

TANZANIA HIV IMPACT SURVEY
(A POPULATION-BASED HIV IMPACT ASSESSMENT)
THIS 2016-2017

FINAL REPORT
DECEMBER 2018

Tanzania HIV Impact Survey (THIS) 2016-2017

THIS 2016-2017 COLLABORATING INSTITUTIONS

Tanzania Commission for AIDS (TACAIDS)

Zanzibar AIDS Commission (ZAC)

Ministry of Health, Community Development, Gender, Elderly and Children, Mainland Tanzania (MoHCDGEC)

Zanzibar Integrated HIV, Hepatitis, Tuberculosis and Leprosy Program (ZIHHTLP), Ministry of Health Zanzibar

The United States President's Emergency Plan for AIDS Relief (PEPFAR)

The United States Centers for Disease Control and Prevention (CDC), Atlanta

National Health Laboratory Quality Assurance and Training Center (NHL-QATC)

National AIDS Control Programme (NACP)

National Bureau of Statistics (NBS)

Office of the Chief Government Statistician (OCGS)

ICAP at Columbia University

Westat

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GLOSSARY OF TERMS

90-90-90: Ambitious global HIV program targets proposed by UNAIDS and adopted by each country. By 2020, 90% of all people living with HIV (PLHIV) will know their HIV status; 90% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy (ART); and 90% of all people receiving ART will have viral load (VL) suppression (VLS).

Acquired Immunodeficiency Syndrome (AIDS): AIDS is a disease caused by infection with HIV. AIDS is the result of severe damage to the immune system, making the body vulnerable to life-threatening infections and cancers.

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

CD4+ 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 and can be used to determine the need for and response to ART.

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

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

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

HIV Incidence: A measure of the frequency with which new cases of HIV occur in a population over a period of time.

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

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

HIV Viral Load Suppression: An HIV viral load of less than 1,000 copies/mL, which is identified as the threshold for treatment success by WHO's consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection.¹

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

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

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

Prevention of Mother-to-Child-Transmission (PMTCT): Mother-to-child transmission (MTCT) is when an HIV-positive woman passes HIV to her baby during pregnancy, labor, delivery, or while breastfeeding. The United Nations recommends effective PMTCT to include a four-fold 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, their children, and families.

Primary Sampling Units: Primary sampling unit refers to sampling units that are selected in the first (primary) stage of a multistage sample ultimately aimed at selecting individual elements.

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

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

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

References

1. UNAIDS, World Health Organization. *Guidelines on monitoring the impact of the HIV epidemic using population-based surveys*. Geneva: World Health Organization; 2015.
<http://www.who.int/hiv/pub/guidelines/si-guidelines-population-survey/en>. Accessed November 27, 2018.

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
Anti-HCV	Hepatitis C Virus Antibody
ART	Antiretroviral Therapy
ARV	Antiretroviral
CDC	U.S. Centers for Disease Control and Prevention
CD4	CD4+ T-cell
CI	Confidence Interval
CLHIV	Children Living with HIV
DBS	Dried Blood Spot
DNA	Deoxyribonucleic Acid
DTS	Dried Tube Specimens
EA	Enumeration Area
EIA	Enzyme Immunoassay
EID	Early Infant Diagnosis
HBsAg	Hepatitis B Surface Antigen
HBTC	Home-Based Testing and Counselling
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
HSSP III	Health Sector Strategic Plan III
ID	Identification
IQR	Interquartile range
LAg	Limiting Antigen
MDRI	Mean Duration of Recent Infection
µL	Microliter
mL	Milliliter
MOH	Ministry of Health
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MTCT	Mother-to-Child Transmission
NACP	National AIDS Control Programme
NBS	National Bureau of Statistics
NHL-QATC	National Health Laboratory Quality Assurance and Training Center
OCGS	Office of the Chief Government Statistician
PCR	Polymerase Chain Reaction
PEPFAR	U.S. President's Emergency Plan for AIDS Relief

