)
1	Y N		DK = -8 REFUSED = -9	Y N		Y N
2	Y N		DK = -8 REFUSED = -9	Y N		Y N
3	Y N		DK = -8 REFUSED = -9	Y N		Y N
4	Y N		DK = -8 REFUSED = -9	Y N		Y N
5	Y N		DK = -8 REFUSED = -9	Y N		Y N
6	Y N		DK = -8 REFUSED = -9	Y N		Y N
7	Y N		DK = -8 REFUSED = -9	Y N		Y N
8	Y N		DK = -8 REFUSED = -9	Y N		Y N
9	Y N		DK = -8 REFUSED = -9	Y N		Y N
10	Y N		DK = -8 REFUSED = -9	Y N		Y N

HOUSEHOLD SCHEDULE (continued)

☐ **TICK HERE IF CONTINUATION SHEET USED**

CODES FOR COLUMN 10: LAST TIME SLEPT IN HOUSEHOLD

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

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

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

ADD TO SCHEDULE ◄

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

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

CODES FOR COLUMN 12: PROVINCE/COUNTRY PRESENTLY IN

01 = NIASSA	19 = CHINA
02 = CABO DELGADO	20 = INDIA
03 = NAMPULA	21 = PAKISTAN
04 = ZAMBEZIA	22 = PORTUGAL
05 = TETE	96= ANOTHER COUNTRY
06 = MANICA	
07 = SOFALA	_____
08 = INHAMBANE	-8 = DON'T KNOW
09 = GAZA	-9 = REFUSED
10 = MAPUTO PROVINCE	
11 = MAPUTO CITY	
12= SOUTH AFRICA	
13= TANZANIA	
14= ZIMBABWE	
15= ZAMBIA	
16= MALAWI	
17= BURUNDI	
18= RWANDA	

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

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

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

HOUSEHOLD SCHEDULE (for minors—skip if emancipated) (continued)					
LINE NO.	SICKNESS AND RESIDENCE OF BIOLOGICAL PARENTS				MOTHER DEAD OR SICK / FATHER DEAD OR SICK

Thank you for completing the questions regarding household members who are 0-17 years old.
The next step will be to answer some additional questions regarding sickness in the household.

(1)	(21) CHECK COLUMN 15, IF COLUMN 15 = 'N' OR 'DK' →25. IF COLUMN 15 = 'Y': Has (NAME)'s natural mother been very sick for at least 3 months during the past 12 months, that is she was too sick to work or do normal activities?	(22) IF MOTHER SICK: Does (NAME)'s natural mother have HIV/AIDS?	(23) CHECK COLUMN 17, IF COLUMN 17 'N' OR 'DK' →26 IF COLUMN 17 'Y': Has (NAME)'s natural father been very sick for at least 3 months during the past 12 months, that is he was too sick to work or do normal activities?	(24) IF FATHER SICK: Does (NAME)'s natural father have HIV/AIDS?	(25) IF CHILD'S NATURAL MOTHER HAS DIED (COLUMN 15 'N') OR BEEN SICK (COLUMN 21 'Y'), SELECT Y.	(26) IF CHILD'S NATURAL FATHER HAS DIED (COLUMN 12'N') OR BEEN SICK (COLUMN 23 'Y'), SELECT Y.
1	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N
2	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N
3	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N
4	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N
5	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N
6	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N
7	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N
8	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N
9	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N
10	Y N—DK ↓ 23	Y N DK	Y N—DK ↓ 21	Y N DK	Y N	Y N

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
SUPPORT FOR ORPHANS AND VULNERABLE CHILDREN			
101	DO NOT READ: CHECK COLUMN 7 IN THE HOUSEHOLD SCHEDULE. **ANY CHILD AGE 0-17 YEARS? (SKIP IF EMANCIPATED)**	NUMBER OF CHILDREN 0-17 YRS: ☐☐	NONE→113
102	DO NOT READ: CHECK COLUMN 25 IN THE HOUSEHOLD SCHEDULE. **ANY CHILD WHOSE MOTHER HAS DIED OR IS VERY SICK?**	YES ....1 NO 2	YES→104
103	DO NOT READ: CHECK COLUMN 26 IN THE HOUSEHOLD SCHEDULE. **ANY CHILD WHOSE FATHER HAS DIED OR IS VERY SICK?**	YES ....1 NO 2	NO→113

104	**Record names, line numbers, and ages of all children 0-17 who are identified in columns 25, and 26 as having a mother and/or father who has died or has been very sick.**		
		CHILD (1)	CHILD (2)	CHILD (3)
	NAME	_____	_____	_____
	LINE NUMBER (FROM COLUMN 1)	☐☐	☐☐	☐☐
	AGE (FROM COLUMN 7)	☐☐	☐☐	☐☐

INTERVIEWER 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."

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

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

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

MATRIX END

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

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

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

　　　　　TICK IF CONTINUATION SHEET REQUIRED.

IF NO OTHER CHILDREN, CONTINUE HOUSEHOLD INTERVIEW.

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES			SKIP
HOUSEHOLD DEATHS					
113	Now I would like to ask you more questions about your household. Has any usual resident of your household died since January 1, 2019?	YES ....1 NO ....2 DON'T KNOW ....-8 REFUSED ....-9			NO, DK, R → 201
114	How many usual household residents died since January 1, 2019?	NUMBER OF DEATHS ☐☐			

ASK 115-118 AS APPROPRIATE FOR EACH PERSON WHO DIED. IF THERE WERE MORE THAN 3 DEATHS USE ADDITIONAL QUESTIONNAIRES.

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

CONTINUE TO NEXT DEATH ACCORDING UP TO THE NUMBER REPORTED FROM 114.

☐ **TICK IF CONTINUATION SHEET REQUIRED.**

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
HOUSEHOLD CHARACTERISTICS			
INTERVIEWER SAY: "Now I would like to ask you more questions about your household."			
201	What is the <u>main</u> source of drinking water for members of your household?	PIPED INTO DWELLING ....11 PIPED TO YARD/PLOT...12 PUBLIC TAP/STANDPIPE ....13 PIPED INTO NEIGHBOR'S DWELLING.....................14 TUBE WELL OR BOREHOLE .... 21 PROTECTED WELL.. 31 UNPROTECTED WELL...32 PROTECTED SPRING... 41 UNPROTECTED SPRING...42 RAINWATER..51 TANKER TRUCK .... 61 CART WITH SMALL TANK.......................................71 SURFACE WATER (RIVER/DAM/LAKE/POND / STREAM/CANAL) .... 81 BOTTLED WATER ....91 OTHER (SPECIFY)...96 _____ DON'T KNOW .... -8 REFUSED .... -9	
202	What kind of toilet facility do members of your household usually use?	FLUSH OR POUR FLUSH TOILET............................11 TOILET FLUSHING OUTSIDE THE HOME..............12 TOILET WITHOUT FLUSH TOILET ....13 NON-IMPROVED LATRINE .... 21 TRADITIONAL IMPROVED LATRINE ....22 IMPROVED LATRINE...23 NO FACILITY/BUSH/FIELD.......................................61 OTHER (SPECIFY)..96 _____ DON'T KNOW .... -8 REFUSED .... -9	IF NO FACILITY/ BUSH/ FIELD = DK, R➔205
203	Do you share this toilet facility with other households?	YES ....1 NO..2 DON'T KNOW .... -8 REFUSED .... -9	IF NO, DK, R➔205
204	How many households share this toilet facility?	NUMBER [ ][ ] DON'T KNOW .... -8 REFUSED .... -9	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
	HOUSEHOLD CHARACTERISTICS (continued)		
205	Does your household have:	ELECTRICITY ....A A WORKING RADIO ....B A WORKING TELEVISION ....C A WORKING TELEPHONE/MOBILE TELE-PHONE ....D A WORKING REFRIGERATOR ....E NONE OF THE ABOVE ....F DON'T KNOW ....Y REFUSED ....Z	
206	What type of fuel does your household mainly use for cooking?	ELECTRICITY ....1 LPG / NATURAL GAS ....2 BIOGAS ....3 PARAFFIN / KEROSENE ....4 COAL, LIGNITE ....5 CHARCOAL FROM WOOD ....6 FIREWOOD / STRAW /SHRUBS ....7 DUNG ....8 NO FOOD COOKED IN HOUSEHOLD ....95 OTHER (SPECIFY) ....96 _____ DON´T KNOW ....-8 REFUSED ....-9	
207	What type of fuel does your household mainly use for lighting?	ELECTRICITY ....1 LPG / NATURAL GAS ....2 BIOGAS ....3 PARAFFIN / KEROSENE ....4 COAL, LIGNITE ....5 CHARCOAL FROM WOOD ....6 FIREWOOD / STRAW /SHRUBS ....7 DUNG ....8 NO FOOD COOKED IN HOUSEHOLD ....95 OTHER (SPECIFY) ....96 _____ DON´T KNOW ....-8 REFUSED ....-9	
208	Main material of floor (record observation).	EARTH / SAND / MUD ....11 DUNG ....12 WOOD PLANKS ....21 PALM / BAMBOO ....22 PARQUET OR POLISHED WOOD ....31 VINYL OR ASPHALT STRIP ....32 CERAMIC TILES ....33 CEMENT...34 CARPET ....35 OTHER (SPECIFY) ....96 _____	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
HOUSEHOLD CHARACTERISTICS (continued)			
209	Main material of the roof (Record observation).	NO ROOF ....11 THATCH / GRASS ....12 DUNG / MUD ....13 CORRUGATED IRON (MABATI) ....21 TIN CANS ....22 ASBESTOS SHEET / CEMENT FIBER ....31 CONCRETE ....32 TILES ....33 OTHER (SPECIFY) ....96 _____	
210	Main material of the exterior walls (Record observation).	NO WALLS ....11 CANE/TREE TRUNKS ....12 DUNG / MUD ....13 BAMBOO WITH MUD ....21 STONE WITH MUD ....22 PLYWOOD/CARDBOARD ....23 CARTON ....24 REUSED WOOD ....25 CEMENT ....31 STONE WITH LIME/CEMENT ......32 BRICKS ....33 CEMENT BLOCKS ....34 WOOD PLANKS/SHINGLES ....35 OTHER (SPECIFY) ....96 _____	
211	Whom does this dwelling belong to?	I OWN IT ....1 I RENT IT ....2 I LIVE HERE BUT DO NOT OWN OR PAY FOR IT ....3 DON'T KNOW ....-8 REFUSED ....-9	
212	How many rooms are used for sleeping?	NUMBER OF ROOMS: ☐☐	
213	Does any member of your household own: (Read all responses aloud. Select all that apply.)	A BICYCLE ....A A WORKING MOTORCYCLE OR MOTOR SCOOTER ....B A WORKING CAR OR TRUCK ....C A WORKING BOAT WITH A MOTOR ......D NONE OF THE ABOVE ....E DON´T KNOW ....Y REFUSED ....Z	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
HOUSEHOLD CHARACTERISTICS (continued)			
214	Altogether, how many COWS do members of your household own?	NUMBER OF COWS: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	
215	Altogether, how many GOATS/SHEEP do members of your household own?	NUMBER OF GOATS/SHEEPS: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	
216	Altogether, how many POULTRY (e.g., DUCKS, CHICKENS) do members of your household own?	NUMBER OF POULTRY (E.G. DUCKS, CHICKENS): ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	
217	Altogether, how many DOGS do members of your household own?	NUMBER OF DOGS: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	
218	Altogether, how many WORK ANIMALS (CAMELS, HORSES, DONKEYS) do members of your household own?	NUMBER OF WORK ANIMALS: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	
219	Altogether, how many PIGS do members of your household own?	NUMBER OF PIGS: ☐☐ OWN BUT NOT SURE HOW MANY ....-7 REFUSED ....-9	

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
ECONOMIC SUPPORT			
Now I will ask you questions on economic support you have received.			
301	Has your household received any of the following forms of financial assistance, material goods or food support in the last 12 months? (INTERVIEWER: READ THE RESPONSES ALOUD SELECT UP TO THREE RESPONSES FOR THE MOST IMPORTANT SOURCES OF OUTSIDE SUPPORT.)	NOTHING...A CASH TRANSFER (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, BUXXXXRSARIES) .... D INCOME GENERATION SUPPORT IN CASH OR KIND (EG, AGRICULTURAL INPUTS)...E FOOD ASSISTANCE PROVIDED AT THE HOUSEHOLD OR EXTERNAL INSTITUTION ....F MATERIAL OR FINANCIAL SUPPORT FOR SHELTER .... G SOCIAL PENSION .... H REMITTANCES .... I OTHER (SPECIFY)..X _____ DON'T KNOW ....Y REFUSED..Z	IF NOTHING, DON'T KNOW, REFUSED →END OF SECTION
302	COVID-19 is the name given to the disease caused by a coronavirus. It is a respiratory disease that is easily contagious and in most cases presents itself as the common flu. In a few cases, the disease can be serious. Was any of this financial assistance, material goods, or food support related to COVID-19?	YES ....1 NO..2 DON'T KNOW .... -8 REFUSED .... -9	

END OF HOUSEHOLD INTERVIEW

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

END TIME

END	RECORD THE END TIME. USE 24 HOUR TIME. IF START TIME IS 3:12 PM, RECORD 15 HOURS, 12 MINUTES, NOT 03 HOURS, 12 MINUTES.	☐☐ ☐☐ HOUR: ☐☐ MINUTES: ☐☐

INTERVIEWER OBSERVATIONS:

TO BE COMPLETED AFTER THE INTERVIEW:

COMMENTS ABOUT RESPONDENT:

COMMENTS ABOUT SPECIFIC QUESTIONS:

GENERAL QUESTIONS:

APPENDIX F ADULT QUESTIONNAIRE

NO	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
LANGUAGE			
Interviewer says: "Thank you for agreeing to participate in this survey. The first set of questions is about your life in general. Afterwards, we will move on to other topics."			
L1	LANGUAGE OF QUESTIONNAIRE	PORTUGUESE	
L2	LANGUAGE OF INTERVIEW	PORTUGUESE=1 EMAKHUWA=2 XICHANGANA =3 CISENA = 4 ELOMWE = 5 ECHUWABO= 6 CINYANJA = 7 CINDAU= 8 XITSWA =9 CINYUNGWE = 10 CIYAO = 11 SHONA =12 OTHER (SPECIFY) =96 _____	
L3	NATIVE LANGUAGE OF PARTICIPANT	PORTUGUESE = 1 EMAKHUWA = 2 XICHANGANA= 3 CISENA = 4 ELOMWE = 5 ECHUWABO = 6 CINYANJA = 7 CINDAU = 8 XITSWA = 9 CINYUNGWE = 10 CIYAO = 11 SHONA = 12 OTHER (SPECIFY) =96 _____	
L4	VERBAL TRANSLATION USED	YES=1 NO=2	
MODULE ONE: RESPONDENT BACKGROUND			
Interviewer says: "Thank you for agreeing to participate in this survey. The first set of questions is about your life in general. Afterwards, we will move on to other topics."			
101	Have you ever attended school?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 105
102	Are you currently enrolled in school?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE ONE: RESPONDENT BACKGROUND (continued)			
103	What is your highest level of school you attended?	LITERACY=1 LOWER PRIMARY=2 UPPER PRIMARY=3 JUNIOR SECONDARY=4 SENIOR SECONDARY=5 ELEMENTARY TECHNICAL EDUCATION=6 BASIC TECHNICAL EDUCATION=7 SECONDARY TECHNICAL EDUCATION=8 TEACHER TRAINING COURSE=9 UNIVERSITY=10 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 105
104	What is your highest class/year you complete at that level?	YEAR ____ DON'T KNOW=-8 REFUSED=-9	
105	How long have you lived in this area or community?	MONTHS ____=2 YEARS ____=3 I HAVE ALWAYS LIVED HERE = 3 DON'T KNOW = -8 REFUSED = -9	IF YEARS OR HAVE ALWAYS LIVED HERE → 108
106	Just before you moved here, did you live in an urban area or in a rural area?	URBAN AREA=1 RURAL AREA=3 DON'T KNOW=-8 REFUSED=-9	
107	Before you moved here, which PROVINCE did you live in? If you lived outside of MOZAMBIQUE, which country did you live in?	NIASSA=1 CABO DELGADO=2 NAMPULA=3 ZAMBEZIA=4 TETE=5 MANICA=6 SOFALA=7 INHAMBANE=8 GAZA=9 MAPUTO PROVINCIA=10 MAPUTO CIDADE=11 SOUTH AFRICA=12 TANZANIA=13 ZIMBABWE=14 ZAMBIA=15 MALAWI=16 BURUNDI=17 RWANDA=18 CHINA=19 INDIA=20 PAKISTAN=21 PORTUGAL=22 OTHER COUNTRY (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED =-9	
108	Have you ever lived away from home for more than 1 month at a time?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	IF NO, DON'T KNOW, REFUSED → 113

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE ONE: RESPONDENT BACKGROUND (continued)			
109	When was the last time you lived away from home for over a month?	MONTH_____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEAR_____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	IF > 1 YEAR → 111 IF DON'T KNOW OR REFUSED MONTH AND DON'T KNOW OR REFUSED YEAR → 111
110	How many times have you been away from home for one or more months IN THE PAST YEAR?	NUMBER OF TIMES ____ DON'T KNOW=-8 REFUSED=-9	
111	The last time you were away from home for more than one month, where were you? Interviewer: If you were in more than one place while you were away, please give the place you spent the most time.	ANOTHER COMMUNITY IN THIS DISTRICT=1 ANOTHER DISTRICT IN THIS PROVINCE=2 NIASSA=3 CABO DELGADO=4 NAMPULA=5 ZAMBEZIA=6 TETE=7 MANICA=8 SOFALA=9 INHAMBANE=10 GAZA=11 MAPUTO PROVINCIA=12 MAPUTO CIDADE=13 SOUTH AFRICA=14 TANZANIA=15 ZIMBABWE=16 ZAMBIA =17 MALAWI=18 BURUNDI=19 RWANDA=20 CHINA=21 INDIA=22 PAKISATAN=23 PORTUGAL=24 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED =-9	
112	What was the main reason you went there?	WORK=1 SCHOOL/UNIVERSITY=2 FAMILY/MARRIAGE=3 ACCESS HEALTH OR OTHER SERVICES=4 CONFLICT OR NATURAL DISASTER (FLOODS, CYCLONE, DROUGHT)=5 STATE OF EMERGENCY CAUSED BY COVID-19=6 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	
113	Have you done any work in the last 12 months for which you received cash or goods as payment? This includes work on the family farm or business for which you may not have been paid directly.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED SKIP TO NEXT MODULE

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE ONE: RESPONDENT BACKGROUND (continued)			
114	Have you done any work in the last seven days for which you received cash or goods as payment? This includes work on the family farm or business for which you may not have been paid directly.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
115	What is your occupation? That is, what kind of work do you mainly do?	EXTRACTIVE INDUSTRY/MINING=1 AGRICULTURE/FARMING/FISHING=2 TRANSPORT=3 COMMUNICATION=4 UNIFORMED PERSONNEL (GUARDS, POLICE OFFICERS, MILITARY)=5 INFORMAL TRADE/INDEPENDENT CRAFTSMEN=6 HOUSEKEEPER=8 SEX WORKER=9 PUBLIC SERVANT=12 INDUSTRY AND MANUFACTURING=13 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	
116	Where do you normally work? In your home community, elsewhere in province/country, or outside the country?	HOME COMMUNITY=1 SAME COUNTRY, DIFFERENT COMMUNITY=2 OUTSIDE THE COUNTRY=3 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	IF NO, DON'T KNOW, REFUSED SKIP TO NEXT MODULE
202	How old were you the first time you married or started living with a [man/woman] as if married?	____YEARS OLD DON'T KNOW = -8 REFUSED = -9	
203	What is your marital status now: are you married, living together with someone as if married, widowed, divorced, or separated/single?	MARRIED=1 LIVING TOGETHER=2 WIDOWED=3 DIVORCED=4 SEPARATED/SINGLE=5 DON'T KNOW=-8 REFUSED=-9	IF WIDOWED, DIVORCED, SEPARATED/ SINGLE, DON'T KNOW, REFUSED, SKIP TO NEXT MODULE
Interviewer says: "The next several questions are about your current husband, wife or partner(s)."			

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MARRIAGE GROUP FOR MEN			
204	Altogether, how many wives or live-in partners do you have who live with you here in this household?	NUMBER OF WIVES OR PARTNERS LIVING IN HOUSEHOLD_____ DON'T KNOW=-8 REFUSED=-9	IF NUMBER OF WIVES OR PARTNERS =0 → 206
205	Please enter the name(s) of your wife/ partner that lives with you in this household.	_____ (REPEAT AS NECESSARY) NOT LISTED IN HOUSEHOLD DON'T KNOW=-8 REFUSED=-9	
206	How many wives or live-in partners do you have who live elsewhere? This would include wives or partners that you stay with or support in other households.	NUMBER OF WIVES/LIVE-IN PARTNERS_____ DON'T KNOW=-8 REFUSED=-9	IF NONE, DON'T KNOW, REFUSED → 301
207	You mentioned that you have wife/ wives who live elsewhere. Where are they?	STAYING IN A DIFFERENT HOUSEHOLD, SAME COMMUNITY=1 STAYING IN A DIFFERENT COMMUNITY, SAME PROVINCE=2 STAYING IN A DIFFERENT PROVINCE=3 STAYING IN A DIFFERENT COUNTRY=4 DON'T KNOW=-8 REFUSED=-9	FOR ALL → 301
MARRIAGE GROUP FOR WOMEN			
208	Is your husband or partner living with you now or is he staying elsewhere?	LIVING IN THE HOUSEHOLD=0 STAYING IN A DIFFERENT HOUSEHOLD, SAME COMMUNITY=1 STAYING IN A DIFFERENT COMMUNITY, SAME PROVINCE=2 STAYING IN A DIFFERENT PROVINCE=3 STAYING IN A DIFFERENT COUNTRY=4 DON'T KNOW=-8 REFUSED=-9	IF LIVING IN THE HOUSEHOLD → 211
209	Please select the husband/partner who lives with you (SEE LIST OF PERSONS ON HH ROSTER)	_____ NOT LISTED IN HOUSEHOLD=96	
210	Please enter the name of your husband/partner that lives with you.	_____ DON'T KNOW=-8 REFUSED=-9	
211	Does your husband or partner have other wives or does he live with other women as if married?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 301
212	Including yourself, in total, how many wives or live-in partners does your husband or partner have?	NUMBER OF WIVES/LIVE-IN PARTNERS___ DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE THREE: REPRODUCTION			
Interviewer says: "Now I would like to ask you questions about your pregnancies and your children."			
301	How many times have you had a pregnancy that resulted in a live birth? [A live birth is when the baby shows signs of life, such as breathing, beating of the heart or movement, even if the baby subsequently died.]	NUMBER OF LIVE BIRTHS ___ DON'T KNOW=-8 REFUSED=-9	IF 0, DON'T KNOW, REFUSED → 333 IF > 0 → 302
302	How many live births have you had since the 1st of January, 2018?	NUMBER OF LIVE BIRTHS ___ DON'T KNOW=-8 REFUSED=-9	IF 0, NO, DON'T KNOW, REFUSED → 333 IF > 0 → 303
Interviewer says: "Now I would like to ask you some questions about the last pregnancy that resulted in a live birth since the 1st of January 2018."			
303	Did your last pregnancy result in birth to twins or more?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 305
304	What is the name of the [INSERT ORDER OF BIRTH] born child from your last pregnancy that resulted in a live birth? (If the child was not named before death, input birth and the birth order number.) Was there another multiple born alive?	NAME _____ YES=1 NO=2	IF YES, WILL BE REPEATED FOR EACH MULTIPLE BIRTH IF NO → 306
305	What is the name of the child from your last pregnancy that resulted in a live birth? A live birth is when the baby shows signs of life, such as breathing, beating of the heart or movement, even if the baby subsequently died. (IF THE CHILD WAS NOT NAMED BEFORE DEATH, INPUT BIRTH AND THE BIRTH ORDER NUMBER)	NAME _____	
306	During your last pregnancy with [CHILD NAME], did you visit a health facility for antenatal care?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF DON'T KNOW, REFUSED → 314
Interviewer says: "I will now be asking you questions on HIV testing. Please remember that your responses will be kept confidential and will not be shared with anyone else."			
307	Have you ever tested for HIV before your pregnancy with [CHILD NAME]?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 310
308	Did you test positive for HIV before your pregnancy with [CHILD NAME]?	YES = 1 NO = 2 DON'T KNOW =-8 REFUSED =-9	IF NO, DON'T KNOW, REFUSED → 310