PFR	Proportion False Recent
PHIA	Population-Based HIV Impact Assessment
PLHIV	People Living with HIV
PMTCT	Prevention of Mother-to-Child Transmission
POC	Point of Care
PPS	Probability Proportional to Size
QA	Quality Assurance
QC	Quality Control
RR	Response Rate
STI	Sexually Transmitted Infection
TACAIDS	Tanzania Commission for AIDS
THIS	Tanzania HIV Impact Survey
THMIS	Tanzania HIV/AIDS and Malaria Indicator Survey
TNA	Total Nucleic Acid
UNAIDS	Joint United Nations Programme on HIV and AIDS
VL	Viral Load
VLS	Viral Load Suppression
VMMC	Voluntary Medical Male Circumcision
WG	Working Group
WHO	World Health Organization
ZAC	Zanzibar AIDS Commission
ZIHHTLP	Zanzibar Integrated HIV, Hepatitis, Tuberculosis and Leprosy Program Ministry of Health Zanzibar

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FOREWORD

The Tanzania HIV Impact Survey 2016-2017 (THIS) is the fourth in a series of household-based human immunodeficiency virus (HIV) surveys. The first ever household-based HIV survey was the 2003-04 Tanzania HIV/AIDS Indicator Survey, the second was the Tanzania HIV/AIDS and Malaria Indicator Survey (THMIS) conducted in 2007-08, and this was followed by the 2011-12 Tanzania HIV/AIDS and Malaria Indicator Survey.

All of these surveys were designed to provide information on numerous HIV and related indicators for the United Republic of Tanzania. In addition, the surveys provided similar data on HIV indicators disaggregated for Tanzania mainland, Zanzibar, and each of the 31 regions of the United Republic of Tanzania.

THIS is the first national HIV survey that covered populations of all ages and other indicators that were not part of the three surveys conducted previously in the country. These additional indicators included: HIV incidence, CD4 T-cell count, viral load (VL) suppression (VLS), antiretroviral (ARV) drug resistance and presence of ARV drugs in the blood; HIV prevalence among children aged 0-9 years, early adolescent children aged 10-14 years, and elders aged 50 years and older; and the prevalence of syphilis, acute or chronic hepatitis B, and past or current hepatitis C.

Additionally, THIS obtained indicators to measure progress toward the Joint United Nations Programme on HIV/AIDS (UNAIDS) 90-90-90 goals:

- 90% of people living with HIV (PLHIV) know their status
- 90% of those who know their status are on antiretroviral therapy (ART), and
- 90% of those on ART have suppressed viral loads).

THIS was led by the Government of Tanzania through the Tanzania Commission for AIDS (TACAIDS) and Zanzibar AIDS Commission (ZAC), and the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC), the Ministry of Health Zanzibar (MoH), National Bureau of Statistics (NBS) and the Office of Chief Government Statistician (OCGS). THIS was conducted with funding from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and technical assistance through the U.S. Centers for Disease Control and Prevention (CDC) and ICAP at Columbia University.

The survey was implemented by NBS, OCGS, and ICAP in collaboration with local partners, including the National Health Laboratory - Quality Assurance and Training Center (NHL-QATC), the National AIDS Control Programme (NACP), and the Zanzibar Integrated HIV, Tuberculosis and Leprosy Program (ZIHTLP).

This report is meant to present detailed survey findings covering all primary and secondary survey objectives of THIS. The descriptive statistics and the accompanying analyses furnish the government, stakeholders, and general public, with official statistics for use in planning, policy making, monitoring, and evaluating programmes on HIV and hepatitis.

I would like, therefore, to encourage policy makers, planners, program managers, and other stakeholders who work in the area of HIV/AIDS and other communicable and related diseases in the country, to use

these findings to make informed policy decisions based on the current statistics presented in this report and through further analyses of the rich dataset that resulted from the survey.