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE THREE: REPRODUCTION (continued)			
309	At the time of your first antenatal care visit when you were last pregnant with [CHILD NAME], were you already taking ARVs, that is, antiretroviral mediations to treat HIV? (INTERVIEWER: SHOW JOB AID WITH PICTURES OF ARVS).	YES = 1 NO = 2 DON'T KNOW =-8 REFUSED =-9	IF YES → 316 IF NO, DON'T KNOW, REFUSED → 312
310	Were you tested for HIV anytime during pregnancy or delivery with [CHILD NAME]?	YES = 1 NO = 2 DON'T KNOW =-8 REFUSED =-9	IF NO, DON'T KNOW, REFUSED → 314
311	What was the result of your last HIV test during your last pregnancy with [CHILD NAME]?	POSITIVE=1 NEGATIVE=2 UNKNOWN/INDETERMINATE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	IF NEGATIVE, UNKNOWN /INDETERMINATE, DID NOT RECEIVE RESULTS, DON'T KNOW, REFUSED → 314
312	Did you take ARVs at any time during your last pregnancy with [CHILD NAME] to prevent the child from getting HIV?	YES = 1 NO = 2 DON'T KNOW =-8 REFUSED =-9	IF YES, DON'T KNOW, REFUSED → 316
313	What was the main reason you did not take ARVs while you were pregnant with [CHILD NAME]?	WAS NOT PRESCRIBED=1 I FELT HEALTHY/NOT SICK=2 COST OF MEDICATIONS=3 COST OF TRANSPORT=4 RELIGIOUS REASONS=5 WAS TAKING TRADITIONAL MEDICATIONS=6 MEDICATIONS OUT OF STOCK=7 DID NOT WANT PEOPLE TO KNOW HIV STATUS=8 DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY=9 CANNOT TAKE TIME OUT OF WORK=10 LONG WAIT TIME AT HEALTH FACILITY=11 LACK OF FOOD TO TAKE WITH THE MEDICATION=12 STATE OF EMERGENCY CAUSED BY COVID-19=13 OTHER (SPECIFY)=96 _____ DON'T KNOW=-8 REFUSED=-9	SKIP TO → 316
314	Were you tested for HIV at any time after delivery of your last pregnancy with [CHILD NAME]? For example, were you tested while you were breastfeeding or after your completed breastfeeding?	YES = 1 NO = 2 DON'T KNOW =-8 REFUSED =-9	IF NO, DON'T KNOW, REFUSED → 316

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE THREE: REPRODUCTION (continued)			
315	What was the result of the HIV test that you received after delivery of your last pregnancy with [CHILD NAME]?	POSITIVE=1 NEGATIVE=2 UNKNOWN/INCONCLUSIVE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	
316	When did you give birth to [CHILD NAME]? Please give your best guess.		
	Day	DAYS ___ DON'T KNOW DAY=-8 REFUSED DAY=-9	
	Month	MONTHS___ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	
	Year	YEARS___ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
317	Is [CHILD NAME] still alive?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES, DON'T KNOW, REFUSED → 320
318	How old was [CHILD NAME] in years when he/she died? (INTERVIEWER: KEY '0' IF CHILD WAS LESS THAN ONE YEAR OLD.)	___ YEARS OLD DON'T KNOW=-8 REFUSED=-9	IF >0 → 320 IF CHILD IS LESS THAN ONE MONTH OLD →319
319	How old was [CHILD NAME] in months when he/she died?	___ MONTHS OLD DON'T KNOW=-8 REFUSED=-9	IF >0 → 320
320	Did you ever breastfeed [CHILD NAME]?	YES=1 NO, NEVER BREASTFEED=2 NO, CHILD DIED BEFORE BREASTFEEDING=3 DON'T KNOW=-8 REFUSED=-9	IF NO, NEVER BREASTFEED; NO, CHILD DIED BEFORE BREASTFEEDING; DON'T KNOW; REFUSED → 322
321	Are you still breastfeeding [CHILD NAME]?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	DISPLAY ONLY IF 317 = YES, DON'T KNOW, REFUSED
322	After [CHILD NAME] was born, was he/she tested for HIV?	YES=1 NO, NOT TESTED FOR HIV=2 NO, CHILD DIED BEFORE TESTING=3 DON'T KNOW=-8 REFUSED=-9	IF NO, NOT TESTED FOR HIV; NO, CHILD DIED BEFORE TESTING; DON'T KNOW, REFUSED → 328

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE THREE: REPRODUCTION (continued)			
323	How old was [CHILD NAME] when he/she first tested for HIV? (INTERVIEWER: ONLY ONE OPTION MAY BE SELECTED. FOR EXAMPLE, ANSWER ONLY IN WEEKS, MONTHS OR IN YEARS. CODE '0' IF LESS THAN 1 WEEK. SWIPE FORWARD TO ENTER DON'T KNOW OR REFUSED.)	LESS THAN 1 WEEK=0 WEEKS ___ = 1 MONTHS ___ = 2 YEARS ___ = 3	DISPLAY IF MONTHS AND YEARS = "NULL"
324	What was the result of [CHILD NAME]'s first HIV test?	POSITIVE; CHILD HAS HIV=1 NEGATIVE; CHILD DOES NOT HAVE HIV=2 UNKNOWN/INDETERMINATE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	
325	Was [CHILD NAME] tested for HIV after you stopped breastfeeding?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF 320 = NO, NEVER BREASTFEED; NO, CHILD DIED BEFORE BREASTFEEDING; DON'T KNOW; REFUSED OR 321 = YES
326	How old was [CHILD NAME] when he/she last tested for HIV?	LESS THAN 1 WEEK=0 WEEKS ___ = 1 MONTHS ___ = 2 YEARS ___ = 3 CHILD ONLY TESTED ONCE FOR HIV (FIRST TEST IS THE SAME AS LAST TEST)=4 DON'T KNOW=-8 REFUSED=-9	DISPLAY IF "NULL" IF CHILD ONLY TESTED ONCE FOR HIV (FIRST TEST IS THE SAME AS LAST TEST), DON'T KNOW, REFUSED → 328
327	What was the result of [CHILD NAME]'s most recent HIV test?	POSITIVE; CHILD HAS HIV=1 NEGATIVE; CHILD DOES NOT HAVE HIV=2 UNKNOWN/INCONCLUSIVE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	SKIP IF 324 = POSITIVE; CHILD HAS HIV
328	When you were pregnant with [CHILD NAME], were you offered test for syphilis?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
329	When you were pregnant with [CHILD NAME], were you tested for syphilis?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 332
330	Did you test positive for syphilis during your pregnancy with [CHILD NAME]?	YES = 1 NO = 2 DID NOT RECEIVE RESULTS=3 DON'T KNOW = -8 REFUSED = -9	IF NO, DID NOT RECEIVE RESULTS, DON'T KNOW, REFUSED → 332

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE THREE: REPRODUCTION (continued)			
331	Did you get treatment for syphilis during your pregnancy with [CHILD NAME]?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
332	Interviewer says: "Thank you for the information regarding [CHILD NAME]."		IF 303 = YES, RETURN TO 317 FOR EACH VALUE OF 304
Interviewer says: "I will now ask about current pregnancies."			
333	Are you pregnant now?	YES = 1 NO= 2 DON'T KNOW =8 REFUSED = -9	IF YES → END OF MODULE
Interviewer says: "I will now ask you about family planning."			
334	Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → END OF MODULE
335	Which method are you or your partner using? (INTERVIEWER: 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/CYCLE=I BEADS/STANDARD DAYS/WITHDRAWL=J NOT HAVING SEX=K OTHER (SPECIFY) =X _____ DON'T KNOW=Y REFUSED=Z	
MODULE FOUR: MALE CIRCUMCISION (SKIP IF FEMALE)			
Interviewer says: "I will be asking a few questions about circumcision. Circumcision is the complete removal of the foreskin from the penis."			
401	Some men are uncomfortable talking about circumcision, but it is important for us to have this information. Some men are circumcised. Are you circumcised?	YES, COMPLETELY CIRCUMCISED = 1 YES, PARTIALLY CIRCUMCISED = 2 NOT CIRCUMCISED =3 DON'T KNOW = -8 REFUSE TO ANSWER = -9	
402	This is an illustration of an uncircumcised penis, a partially circumcised penis and a completely circumcised penis. Could you point to the image that best describes the type of circumcision you went through? (INTERVIEWER: SHOW THE VISUAL AID AND ASK PARTICIPANT TO POINT TO ONE OF THE ILLUSTRATIONS.)	YES, COMPLETELY CIRCUMCISED = 1 YES, PARTIALLY CIRCUMCISED = 2 NOT CIRCUMCISED =3 DON'T KNOW = -8 REFUSE TO ANSWER = -9	IF YES, FULLY CIRCUMCISED, YES, PARTIALLY CIRCUMCISED, SKIP 403 IF DON'T KNOW, REFUSED → END OF MODULE

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE FOUR: MALE CIRCUMCISION (SKIP IF FEMALE) (continued)			
403	Are you planning to get circumcised within the next 6 months?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES, NO, DON'T KNOW, REFUSED → END OF MODULE
	Interviewer says: "Some men are circumcised by a medical provider such as a doctor, clinical officer, nurse, or midwife. Some men are circumcised by a traditional practitioner. Some men are circumcised by both a medical provider and a traditional practitioner. "		
404	Who did the circumcision?	TRADITIONAL PRACTITIONER/FAMILY/ FRIEND=1 MEDICAL PROVIDER=2 BOTH=3 DON'T KNOW=-8 REFUSED=-9	
405	How old were you when you were circumcised? Please give your best guess. (INTERVIEWER: IF CIRCUMCISED BY BOTH A TRADITIONAL PRACTITIONER/FAMILY/FRIEND AND MEDICAL PROVIDER, PROMPT PARTICIPANT TO GIVE AGE OF CIRCUMCISION BY MEDICAL PROVIDER. IF LESS THAN ONE YEAR, CODE '0'.)	_____ YEARS OLD DON'T KNOW=-8 REFUSED=-9	
406	Where were you circumcised?	HEALTH FACILITY=1 HEALTH PROVIDER'S HOME=2 OWN HOME=3 DURING INITIATION RITES=4 MOBILE CLINIC=5 OTHER=96 DON'T KNOW=-8 REFUSED=-9	
MODULE FIVE: SEXUAL ACTIVITY			
	Interviewer says: "In this part of the interview, I will be asking about your sexual relationships and practices. These questions will help us better understand how they may affect your life and risk for HIV. Sex is when a penis enters a vagina or the anus." **"Remember that your answers are completely confidential and will not be shared with anyone. If there are questions that you do not want to answer, we can go to the next question."**		
501	How old were you when you had sex for the very first time? If they are unsure, confirm if they have had vaginal sex. If they said an age less than 12 years: Confirm age at first sex. Are you sure this is what the participant said?	AGE AT FIRST SEX_____ NEVER HAD SEX=-96 DON'T KNOW=-8 REFUSED=-9 YES=1 NO=2	IF NEVER HAD SEX, → NEXT MODULE IF GREATER THAN 11 YEARS OLD → 502 IF DON'T KNOW OR REFUSED → 502
502	People often have sex with different people over their lifetime. In total, with how many different people have you had sex in your lifetime? Please give your best guess.	NUMBER OF PEOPLE ___ _____ DON'T KNOW=-8 REFUSED=-9	IF 0, → NEXT MODULE

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE FIVE: SEXUAL ACTIVITY (continued)			
503	How many different people have you had sex with in the last 12 months? (If none, code 'O'. If number of partners is greater than 100, enter '100.')	NUMBER OF PEOPLE___ _____ DON'T KNOW=-8 REFUSED=-9	IF 0, DON'T KNOW, REFUSED → NEXT MODULE
	Interviewer says: "Now I would like to ask you some questions about the people you have had sex with in the last 12 months. Let me assure you again that your answers are completely confidential and will not be told to anyone. I will first ask you about the most recent person you had sex with." (Ask only about the last 3 persons the participant has had sex with).		
504	Is the person that you had sex with a spouse or a partner who lives in this household?	YES = 1 NO = 2	IF NO → 506
505	Please select the name below from the household membership list. Please identify the person you had sex with.	HOUSEHOLD QUESTIONNAIRE LINE NO. ____ NOT LISTED IN HOUSEHOLD=96	
506	I would like to ask you for the initials of this person so I can keep track [INITIALS]. They do not have to be the actual initials of this person. Is [INITIALS] the most recent person you had sex with?	[INITIALS] _____ YES = 1 NO = 2	IF ANY BUT [FIRST REPORTED PARTNER] → 507 DISPLAY IF [FIRST REPORTED PARTNER]
507	What is your relationship with [INITIALS]?	HUSBAND/WIFE=1 LIVE-IN PARTNER=2 PARTNER, NOT LIVE-IN=3 EX-SPOUSE/EX-PARTNER=4 FRIEND/ACQUAINTANCE=5 SEX WORKER=6 SEX WORKER CLIENT=7 STRANGER=8 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	
508	Is [INITIALS] male or female?	MALE=1 FEMALE=2 DON'T KNOW=-8 REFUSED=-9	
509	How old is [INITIALS]? Please give your best guess.	____YEARS OLD DON'T KNOW=-8 REFUSED=-9	
510	The last time you had sex with [INITIALS], was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES, DON'T KNOW, REFUSED → 512
511	Why haven't you used a condom during the last sexual intercourse?	NOT AVAILABLE=1 NOT COMFORTABLE=2 PARTNER REFUSED=3 TRUST PARTNER=4 REDUCE PLEASURE=5 WISH TO GET PREGNANT=6 NOT HAVING A CONDOM AT HAND AT THE TIME OF SEX=7 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE FIVE: SEXUAL ACTIVITY (continued)			
512	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	
513	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	
514	What is the HIV status of [INITIALS]? (Read responses aloud).	HE/SHE IS POSITIVE (DID NOT TEST TOGETHER)=1 HE/SHE IS POSITIVE, TESTED TOGETHER=2 HE/SHE IS NEGATIVE (DID NOT TEST TOGETHER)=3 HE/SHE IS NEGATIVE, TESTED TOGETHER=4 DON'T KNOW STATUS=-8 REFUSED=-9	
515	Interviewer says: "I will now ask you about the person you have had sex with previous to [INITIALS]."		SKIP IF 503 <= 1 IF 503 > 1 → 504 SKIP IF FINAL LOOP
MODULE SIX: HIV TESTING			
Interviewer says: "I would like to ask you some questions about HIV testing."			
601	Have you seen a doctor, clinical officer, nurse, or a lay counselor in a health facility in the last 12 months?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 603
602	During any of your visits to the health facility in the last 12 months, did a doctor, clinical officer, nurse, or a lay counselor offer you an HIV test?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
603	Have you ever tested for HIV?	YES =1 NO =2 DON'T KNOW = -8 REFUSED = -9	IF YES, DON'T KNOW, REFUSED → 605
604	Why have you never been tested for HIV? (Select all that apply. Prompt for any more reasons.)	DON'T KNOW WHERE TO TEST=A TEST COSTS TOO MUCH=B TRANSPORT COSTS TOO MUCH=C TOO FAR AWAY=D AFRAID OTHERS WILL KNOW ABOUT TEST RESULTS=E DON'T NEED TEST/LOW RISK=F DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY=G AFRAID SPOUSE/PARTNER/FAMILY WILL KNOW RESULTS=H DON'T WANT TO KNOW I HAVE HIV=I CANNOT GET TREATMENT FOR HIV=J TEST KITS NOT AVAILIBLE=K RELIGIOUS REASONS=L COVID-19 PANDEMIC (CORONA)=M OTHER (SPECIFY) =X _____ DON'T KNOW=-Y REFUSED=-Z	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE SIX: HIV TESTING (continued)			
605	When was your last HIV test? Please give month and year if you can.		
	Month	MONTHS _____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	
	Year	YEARS _____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
606	Where was your last HIV test done?	VCT FACILITY=1 MOBILE VCT=2 AT HOME=3 HEALTH CLINIC/FACILITY=4 HOSPITAL OUTPATIENT CLINIC=5 TB CLINIC=6 HOSPITAL INPATIENT WARDS=8 BLOOD DONATING CENTER=9 ANC CLINIC=10 VMMC CLINIC=11 HTS AT COMMUNITY LEVEL=12 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	
607	When you last tested for HIV, what was the main reason you tested?	WAS OFFERED TEST BY HEALTH CARE OR OUTREACH WORKER=1 WANTED TO KNOW MY HIV STATUS=2 FELT AT RISK=3 FELT SICK=4 NEW PARTNER=5 PREGNANCY=6 MY PARTNER TESTED POSITIVE=7 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	
608	What was the result of your last HIV test?	POSITIVE=1 NEGATIVE=2 UNKNOWN/INDETERMINATE=3 DID NOT RECEIVE RESULTS=4 DON'T KNOW=-8 REFUSED=-9	IF NEGATIVE, UNKNOWN/ INDETERMINATE, DID NOT RECEIVE RESULTS, DON'T KNOW, REFUSED → 611
609	When was your first positive HIV test? Please give month and year. This will be the very first HIV-positive test result that you have received. This will be the first time a health care provider told you that you had HIV. (Probe to verify date. Suggest that they can look at treatment card if available.)		
	Month	MONTH _____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	
	Year	YEAR _____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE SIX: HIV TESTING (continued)			
610	When was your last negative HIV test? This would be your last negative before you tested positive. Please give month and year. (Swipe forward if no previous HIV test.)		ASK ONLY TO THOSE WHO SELF-REPORTED HIV POSITIVE (IF 608=YES OR 308=YES OR 311=POSITIVE OR 315=POSITIVE)
	Month	MONTH _____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	
	Year	YEAR _____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9 NO PREVIOUS HIV NEGATIVE TEST BEFORE THE POSITIVE TEST=3	
611	Has a healthcare provider ever told you that you have HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF → 308 = POSITIVE OR 311=POSITIVE OR 315=POSITIVE OR 608=POSITIVE IF NO, DON'T KNOW, REFUSED, SKIP 613
612	When did a healthcare provider first tell you that you have HIV?		DISPLAY IF 611=YES
	Month	MONTH _____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	
	Year	YEAR _____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
Interviewer says: "There are now HIV tests that you can do yourself at home. Some of these self-test kits allow you to test yourself for HIV by swabbing your mouth or pricking your finger and testing the fluid for HIV."			
613	Have you ever tested yourself for HIV using a self-test kit?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
614	Of the following people, who have you told that you are HIV positive? (Read the list out loud. Select all that apply.)	NO ONE=A SPOUSE/SEX PARTNER=B DOCTOR=C FRIEND=D FAMILY MEMBER=E OTHER (SPECIFY) =X _____ DON'T KNOW=Y REFUSED=Z	SHOW SCREEN IF INDIVIDUAL HAS SAID TESTED POSITIVE (IF 308=YES OR 311=POSITIVE OR 315=POSITIVE OR 611=YES) DISPLAY IF OTHER

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE SIX: HIV TESTING (continued)			
Interviewer says: "'PrEP' or pre-exposure prophylaxis, involves taking a daily pill to reduce of getting HIV."			
615	Have you ever heard of PrEP before now?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 618
616	Have you ever taken PrEP?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 618
617	Are you currently taking PrEP?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	APPLY IF NEVER TESTED OR SELF-REPORTED NEGATIVE: (IF 308 <> 1 AND 311 <> 1 AND 315 <> 1 AND 608 <> 1 AND 611 <> 1) IF YES, NO, DON'T KNOW, REFUSED → END OF MODULE
618	Would you take PrEP to help prevent HIV	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	APPLY IF NEVER TESTED OR SELF-REPORTED NEGATIVE: (IF 308 <> 1 AND 311 <> 1 AND 315 <> 1 AND 607 <> 1 AND 610 <> 1)
MODULE SEVEN: HIV STATUS, CARE AND TREATMENT			
Interviewer says: "Now I am going to ask you more about your experience with HIV care and treatment."			
701	After learning you had HIV, have you ever received care or treatment for HIV from a doctor, clinical officer or nurse?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES → 703 IF DON'T KNOW, REFUSED → 709
702	What is the main reason why you have never received care or treatment for HIV from a doctor, clinical officer, or nurse?	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/FEEL HEALTHY/NOT SICK=5 I FEAR PEOPLE WILL KNOW THAT I HAVE HIV IF I GO TO A CLINIC=6 RELIGIOUS REASONS=7 I'M TAKING TRADITIONAL MEDICINE=8 DO NOT TRUST THE STAFF/QUALITY OF CARE=9 STATE OF EMERGENCY CASUED BY COVID-19=10 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	SKIP TO 709

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE SEVEN: HIV STATUS, CARE AND TREATMENT (continued)			
703	Are you currently receiving HIV care from a health facility?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 706
704	At which facility are you currently receiving HIV care? (Select province.) (Select district.) (Select health facility.) (INTERVIEWER: IF FACILITY INFORMATION IS AVAILABLE, PLEASE ENTER FACILITY. OTHERWISE SWIPE FORWARD TO CONTINUE.)	[LIST OF FACILITY PROVINCES] _____ PROVINCE NOT ON LIST=99 [LIST OF FACILITY DISTRICTS] _____ DISTRICT NOT ON LIST=99 [LIST OF FACILITIES] FACILITY NOT ON LIST=99 _____	DISPLAY IF 703=YES IF NOT ON LIST, SKIP 705
705	In the past year, did you change the clinic where you receive HIV care?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
706	At your last HIV care visit, approximately how long did it take you to travel from your home (or workplace) one-way?	LESS THAN HALF HOUR=1 HALF HOUR TO ONE HOUR=2 ONE TO TWO HOURS=3 MORE THAN TWO HOURS=4 DON'T KNOW=-8 REFUSED=-9	
707	Does travel time to health facility make it difficult for you to access care?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
708	When did you last see a doctor, clinical officer, pharmacist or nurse for HIV treatment or care? Month Year	 MONTH _____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEAR_____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
709	Have you ever taken ARVs, that is, antiretroviral medications to treat HIV infection?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES → 711 IF DON'T KNOW, REFUSED AND 701 <> DON'T KNOW, REFUSED → 723 IF DON'T KNOW, REFUSED AND 701 = DON'T KNOW, REFUSED → 801

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE SEVEN: HIV STATUS, CARE AND TREATMENT (continued)			
710	What is the main reason you have never taken ARVs?	NOT ELIGIBLE FOR TREATMENT=1 HEALTH CARE PROVIDER DID NOT PRESCRIBE=2 HIV MEDICINES ARE NOT AVAILABLE=3 I FEEL HEALTHY/NOT SICK=4 COST OF CARE=5 RELIGIOUS REASONS=6 TAKING TRADITIONAL MEDICATIONS=7 NOT ATTENDING HIV CLINIC=8 CLINIC IS TOO FAR=9 AFRAID OTHERS WILL KNOW (STIGMA/ DISCRIMINATION)=10 DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY=11 DON'T BELIEVE THE MEDICATION WORKS=12 HEARD ABOUT THE SIDE EFFECTS OF MEDICATION=13 STATE OF EMERGENCY CAUSED BY COVID-19=14 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	
711	What month and year did you first start taking ARVs? (Probe to verify date.)		
	Month	MONTH _____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9	
	Year	YEAR_____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
712	Are you currently taking ARVs, that is, antiretroviral medications? By currently, I mean that you may have missed some doses but you are still taking ARVs.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES → 714 IF DON'T KNOW, REFUSED → 723
713	Can you tell me the main reason you stopped taking ARVs?	I HAD TROUBLE TAKING A TABLET EVERYDAY=1 I HAD SIDE EFFECTS=2 FACILITY TOO FAR AWAY FOR ME TO GET MEDICINE REGULARLY=3 COST OF CARE=4 I FEEL HEALTHY/SICK=5 FACILITY WAS OUT OF STOCK=6 RELIGIOUS REASONS=7 TAKING TRADITIONAL MEDICATIONS=8 DON'T BELIEVE MEDICATION WORKS=9 STATE OF EMERGENCY CAUSED BY COVID -19=10 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	SKIP TO 723

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE SEVEN: HIV STATUS, CARE AND TREATMENT (continued)			
714	How do you normally receive your ARVs? (Read each response. Select the most common method of collection.)	PICK UP AT THE HEALTH FACILITY =1 FROM THE COMMUNITY SUPPORT GROUP/ ADHERENCE CLUB (GAAC)=3 A FAMILY MEMBER/FRIEND COLLECTS THEM =5 DISTRIBUTED BY COMMUNITY MOBILE TEAM =6 COMMUNITY HEALTH WORKERS =7 PHARMACY=8 DON'T KNOW=-8 REFUSED =-9	
715	Since March 2020, the COVID-19 pandemic has affected many medical services including HIV testing and HIV care and treatment. Was there any period since March 2020, when the state of emergency caused by COVID was announced, when you obtained (or were told to obtain) your ART in a different way or place than where you usually receive them?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
716	The last time you picked up or received your ARVs, how much supply were you given? You should include both your prescription and any extra you were given. (Use weeks if less than one month.) Number of Weeks or Months of Supply Units (If NULL, swipe forward to enter DON'T KNOW or REFUSED.)	_____WEEKS=1 _____MONTHS=2 DON'T KNOW=-8 REFUSED=-9	
717	The last time you picked up or received your ART, were you told that you were being given a longer refill because of the state of emergency caused by COVID-19?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
718	Have your ARVs ever been changed or modified?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 720

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE SEVEN: HIV STATUS, CARE AND TREATMENT (continued)			
719	Why were your ARVs changed?	I WAS NOT RESPONDING TO MY FIRST TREATMENT=1 MY VIRAL LOAD WASN'T SUPPRESSED=2 I WANTED TO GET PREGNANT OR WAS PREGNANT=3 I WAS HAVING/WORRIED ABOUT SERIOUS SIDE EFFECTS=4 CHANGES TO NATIONAL GUIDELINES=5 I WAS DIAGNOSED WITH TB=6 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	
720	You said before that you had been away from home during the past year. At any point in the past year were you away from home, was there any period when you interrupted your ARV treatment?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	ONLY ASK IF 110 >= 1
721	Since March 2020, the COVID-19 pandemic has affected many medical services including HIV testing and HIV care and treatment. Was there any period since March 2020 when you interrupted your ART due to the state of emergency caused by COVID-19?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
722	People sometimes forget to take all of their ARVs every day. In the last 30 days, how many days have you missed taking any of your ARV pills? (ENTER '0' if NONE.)	NUMBER OF DAYS_____ DON'T KNOW=-8 REFUSED=-9	
723	Did you ever have a viral load test? This is a test that measure how much HIV is in your blood.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 726
724	When did you last have a viral load test? Month Year	 MONTH_____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEAR_____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
725	Did you receive the results of your last viral load test?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE SEVEN: HIV STATUS, CARE AND TREATMENT (continued)			
726	At your last HIV medical care visit, were you asked if you had any of the following tuberculosis or TB symptoms: (Read all responses aloud. Select all that apply.)	PERSISTENT COUGH?=A FEVER?=B NIGHT SWEATS?=C WEIGHT LOSS?=D NONE OF THE ABOVE=E DON'T KNOW=Y REFUSED=Z	
727	Have you ever taken medicine or a pill to prevent you from coming down with TB? This is sometimes known as TB Preventative Therapy or TPT. An example of TPT is Isoniazid, IPT or INH, which is medication that prevents TB. It is given to people with HIV or people who are in contact with someone with TB. It is not treatment for TB.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 801
728	Are you currently taking TPT? By currently, I mean that you may have missed some doses but you are still taking TPT. (INTERVIEWER: SHOW JOB AID.)	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 801
729	How many months have you taken TPT?	MONTHS_____ DON'T KNOW=-8 REFUSED=-9	
MODULE EIGHT: TUBERCULOSIS			
Interviewer says: "Now we will ask you about tuberculosis or TB."			
801	In the last 12 months, did you visit a clinic for TB diagnosis or treatment?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED AND MALE → 813 IF NO, DON'T KNOW, REFUSED AND FEMALE=2 → 807
802	When you visited a TB clinic in the last 12 months, were you tested for HIV?	YES=1 NO, WAS NOT TESTED FOR HIV=2 NO, ALREADY KNOW I AM HIV POSITIVE=3 DON'T KNOW=-8 REFUSED=-9	
803	In the last 12 months, were you told by a doctor, clinical officer or nurse that you had TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED AND MALE → 813 IF NO, DON'T KNOW, REFUSED AND FEMALE=2 → 807

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE EIGHT: TUBERCULOSIS (continued)			
804	In the last 12 months, were you treated for TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED AND MALE → 813 IF NO, DON'T KNOW, REFUSED AND FEMALE=2 → 807
805	Are you currently on treatment for TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED AND MALE → 813 IF NO, DON'T KNOW, REFUSED AND FEMALE=2 → 807
806	The last time you were treated for TB, did you complete at least 6 months of treatment?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF MALE → 813
	Interviewer says: "Now I am going to ask you about tests a health care provider can do to check for cervical cancer. The cervix connects the uterus to the vagina. The tests a healthcare provider can do to check for cervical cancer are called a Pap smear, HIV test and VIA test." **For a Pap smear and HPV test, a health care provider puts a small stick inside the vagina to wipe the cervix and sends the sample to the laboratory. For a VIA test, a healthcare worker puts vinegar on the cervix and looks to see if the cervix changes color.** **(INTERVIEWER: SHOW JOB AID.)**		SKIP IF MALE
807	Have you ever been tested for cervical cancer?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DON'T KNOW, REFUSED → 813
808	What month and year was your last test for cervical cancer? Month Year	 MONTH_____ DON'T KNOW MONTH=-8 REFUSED MONTH=-9 YEAR_____ DON'T KNOW YEAR=-8 REFUSED YEAR=-9	
809	What was the result of your last test for cervical cancer?	NORMAL/NEGATIVE=1 ABNORMAL/POSITIVE=2 SUSPECT CANCER=3 UNCLEAR/INCONCLUSIVE=4 DID NOT RECEIVE RESULTS=5 DON'T KNOW=-8 REFUSED=-9	IF NORMAL/NEGATIVE, DON'T KNOW, REFUSED → 811
810	Did you receive treatment after your last test for cervical cancer? Did you receive treatment on the same day or on a different day?	YES, I WAS TREATED ON THE SAME DAY=1 YES, I RECEIVED TREATMENT ON A DIFFERENT DAY=2 NO=3 DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE EIGHT: TUBERCULOSIS (continued)			
811	Have you ever been vaccinated to prevent cervical cancer? This would be the HPV vaccine.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
Interviewer says: "I am now going to ask you about other aspects of health."			
812	Over the past two weeks, how often have you been bothered by having little interest in doing things?	NOT AT ALL=1 1-7 DAYS=2 8-11 DAYS=3 12-14 DAYS=4 DON'T KNOW=-8 REFUSED=-9	
813	Over the past two weeks, how often have you felt down, depressed or hopeless?	NOT AT ALL=1 1-7 DAYS=2 8-11 DAYS=3 12-14 DAYS=4 DON'T KNOW=-8 REFUSED=-9	
814	Over the past two weeks, how often have you felt nervous, anxious or on edge?	NOT AT ALL=1 1-7 DAYS=2 8-11 DAYS=3 12-14 DAYS=4 DON'T KNOW=-8 REFUSED=-9	
815	Over the past two weeks, how often have you not been able to stop or control worrying?	NOT AT ALL=1 1-7 DAYS=2 8-11 DAYS=3 12-14 DAYS=4 DON'T KNOW=-8 REFUSED=-9	
816	Have you ever been told by a doctor or health worker that you have any of the following chronic health conditions? (Select all that apply.)	HIGH BLOOD SUGAR OR DIABETES=A HIGH BLOOD PRESSURE OR HYPERTENSION=B HEART DISEASE OR CHRONIC HEART CONDITION=C KIDNEY DISEASE=D CANCER OR TUMOR=E LUNG DISEASE OR CHRONIC LUNG DISEASE=F DEPRESSION OR MENTAL HEALTH CONDITION=G EPILEPSY=H NONE OF THE ABOVE=I OTHER (SPECIFY) =96 _____ DON'T KNOW=Y REFUSED=Z	IF NONE OF THE ABOVE, DON'T KNOW, REFUSED → 818

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE EIGHT: TUBERCULOSIS (continued)			
817	Are you currently taking medication for any of the following chronic health conditions? (If any of the conditions in the previous question are selected, respondent should be asked about treatment for that condition.)	HIGH BLOOD SUGAR OR DIABETES=A HIGH BLOOD PRESSURE OR HYPERTENSION=B HEART DISEASE OR CHRONIC HEART CONDITION=C KIDNEY DISEASE=D CANCER OR TUMOR=E LUNG DISEASE OR CHRONIC LUNG DISEASE=F DEPRESSION OR MENTAL HEALTH CONDITION=G EPILEPSY=H NONE OF THE ABOVE=I OTHER (SPECIFY) =96 _____ DON'T KNOW=Y REFUSED=Z	
818	Have you ever heard of Hepatitis B or C?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
819	Have you ever received a blood transfusion?	YES=1 NO=2 DON'T KNOW=-8 REFUSED=-9	
MODULE NINE: ALCOHOL USE			
Interviewer says: "The next few questions will be on your use of alcohol. Remember, all of the answers you provide will be kept confidential."			
901	How often do you have a drink containing alcohol?	NEVER=0 MONTHLY OR LESS=1 2-4 TIMES A MONTH=2 2-3 TIMES A WEEK=3 4 OR MORE TIMES A WEEK=4 DON'T KNOW=-8 REFUSED=-9	IF NEVER, DON'T KNOW, REFUSED → 905
902	How many drinks containing alcohol do you have on a typical day?	1 OR 2=0 3 OR 4=1 5 OR 6=2 7 TO 9=3 10 OR MORE=4 DON'T KNOW=-8 REFUSED=-9	
903	How often do you have six or more drinks on one occasion?	NEVER=0 LESS THAN MONTHLY=1 MONTHLY=2 WEEKLY=3 DAILY OR ALMOST DAILY=4 DON'T KNOW=-8 REFUSED=-9	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE NINE: ALCOHOL USE (continued)			
904	Where do you normally have alcohol?	HOME=1 INFORMAL BARS (BARRACAS)=2 FRIENDS' HOMES=3 BARS/RESTAURANTS=4 OTHER (SPECIFY) =96 _____ DON'T KNOW=-8 REFUSED=-9	
905	In the past 12 months, have you used non-prescription drugs for recreation or pleasure purpose?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DON'T KNOW, REFUSED → NEXT MODULE
906	Which non-prescription drug have you ever consumed, even one time?	NONE=A CANNABIS (SURUMA, MACONHA OU HAXIXE)=B HEROIN (HERO, PINCH, UNA, PAFU)=C COCAINE (INJECTED)=D COCAINE (SNORTED)=E CRACK=F OTHER (SPECIFY) =X _____ DON'T KNOW=Y REFUSED=Z	
MODULE TEN: EXPOSURE TO PREVENTION INTERVENTION AMONG 15-24 YEARS			
Interviewer says: "We will now ask you about your experience with HIV prevention program."			
1001	Where can you get condoms? (Select all that apply.)	CLINIC/HOSPITAL=A KIOSK/SHOP=B PHARMACY=C LOCAL FREE DISPENSER=D FRIENDS/PEER=E SEXUAL PARTNER(S)=F OTHER (SPECIFY) =X _____ DON'T KNOW=-8 REFUSED=-9	
1002	If you wanted a condom, would it be easy for you to get one?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES, DON'T KNOW, REFUSED → 1004
1003	Why is it not easy for you to get a condom? (INTERVIEWER: SELECT ALL THAT APPLY.)	CONDOMS NOT AVAILABLE/TOO FAR=A NOT CONVENIENT=B COSTS TOO MUCH=C EMBARRASED TO GET CONDOMS=D DO NOT WANT OTHERS TO KNOW=E DO NOT KNOW WHERE TO GET CONDOMS=F STATE OF EMERGENCY CAUSED BY COVID-19=G OTHER (SPECIFY) =X _____ DON'T KNOW=Y REFUSED=Z	

NO.	QUESTIONS	CODING CATEGORIES	SKIP PATTERNS
MODULE TEN: EXPOSURE TO PREVENTION INTERVENTION AMONG 15-24 YEARS (continued)			
1004	Have you ever talked with a parent or guardian about sex?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
1005	Have you ever discussed HIV with your parents or guardians?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	
1006	Have you taken part in any of the following prevention or treatment programs?	DREAMS=A ALL IN=B GERAÇÃO BIZ =C MENINA BIZ=D SMS BIZ-E COVIDA=F SAAJ=G CANTINHOS ESCOLARES=H NONE=W OTHER (SPECIFY) =X _____ DON'T KNOW=Y REFUSED=Z	
1007	In the past 12 months, how many times have you participated in a school meeting or class period where they talked about HIV/AIDS? If you are not certain, give your best guess.	NONE=0 1-4 TIMES=1 5-9 TIMES=2 10 OR MORE TIMES=3 DID NOT ATTEND SCHOOL IN THE PAST 12 MONTHS=4 DON'T KNOW=-8 REFUSED=-9	

Interviewer says: "Thank you for taking the time to participate in this survey. Your responses will be very helpful to the Ministry of Health to better understand how to improve health programs in the country."
(Provide participant with list of organizations, if not already given.)

APPENDIX G SURVEY CONSENT FORMS

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

TITLE OF SURVEY: THIS SURVEY IS CALLED THE MOZAMBIQUE POPULATION-BASED HIV IMPACT ASSESSMENT (INSIDA 2021)

Interviewer reads:

Hello. My name is_____. I am a National Institute of Health Employee and one of the interviewers of the Mozambique Population-based HIV Impact Assessment (INSIDA). I would like to invite you to take part in this survey about HIV in Mozambique.

Please ask me to explain anything that you do not understand. Please do not feel pressured to make a fast decision about your participation. If you need time to think about this further or to consult someone you trust about your participation, then feel free to do so.

Justification of the survey

The Government of Mozambique conducts surveys like this one to better understand the situation of HIV in the country. HIV is the virus that causes AIDS. HIV can be prevented and can also be treated in someone already living with HIV. The information from this survey will help the Government of Mozambique to improve the HIV prevention, care, and treatment programs for all the people from Mozambique.

Purpose of the survey

The survey will help us know the number of people in Mozambique who are living with HIV and those who have access to HIV services. Also, it will help us understand the behaviors that put people at risk of getting HIV.

Type of survey

This survey is designed to describe and measure the state of HIV in Mozambique. To do so, we will interview around 21.5 thousand people who are 15 years and older in about 11 thousand selected households from all over the country.

Selection of participants

Your household has been selected by chance to be part of the survey. And you, as the head of household, are in the best position to provide us with the information about the members of your household.

Voluntary participation

Your participation in this household interview is entirely voluntary. You can decide not to take part in this survey. Your decision to take or not take part will not affect your health care in any way. We can tell you where to go for HIV services and learn about your HIV status. You can leave the survey at any time you want for any reason. If you decide to leave the survey, no more information will be collected from you.

Survey procedures

In the household interview, we will ask you some questions about the people who live here. We will also ask you about some of the things you have or own. This interview will take about 20 minutes. The information is collected on this tablet. We will interview you in a private place of your choosing here in or around your home.

After the household interview, we will invite you and others in your household to take part in a more in-depth individual interview. The questions in the individual interview will be about what kind of work you do and your experience with health services. We will also ask about your social and sexual behavior. The individual interview will take about 45 minutes.

In addition, the individual interview, we will offer pre and post HIV test counseling to people who join the survey. The testing and counselling will take about 45 minutes. We will ask each person for permission to store some of his or her blood for future testing. We will also ask each person for permission to contact him or her about future research studies.

Risks

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

Benefits

There may be no direct benefit to you from participating in the interview. But your taking part in the survey gives you the chance to learn more about your health today. Also, the information that you are providing to us will be used to improve health services in Mozambique.

Costs for being in the survey

There is no cost to you for being in the household interview.

Privacy

We will do everything we can to keep your answers private. The information we collect from you will be identified by a number/code and not by your name. Your name will not appear when we share the survey findings. The information we collect during the survey will not be released outside of the survey groups listed unless we have your permission or there is an issue of safety.

Confidentiality and access to your health information

The information you provided to us will be kept on this tablet. All information on this tablet is protected by a password. It means that no one can open, access, or read your responses unless they have the password. The information from the survey will only be seen by few people at the agencies listed below. These agencies help oversee the conduct of this survey.

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

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a person taking part in a study, including:
  - National Committee for Bioethics in Health of Mozambique (CNBS)
  - The Centers for Disease Control and Prevention (CDC; Atlanta, GA, USA)
  - Columbia University Medical Center
  - Westat (a statistical study research organization)
- The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person taking part in this survey
- Selected study staff and study monitors.

Dissemination of survey results

Once we have collected all the data, reports summarizing all the findings will be published and will be available to the public. These reports will not include your name or indicate your individual responses.

Contact information of the Principal Investigator

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

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

Dr. Eduardo Samo Gudo (Principal Investigator) or Acácio Sabonete (Project Director)
Phone number: +258 878744967
Email: insida2020@gmail.com
From the National Institute of Health, in Marracuene, EN1, Parcela Nr. 3943, Maputo.

Contact information of the National Committee of Health Bioethics (CNBS)

This survey has received ethical approval from the CNBS, the Centers for Disease Control and Prevention, and the Institutional Review Board of Columbia University Medical Center and of WESTAT. If you have issues related to injuries or other harms, or for questions about the process of agreeing to take part in this study or for more information about your rights as someone taking part in this study, you may contact:

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

CNBS (Phone number +258 824066350) – Ministry of Health, CNBS, corner of Eduardo Mondlane Avenue and Salvador Allende Avenue; C.P.264, Maputo.

Do you want to ask me anything about the study?

CONSENT STATEMENT

Mozambique Population-based HIV Impact Assessment (INSIDA 2021)

I confirm that the interviewer read this consent form to me, and I have been offered a copy of this consent form. I know that my participation in this research is voluntary, and I have the right to stop the interview at any time or skip any question I do not want to answer. Any questions that I regarding the survey had have been answered satisfactorily.

Do you agree to do the household interview?

☐   Check this box if you agree to take part in the household interview.

☐   Check this box if you DO NOT agree to take part in the household interview.

COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT ANSWERED 'YES'

Please sign or insert your fingerprint in the following statement:

Household Head signature_____   Date: __/__/__

Fingerprint of Head of Household who is not able to sign

Printed name of Household Head_____

Signature of person obtaining consent_____   Date: __/__/__

Printed name of person obtaining consent_____   Survey staff INSIDA ID number_____

INDIVIDUAL CONSENT FOR ADULTS AGED 18 YEARS AND OLDER AND EMANCIPATED MINORS AGED 15–17 YEARS:

(SKIP IF PARTICIPANT ALREADY COMPLETED HOUSEHOLD CONSENT)

TITLE OF SURVEY: THIS SURVEY IS CALLED THE MOZAMBIQUE POPULATION-BASED HIV IMPACT ASSESSMENT (INSIDA 2021)

Interviewer reads:

Hello. My name is_____. I am an employee of the National Institute of Health and one of the interviewers of the Mozambique Population-based HIV Impact Assessment (INSIDA). I would like to invite you to take part in this survey about HIV in Mozambique. This survey will help us to know how many people in Mozambique have HIV and the need for HIV prevention and care health services.

Please ask me to explain anything that you do not understand. Please do not feel pressured to make a fast decision about your participation. If you need time to think about your participation or to consult someone you trust about your participation, then feel free to do.

Justification of the survey

The Government of Mozambique conducts surveys like this one to better understand the situation of HIV in the country. HIV is the virus that causes AIDS. HIV is a preventable and is also treatable. The information from the survey will help the Government of Mozambique to improve HIV prevention, care, and treatment programs.

Purpose of the survey

The survey will help us know the number of people in Mozambique that are living with HIV and have access to HIV services. Also, it will help us understand the behaviors that put people at risk of getting HIV.

Type of survey

This survey is designed to describe and measure the HIV situation in Mozambique. To do so, we will interview around 21.5 thousand people 15 years and older in about 11 thousand selected households.

Selection of participants

Your home was selected by chance to take part in the survey. And we are inviting every person in your home who is 15 years and older to participate in the survey.

Voluntary participation

Your participation in this household interview is entirely voluntary. You can decide not to take part in this survey. Your decision to take part or not on this survey will not affect your health care in anyway. We can tell you where to go for HIV services and learn about your HIV status. You can leave the survey at any time you want for any reason. If you decide to leave the survey, no more information will be collected from you.

Survey procedures

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

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 health services, and your social and sexual behaviors. The interview will take about 45 minutes.

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

We would also like to invite you to get HIV testing. If you agree, a survey staff member who has been trained to draw blood, will take about 14 milliliters (about one tablespoonful) of blood from your arm into two tubes. If it is not possible to take blood from your arm, then we will try to take a few drops of blood from your finger. We will give you the results of your HIV test and provide pre and post HIV test counseling on the same day. If you have a positive result, we will give you a referral form so that you can consult with a doctor or nurse to learn more about the test result and your health at a health facility of your preference.

If you test positive for HIV, we will send your blood to a laboratory to measure your viral load and CD4 count. Viral load is the amount of HIV in your blood. The CD4 cells are the part of the immune system that fights HIV infection and other diseases. These results will be sent to a health facility of your choosing as soon as possible but no later than 12 weeks. You will be able to talk to a nurse or doctor at the health facility that you have chosen to receive your test results. Some of your blood might be sent to a laboratory out of the country for some additional tests related to HIV. 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 may get these results.

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

Additionally, we will ask you to take part in possible future research if you want to. If you agree, your contact information will be retained by approved researchers, and you may be contacted for a period of up to three years and invited to take part in future research if you still want to. If you do not accept to take part in future research, you can continue to take part in the survey today.

Risks

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

Learning that you have HIV may cause some emotional distress. You will receive counseling on how to cope with learning that you have HIV. If you test HIV positive, we will help you identify where to go and explain the options available for care and treatment. Care and treatment are available at government facilities free of charge. As with all surveys, there is a chance that confidentiality could be compromised. We will do everything possible we can to minimize this risk.

Benefits

The main benefit for you to be in the survey is the chance to learn more about your health today. Some people who take part will test HIV positive. If you test HIV positive, the benefit is that you will learn how to cope with your HIV-positive status and where to go for HIV services. HIV care and treatment provided by the Ministry of Health is free. If you already know you have HIV and are not on treatment, you will get information to help your doctor or nurse to start treatment. If you already know that you are HIV positive and you are on HIV treatment, the viral load tests can help your nurse or doctor judge how well your treatment is working. If you test HIV negative, you will learn about what you can do to stay HIV negative. Your taking part in this survey could help us learn more about HIV in Mozambique. It can also help us learn about how HIV prevention and treatment programs are working in the country. Your taking part is important, and you are invited to participate even if you already know that you are HIV negative or positive.

(SKIP IF PARTICIPANT ALREADY WENT THROUGH THE HOUSEHOLD CONSENT)

Costs for being in the study

There is no cost to you for participating in the survey.

Privacy

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

Confidentiality and access to your health information

The information you provided to me will be kept on this tablet. All information on this tablet is password protected. It means that no one can open, access, or read your responses unless they have the password. The information from the survey will only be seen by few people at the agencies listed below. These agencies help oversee the conduct of this survey.

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

· Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a person taking part in a survey, including:
    · National Committee for Bioethics in Health of Mozambique (CNBS)
    · The Centers for Disease Control and Prevention (CDC; Atlanta, GA, USA)
    · Columbia University Medical Center
    · Westat (a statistical study research organization)
· The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person taking part in this survey
· Selected study staff and study monitors.

Dissemination of survey results

Once we have collected all the data, reports summarizing all the findings will be published and will be available to the public.

Contact information of the Principal Investigator

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

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

Dr. Eduardo Samo Gudo (Principal Investigator) or Acácio Sabonete (Project Director)
Phone number: +258 878744967
Email: insida2020@gmail.com
From the National Institute of Health, in Marracuene, EN1, Parcela Nr. 3943, Maputo.

Contact information of the National Committee of Health Bioethics (CNBS)

This survey has received ethical approval from the CNBS, the Centers for Disease Control and Prevention, and the Institutional Review Board of Columbia University Medical Center and of WESTAT. If you have issues related to injuries or other harms, or for questions about the process of agreeing to take part in this study or for more information about your rights as someone taking part in this study, you may contact:

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

CNBS (Phone number +258 824066350) – Ministry of Health, CNBS, corner of Eduardo Mondlane Avenue and Salvador Allende Avenue; C.P.264, Maputo.

 (READ FROM HERE IF PARTICIPANT ALREADY COMPLETED HOUSEHOLD CONSENT)

Do you want to ask me anything about the study?

CONSENT STATEMENT

Mozambique Population-based HIV Impact Assessment (INSIDA 2021)

I confirm that the interviewer read this consent form to me, and I have been offered a copy of this consent form. I know that my participation in this research is voluntary, and I have the right to stop participating at any time. Any questions that I had have been answered satisfactorily.

1. Do you agree to take part in the survey interview? 'YES' means that you agree to take part in the survey interview. 'NO' means that you will NOT take part in the survey interview.

☐ Yes ☐ No

(IF PARTICIPANT DOES NOT AGREE, THEN STOP)

2. Do you agree to give blood for HIV and related testing and receiving the results of your HIV test? 'YES' means that you agree to give blood for testing and receiving the results of your HIV test. 'NO' means that you will NOT give blood for testing.

☐ Yes ☐ No

(IF PARTICIPANT DOES **NOT** AGREE, GO TO QUESTION 4)

3. Do you agree to have your leftover blood stored? 'YES' means that you agree to have these blood samples stored for future research and analysis. 'NO' means that you do not agree to have these blood samples stored for future research and analysis.

☐ Yes ☐ No

4. Do you agree to be contacted for future research? 'YES' means that you agree to be contacted for future research. 'NO' means that you don't want to be contacted for future research.

☐ Yes ☐ No

[Tablet summary statement]

To confirm, you have agreed to [IINSERT ALL OPTIONS MARKED YES: INTERVIEW, BLOOD TESTING, BLOOD STORAGE, FUTURE RESEARCH]. Is this correct?

☐ Yes ☐ No

COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT ANSWERED 'YES' TO AT LEAST ONE CONSENT STATEMENT

Fingerprint of Participant who is not able to sign

Participant's signature_____ Date: ___/___/___

Printed name of Participant_____

Signature of person obtaining consent _____ Date: ___/___/___

Printed name of person obtaining consent_____ Survey staff INSIDA ID number _____

PARENTAL OR GUARDIAN PERMISSION FOR PARTICIPANTS AGED 15-17 YEARS

(SKIP IF PARTICIPANT ALREADY COMPLETED THE HOUSEHOLD OR INTERVIEW CONSENT)

TITLE OF SURVEY: THIS SURVEY IS CALLED THE MOZAMBIQUE POPULATION-BASED HIV IMPACT ASSESSMENT (INSIDA 2021)

Interviewer reads:

Hello. My name is_____. I am an employee of the National Institute of Health and one of the interviewers of the Mozambique Population-based HIV Impact Assessment (INSIDA). I would like to invite you to take part in this survey about HIV in Mozambique. This survey will help us to know how many people in Mozambique have HIV and the need for HIV prevention and care health services.

Please ask me to explain anything that you do not understand.

Justification of the survey

The Government of Mozambique conducts surveys like this one to better understand the situation of HIV in the country. HIV is the virus that causes AIDS. HIV can be prevented, and it can be treated. The information from this survey will help the Government of Mozambique to make HIV prevention, care, and treatment programs better.

Objectives of the survey

The survey will help us know the number of people in Mozambique that are living with HIV and have access to HIV services. Also, it will help us understand the behaviors that put people at risk of getting HIV.

Type of survey

This survey is designed to describe and measure the HIV situation in Mozambique. To do so, we will interview around 21.5 thousand people 15 years and older in about 11 thousand selected households.

Selection of participants

Your home was selected by chance to take part in the survey. And we are inviting every person in your home who is 15 years and older to participate in the survey.

Voluntary participation

The minor can decide not to take part in this survey. She or he can leave the survey at any time for any reason. If she/he decides to leave the survey, no more information will be collected. However, the minor will not be able to take back the information that has already been collected and shared.

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

Survey procedures

If both you and the minor agree for him or her to join the survey, we will ask the minor some questions. The interview will be conducted in private with only the minor and a survey staff member. The interview questions will be the same as the ones that we ask adults who agree to take part in the survey. The questions will be about what kind of work they do, whether they have had any experience with health services, and their social and sexual behaviors. The minor's answers will not be shared with you. It will take about 45 minutes.

We would like to test the minor for HIV. We are testing minors for HIV, regardless of the parents' HIV status. A trained survey staff member will take about 14 milliliters (about a tablespoonful) of blood from the minor's arm into two tubes. If it is not possible to take blood from the minor's arm, then we will try to take a few drops of blood from the minor's finger. After the blood draw we will perform the tests for HIV in your home. We will give the minor the results of these tests and provide pre and post HIV test counseling about the results on the same day as the test.

For all minors who test positive for HIV, we will also send his or her blood to a laboratory for additional tests. One of these tests is to measure viral load. Viral load is the amount of HIV in the blood. We will conduct another test to measure the CD4 cells. CD4 cells are the part of the immune system that fights HIV infection and other diseases. If the minor provides us with the name of a health facility, we can send his or her viral load and CD4 results to the health facility. We will send them there as soon as possible, but no later than 12 weeks from now. Some of the minor'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 Mozambique that can do the tests. If we have test results that might guide the minor's care or treatment, we will contact the minor to tell him or her how a doctor or nurse at the preferred health facility may get these results.

We would like to help the minor have access to the health care that he or she needs. If the minor agrees, and the minor tests HIV positive and is not yet on ART, we will provide the minor's contact information and HIV results to trained staff from health facility or organization for linkage to care. This staff is trained to provide support to people living with HIV. The staff is also trained in maintain confidentiality. We will provide the staff with the minor's name, phone number and address. These trained staff will contact the minor, talk to him or her about HIV. The staff will also help the minor go for HIV care.

Additionally, we would like to ask your permission to store the minor's leftover blood for future research tests. These tests may be about HIV, or other health issues important for the health of people living in Mozambique. This sample will be stored for an indefinite amount of time, but the minor'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 to your health. After the three-year period, the sample will not have the minor's name on it, so we will not be able to tell him/her the results of these future research tests. The minor's leftover blood samples will not be sold or used for profit but may be shared with outside investigators after removal of all identifiers, without asking for your permission again. If you do not agree to long-term storage of the minor's blood samples, the minor can still take part in the survey. We will destroy the minor's blood samples after survey-related testing has been completed. If you agree today to store the minor blood but change your mind later in the next three years, you can call the number provided at the end of this consent form and have the minor's stored specimen destroyed. If you change your mind after three years, once the minor name is removed from the sample, we will not be able to destroy your sample. Any future studies conducted using your child's blood sample will be approved by the appropriate institutions overseeing those studies.

Finally, we would like your permission to ask the minor to take part in possible future research. If you and the minor agree, the minor's contact information will be retained by approved researchers. The minor may be contacted for a period of up to three years and invited to take part in future research if he or she still wants to. If you or the minor do not agree to take part in future research, the minor can continue to take part in the survey today.

Risks

During the interview, the minor may feel uncomfortable answering some of the questions. We do not wish this to happen, and he or she does not have to answer questions he/she feels are too personal or that make him/her feel uncomfortable.

The risks to the minor from having his or her 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 survey staff member who will take his or her blood has received training on how to draw blood. If he or she has any discomfort or any of the symptoms we've mentioned above, please let us know, and especially if there is any bleeding or swelling.

As with all surveys, there is a chance that confidentiality could be compromised. We will do everything we can to minimize this risk.

The minor may learn that he or she is HIV positive. Learning that he or she has HIV may cause some emotional and/or psychological distress. He or she will receive counseling on how to cope with learning that he or she has HIV. If he or she tests HIV positive, we will help identify where to go and explain the options available for care and treatment. Care and treatment are available at government facilities free of charge.

Benefits

The main benefit for the minor by taking part in the survey is the chance to learn more about his or her health today. Some people who take part will test HIV positive. If the minor tests HIV positive, the benefit is that the minor will learn where to go for HIV services. HIV care and treatment provided by the Ministry of Health is free. If the minor already knows he or she has HIV and is not on treatment, the minor will get information to start treatment. If the minor already knows he or she is HIV positive and is on HIV treatment, the viral load tests can help the minor nurse or doctor judge how well the treatment is working. If the minor tests HIV negative, the minor will learn about how he or she can stay HIV negative. The minor's taking part in this survey could help us learn more about HIV in Mozambique. It can also help us learn about how HIV prevention and treatment programs are working in the country. The minor's taking part is important, and the minor will be invited to participate even if the he or she already know he or she is HIV negative or positive.

Costs for being in the survey

There is no cost for the minor for being in the interview.

Privacy

We will do everything we can to keep the minor's taking part in the survey and his or her answers confidential. The information we collect from the minor will be identified by a number and not by his or her name. The information entered the tablet will be identified

only by the number. His or her name will not appear when we share study findings and study data. The data from this study will be released to the public without any identifiers, and this will not require another consent from you. His or her name and contact information will not be released outside of the survey groups listed unless there is an issue of safety.

(SKIP IF PARTICIPANT ALREADY COMPLETED THE HOUSEHOLD OR INTERVIEW CONSENT)

Confidentiality and access to your health information

The information the minor provided to me will be registered on this tablet, and all data on this tablet is password protected, meaning that no one can open and read the minor's responses unless they have the password and protection information. Access to the information from the survey will be restricted to the survey investigators listed below to help oversee the conduct of this survey.

The following individuals and/or agencies will be able to look at the minor's interview records to help oversee the conduct of this survey:

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

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a person taking part in a survey, including:
  - National Committee for Bioethics in Health of Mozambique (CNBS)
  - The Centers for Disease Control and Prevention (CDC; Atlanta, GA, USA)
  - Columbia University Medical Center
  - Westat (a statistical study research organization)
- 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 person taking part in this survey.
- Selected study staff and survey monitors.

Dissemination of survey results

Once we have collected all the data, reports summarizing all the findings will be published and will be available to the public.

Contact information of the Principal Investigator

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

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

Dr. Eduardo Samo Gudo (Principal Investigator) or Acácio Sabonete (Project Director)
Phone number: +258 878744967
Email: insida2020@gmail.com
From the National Institute of Health, in Marracuene, EN1, Parcela Nr. 3943, Maputo.

Contact information of the National Committee of Health Bioethics (CNBS)

This survey has received approval from the CNBS, the Centers for Disease Control and Prevention, and the Institutional Review Board of Columbia University Medical Center and of WESTAT. If you have issues related to injuries or other harms, and for questions about the process of agreeing to take part in this study or for more information about your rights as someone taking part in this study, you may contact:

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

CNBS (Phone number +258 824066350) – Ministry of Health, CNBS, corner of Eduardo Mondlane Avenue and Salvador Allende Avenue; C.P.264, Maputo.

[READ FROM HERE IF PARTICIPANT ALREADY COMPLETED THE HOUSEHOLD OR INTERVIEW CONSENT]

Do you want to ask me anything about the study?

CONSENT STATEMENT

Mozambique Population-based HIV Impact Assessment (INSIDA 2021)

I confirm that the interviewer read this consent form to me, and I have been offered a copy of this consent form. I know that the minor's participation in this research is voluntary, and he/she has the right to stop participating at any time. Any questions that I had have been answered satisfactorily.

1. Do you agree that we ask this minor to take part in the survey interview? 'YES' means that you give permission to the study team to ask this minor to take part in the interview. 'NO' means that you do not wish for the study team to ask this minor to take part in the interview.

☐ Yes   ☐ No

(IF PARENT OR GUARDIAN DOES NOT AGREE, THEN STOP)

2. Do you agree that we can approach this minor to give blood for HIV testing and other related testing and receiving the result of his or her HIV test? 'YES' means that you give permission for the study team to ask this child to give blood for HIV and related testing. 'NO' means that you do not wish for the study team to ask this child to take part in blood testing today.

☐ Yes   ☐ No

(IF PARENT OR GUARDIAN DOES NOT AGREE, GO TO QUESTION 4)

3. Do you agree to allow us to ask this minor to have his/her leftover blood stored for future research? 'YES' means that you give permission for the study team to ask this child to have his/her leftover blood stored for future research and analysis. 'NO' means that you do not wish for the study team to ask this minor to have his/her leftover blood stored for future research and analysis.

☐ Yes   ☐ No

4. Do you agree for us to ask this minor to retain his/her contact information for future research? 'YES' means that you give permission to the study team to ask this child to be contacted for future research agree. 'NO' means that you do not want the study team to ask this child if he/she wants to be contacted for future research.

☐ Yes   ☐ No

[Tablet summary statement]

To confirm, you have agreed to [INSERT ALL OPTIONS MARKED YES: INTERVIEW, BLOOD TESTING, BLOOD STORAGE, FUTURE RESEARCH]. Is this correct?

☐ Yes   ☐ No

COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT ANSWERED 'YES' TO AT LEAST ONE CONSENT STATEMENT

Parent/Legal guardian's signature _____   Date: ___/___/___

Printed name of Parent/legal guardian _____

Fingerprint of Parent/ Legal guardian who is not able to sign

Signature of person obtaining consent _____   Date: ___/___/___

Printed name of person obtaining consent_____   Survey staff INSIDA ID number _____

ASSENT FOR INDIVIDUAL INTERVIEW, BLOOD DRAW, BLOOD STORAGE AND, CONTACT FOR FUTURE RESEARCH (MINORS 15-17 YEARS)

TITLE OF SURVEY: THIS SURVEY IS CALLED THE MOZAMBIQUE POPULATION-BASED HIV IMPACT ASSESSMENT (INSIDA 2021)

Interviewer reads:

Hello. My name is_____ and I am a National Institute of Health Employee and one of the interviewers of the Mozambique Population-based HIV Impact Assessment (INSIDA). I would like to invite you to take part in this survey. Surveys help us learn new things. As a part of this survey, we are asking people questions about themselves and giving people a chance to learn if they have HIV.

This form talks about our survey and the choice that you must take part in it. Feel free to talk to anyone you trust about your participation on the survey before you agree to participate. 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 people in Mozambique. We will invite thousands of people 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 to this survey, but I would like to inform that it is up to you to decide if you want to participate or not.

Objectives of the survey

We are doing this survey to help us know more about HIV in Mozambique. The results of the survey will help us know how many people are living with HIV in Mozambique and is they are receiving care and treatment as recommended. We will also be able to better understand the behaviors that put people at risk of getting HIV.

Type of survey

This survey is planned to describe and measure the HIV situation in Mozambique. To do so, we will interview around 21.5 thousand people 15 years and older in about 11 thousand selected households.

Selection of participants

Your home was selected by chance to take part in the survey. And we are inviting every person in your home who is 15 years and older to participate in the survey.

Voluntary participation

You can decide not to take part in this survey. Your participation in this survey is voluntary. You can leave the survey at any time for any reason. If you decide to leave the survey, no more information will be collected from you.

What would happen if you join this survey?

If you decide to join the survey, here is what will happen:

- We will ask you questions about your age, what you know about HIV, and whether you have experience with behavior that may put you at risk of HIV and other diseases.

- The interview will take place in private space here in your house or a nearby private area around your house.

- The interview will take about 45 minutes.

- After we ask you the questions, if you have agreed, we will take some of your blood to test for HIV, and to store for future research tests.

- We will use a needle to take about 14 milliliters (about a tablespoonful) of blood from your arm into two tubes. If it is not possible to take blood from your arm, then we will try to take a few drops of blood from your finger.

- It will take about 45 minutes to do the test and to talk to you about the results. We will provide you pre and post HIV test counselling.

- If you test positive for HIV, we will do more tests in your blood. We will measure the amount of HIV in your blood. We will also measure the amount of cell in your immune system that fight the HIV infection. 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 Mozambique that can do these tests.

- You may be eligible to take part in future studies related to health in Mozambique. We are asking for your permission to contact you in the next three years if such an opportunity occurs. To do this, approved researchers will be able to request access to your contact information. If 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 taking part in this survey.

- 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 Mozambique. Your sample will be stored for an indefinite amount of time, but your name will be on the sample for only three years. We will attempt to tell you about any test results during the three-year period that are important to your health. After the three-year period, the sample will not have your name on it, so we will not be able to tell you the results of these future research tests. Your leftover blood will not be used for anything other than these tests. Your blood will not be sold. After removing your personal information, the results of these tests may be shared with people outside the study, without asking for your permission again. If you do not agree to future storage and testing of your blood, we will discard your blood after survey-related testing has finished and you can still receive your test results and conduct the survey interview. If you agree today to let us store your blood but change your mind later in the next three years, you can call the number provided at the end of this consent form and have your stored specimen destroyed. If you change your mind after three years, once your name is removed from the sample, we will not be able to destroy your sample. Any future tests done with your blood sample will be approved by the appropriate institutions overseeing those studies.

Could bad things happen if you 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 you can stop at any time if you wish.

The needle may hurt when it is put into your arm. This pain will go away quickly. Sometimes the needle can leave a bruise on the skin. You might bleed a little or feel a little dizzy. Rarely, an infection might occur where the needle enters the skin. We may have to try more than one time in order to get the right amount of blood, although we know that rarely happens. We will do our best to make it as painless as possible.

You may learn that you have HIV. Learning that you have HIV may cause you to feel worried. We will talk to you and try to make you feel better to help you with this. We will not tell anyone else about what we talked about, but there is a small chance other people might find out. As with all survey, there is a chance that confidentiality could be compromised. We will do everything we can to minimize this risk.

Could the survey help me?

Being in the survey may help you by learning whether you have HIV. We will give you the results of your HIV test and provide counseling to you. We will discuss with you how to share these results with your parent/guardian, if you decide to do so. If you test positive for HIV, you will learn about it and you will learn where to go for care and treatment of HIV. Care and treatment provided by the Government of Mozambique is free. Your taking part in this survey will help us learn more about HIV in Mozambique.

Costs for being in the survey

There is no cost to you for being in the survey.

Privacy

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

Confidentiality and access to your health information

The information you will provide to me will be kept on this tablet. All information on this tablet is protected by a password. It means that no one can open and access or read your responses unless the person has the password. The information from the survey will only be seen by few people from the agencies listed below. These agencies help oversee the conduct of this survey.

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

· Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a person taking part in a survey, including:
  · National Committee for Bioethics in Health of Mozambique (CNBS)
  · The Centers for Disease Control and Prevention (CDC; Atlanta, GA, USA)
  · Columbia University Medical Center
  · Westat (a statistical study research organization)
· The United States Office of Human Research Protections and other government agencies that oversee the safety of human subjects to ensure we are protecting your rights as a person taking part in this survey
· Selected study staff and study monitors.

Dissemination of survey results

Once we have collected all the data, reports summarizing all the findings will be published and will be available to the public.

Whom should you contact if you have questions?

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

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

Dr. Eduardo Samo Gudo (Principal Investigator) or Acácio Sabonete (Project Director)
Phone number: +258 878744967
Email: insida2020@gmail.com
From the National Institute of Health, in Marracuene, EN1, Parcela Nr. 3943, Maputo.

Contact information of the National Committee of Health Bioethics (CNBS)

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

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

CNBS (Phone number +258 824066350) – Ministry of Health, CNBS, corner of Eduardo Mondlane Avenue and Salvador Allende Avenue; C.P.264, Maputo.

Do you want to ask me anything about:

· The interview?
· Testing in the laboratory?
· Storage of blood?
· Contact for future research?

ASSENT STATEMENT

Mozambique Population-based HIV Impact Assessment (INSIDA 2021)

Any questions that I had were answered satisfactorily. I have been offered a copy of this consent form.

1. Do you agree to take part in the survey interview? 'YES' means that you agree to take part in the survey interview. 'NO' means that you will NOT take part in the survey interview.

☐ Yes ☐ No

(IF PARTICIPANT DOES NOT AGREE, THEN STOP)

2. Do you agree to give blood for testing? 'YES' means that you agree to give blood for HIV testing and related testing and receiving the result of your HIV test. 'NO' means that you will NOT give blood for testing.

☐ Yes ☐ No

(IF PARTICIPANT DOES NOT AGREE, THEN GO TO QUESTION 4)

3. Do you agree to have your leftover blood stored? 'YES' means that you agree to have these blood samples stored for future research and analysis. 'NO' means that you do not agree to have these blood samples stored for future research and analysis.

☐ Yes ☐ No

4. Do you agree to be contacted for future research? 'YES' means that you agree to be contacted for future research. 'NO' means that you don't want to be contacted for future research.

☐ Yes ☐ No

[Tablet summary statement]

To confirm, you have agreed to [INSERT ALL OPTIONS MARKED YES: INTERVIEW, BLOOD TESTING, BLOOD STORAGE, FUTURE RESEARCH]. Is this correct?

☐ Yes ☐ No

COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT ANSWERED 'YES' TO AT LEAST ONE CONSENT STATEMENT

Minor's signature _____ Date: __/__/__

Fingerprint of minor who is not able to sign

Printed name of minor _____

Signature of person obtaining consent _____ Date: __/__/__

Printed name of person obtaining consent _____ Survey staff INSIDA ID number _____

CONSENT TO RETURN TEST RESULTS BY NAME AND AGE FOR PARTICIPANTS 15+ YEARS

TITLE OF SURVEY: THIS SURVEY IS CALLED THE MOZAMBIQUE POPULATION-BASED HIV IMPACT ASSESSMENT (INSIDA 2021)

PLEASE, NOTE THAT THIS FORM WILL BE READ TO ALL HIV-POSITIVE PARTICIPANTS DURING POST-COUNSELLING

Purpose of consent

You HIV test today is positive. As mentioned earlier, we will send your blood to a laboratory to measure your viral load and CD4 count. Viral load is the amount of HIV in your blood. The CD4 cells are the part of the immune system that fights HIV infection and other diseases. These results will be sent to the health facility you have chosen as soon as possible but no later than 12 weeks. For the health facility staff to be able to provide the results to you and use them to make sure you get the right care we would like your consent to add your name and age to your test results.

What do you have to do if you agree to have your name and age in the test results?

If you agree, your name and age will be added to your test results and the results will be sent to the health facility you have chosen. If you provided your contact information, we will contact you informing that the results are available at the health facility. You will take the National referral form to the heath facility and the health facility staff will be able to locate your test results by using your name and age.

What will happen if you do not agree to have your name and age in the test results?

If you do not agree to have your name and age in the test results, your test results will be sent to the health facility with your survey identification number instead. If you provided your contact information, we will contact you informing that the results are available at the health facility. You will take the PTID card to the heath facility and the health facility staff will be able to locate your test results by using your survey identification number.

What about confidentiality?

Your HIV test result will not be shared with anyone aside from the health facility staff who will provide you the results. They will also do their best to keep your confidentiality. However, we cannot guarantee complete confidentiality.

What are the potential risks?

As with all surveys, there is a chance that confidentiality could be compromised. We will do everything possible to minimize this risk.

What are the potential benefits?

If you allow us to return your test results using your name and age, the health facility staff will be able to make sure the results get to you, even if you lose or forget your PTID card.

Whom should you contact if you have questions?

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

[INTERVIEWER: INDICATE ADDRESS OF POC DO NOT READ ALOUD]

Dr. Eduardo Samo Gudo (Principal Investigator) or Mr. Acácio Sabonete (Project Director)
Phone number +258 878744967
Email: insida2020@gmail.com)
From the National Health Institute, in Marracuene, EN1, Parcela Nr. 3943, Maputo.

For questions about the process of agreeing to take part in this study, to share your information, and to be contacted, or for more information about your rights as someone taking part in this study, you may contact:

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

CNBS (Phone number +258 824066350) – Ministry of Health, CNBS, corner of Eduardo Mondlane Avenue and Salvador Allende Avenue; C.P.264, Maputo.

CONSENT STATEMENT

Mozambique Population-based HIV Impact Assessment (INSIDA 2021)

Any questions that I had were answered satisfactorily. I have been offered a copy of this consent form.

1. Do you agree to allow the study team to add your name and age to the test results to be sent to the heath facility of your choice?

☐   Check this box if participants agrees for their name and age to be added to the test results.

☐   Check this box if participant refuses to let us add their name and age to the test results.

COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT AGREED TO HAVE THEIR NAME AND AGE ADDED TO THE TEST RESULTS

If you agree to have your information shared with a trained health care workers or counselors, please sign or insert your fingerprint in the following statement:

Participant's signature_____   Date: ___/___/___ | Fingerprint of Participant who is not able to sign |

Printed name of Participant_____

Signature of person obtaining consent _____   Date: ___/___/___

Printed name of person obtaining consent_____   Survey staff INSIDA ID number _____

CONSENT TO SHARE CONTRACT INFORMATION FOR ACTIVE LINKAGE TO CARE

TITLE OF SURVEY: THIS SURVEY IS CALLED THE MOZAMBIQUE POPULATION-BASED HIV IMPACT ASSESSMENT (INSIDA 2021)

Purpose of consent

Your HIV test today is positive, and you are not yet receiving treatment. We have provided you with counselling regarding this result and a referral form to take to a health facility and seek HIV treatment and care. We would like to help you in accessing the healthcare that you need. If you agree, we will provide your contact information and HIV test result to the healthcare workers or counselors from the health facility or relevant service organization. This staff will contact you to talk to you about HIV and help you get the HIV care you need. Anyone who is provided with your details will be experienced in providing support to people living with HIV and will be trained in maintaining confidentiality.

What do you have to do if you agree to have your information shared?

If you agree for your information to be shared and to be contacted, we will provide your name, phone number (if you provided it to us), and your address to those providers and organizations to provide you with support. The provider of care may contact you by SMS, phone, or in person.

What about confidentiality?

Your HIV test result and your contact information will not be shared with anyone aside from what is indicated in this consent form. They will also do their best to keep your confidentiality. However, we cannot guarantee complete confidentiality.

What are the potential risks?

As with all surveys, there is a chance that confidentiality could be compromised. We will do everything possible to minimize this risk.

What are the potential benefits?

A health worker or counselor will assist you in accessing the healthcare that you need.

Whom should you contact if you have questions?

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

[INTERVIEWER: INDICATE ADDRESS OF POC DO NOT READ ALOUD]

Dr. Eduardo Samo Gudo (Principal Investigator) or Acácio Sabonete (Project Director)
Phone number: +258 878744967
Email: insida2020@gmail.com
from the National Health Institute, in Marracuene, EN1, Parcela Nr. 3943, Maputo.

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

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

CNBS (Phone number +258 824066350) – Ministry of Health, CNBS, corner of Eduardo Mondlane Avenue and Salvador Allende Avenue; C.P.264, Maputo.

Do you want to ask me anything about the study?

CONSENT STATEMENT

Mozambique Population-based HIV Impact Assessment (INSIDA 2021)

Any questions that I had were answered satisfactorily. I have been offered a copy of this consent form.

1. Do you agree to allow the study team to share your contact information with a trained health care workers or counselors?

☐ Check this box if participant agrees to share his/her contact information.

☐ Check this box if participant refuses to share his/her contact information.

(IF PARTICIPANT AGREES TO SHARE CONTACT INFORMATION PROCEED TO QUESTION 2)

2. Do you agree to be contacted by:

SMS? _____Yes _____No

Phone call? _____Yes _____No

In person? _____Yes _____No

Summary Statement

To confirm, you have agreed to [INSERT ALL OPTIONS MARKED YES: SHARE, SMS, PHONE, IN-PERSON]. Is this correct? _____

☐ Yes ☐ No

COMPLETE REMAINDER OF FORM ONLY IF PARTICIPANT ANSWERED 'YES'

If you agree to have your information shared with a trained health care workers or counselors, please sign or insert your fingerprint:

Participant's signature_____ Date: ___/___/___

Fingerprint of Head of Participant who is not able to sign

Printed name of Participant_____

Signature of person obtaining consent _____ Date: ___/___/___

Printed name of person obtaining consent_____ Survey staff INSIDA ID number _____

Mozambique Population-based HIV Impact Assessment 2021
(INSIDA 2021)

Contact info
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Distrito de Marrucuene
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Moçambique
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