Dr. Leonard L. Maboko
Executive Director, Tanzania Commission for AIDS

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SUMMARY OF KEY FINDINGS

The Tanzania HIV Impact Survey 2016-2017 (THIS) is a nationally representative, cross-sectional, population-based survey of households across the United Republic of Tanzania. It focused on measuring key biological endpoints to provide direct estimates of HIV risk and burden, and of the effectiveness and population-level impact of HIV-related prevention, care, and treatment interventions implemented in the country. The primary objectives of THIS were to estimate the national-level annual HIV incidence among adults aged 15 years and older, and the subnational prevalence of viral load (VL) suppression (VLS), defined as HIV ribonucleic acid (RNA) less than 1,000 copies/milliliter (mL), among HIV-positive adults. Secondary objectives of THIS were to measure national and regional adult HIV prevalence; national and regional distribution of CD4 counts; detection of ARVs in blood; national prevalence of transmitted HIV drug resistance; national pediatric HIV prevalence; progress toward the 90-90-90 targets defined by UNAIDS; and national prevalence of syphilis, hepatitis B (HBV) infection and hepatitis C virus (HCV) infection. THIS is the first national survey to conduct these measurements in Tanzania. The survey also collected information on behaviors associated with HIV acquisition and transmission, common HIV comorbidities, and other health conditions. The “90-90-90” refer to targets set by UNAIDS to achieve control of the HIV epidemic by 2020 and are defined as 90% of all people living with HIV (PLHIV) will know their HIV status; 90% of all people with diagnosed HIV infection will receive sustained ART; and 90% of all people receiving ART will have VLS.

The design used in THIS was a two-stage, stratified cluster sample design, in which census enumeration areas (EA) [clusters] were selected in the first stage, and households in the second stage. The sample was stratified by the 31 regions in Tanzania (mainland and Zanzibar). Data collection was conducted between October 2016 and August 2017. The survey interviewed 14,811 households. In the households surveyed, 36,087 adults aged 15 years and older and 10,452 children aged 0-14 years (7,477 children aged 0-9 years and 2,975 early adolescents aged 10-14 years) were eligible to participate in the survey. Altogether, 33,004 (91.5%) of the eligible adults were interviewed, and of those interviewed, 31,579 (95.7%) had blood drawn for biomarkers assessment to determine HIV and syphilis status. Among those aged 0-14 years, 97.0% (10,141) of eligible children were interviewed and 94.8% of those (9,616) had blood drawn for biomarkers assessment to determine HIV status. Among those aged 10-14 years, biomarker assessment also included syphilis testing, which contributed to estimates of syphilis prevalence. A subset of 1,310 adults were tested for hepatitis B surface antigen (HBsAg), indicative of acute or chronic HBV infection and 4,874 adults were tested for HCV antibody (anti-HCV) indicative of previous infection with HCV or current acute or chronic hepatitis C.

Home-based HIV testing and counseling (HBTC) with return of results was conducted for HIV and syphilis results, and point-of-care (POC) CD4 count was measured for those who tested HIV positive. All HIV VL results and results showing hepatitis B infection were returned to participants through health facilities of their choice. The estimates generated from THIS have been weighted to account for sample selection probabilities and adjusted for nonresponse and noncoverage. Analysis weights accounted for sample selection probabilities and were adjusted for nonresponse and noncoverage.

The key findings of THIS were:

- Tanzania has made considerable progress towards achievement of the UNAIDS 90-90-90 targets in adults aged 15 years and older, particularly in linkage to and retention in HIV treatment, demonstrated by the 2nd and 3rd 90s: 93.6% of adults who are aware of their HIV-positive status are

on ART and 87.0% of adults who are on ART have suppressed viral loads. However, based on self-reported HIV status and ARV detection data, it is estimated that among adults aged 15 years and older living with HIV, only 60.6% were aware of their HIV-positive status. Awareness of HIV-positive status was lower among young people aged 15-24 years, at 50.2%.

- Annual incidence of HIV infection among adults aged 15 years and older was 0.24% (95% confidence interval [CI]: 0.15% - 0.33%), which corresponds to 24 new HIV infections for every 10,000 persons in a year, and to approximately 72,000 new cases of HIV infection among adults aged 15 years and older in the country every year.
- The overall prevalence of VLS among adults, aged 15 years and older, living with HIV was 51.9%: 57.2% among women and 41.5% among men.
- HIV prevalence among adults aged 15 years and older was 4.9%: 6.3% among females and 3.4% among males. This corresponds to approximately 1.4 million PLHIV in Tanzania. Prevalence varied across the 31 regions, ranging from 0.0% in Kusini Unguja and Kaskazini Pemba, to 11.3% in Iringa, and 11.4% in Njombe. HIV prevalence among adults aged 15-49 years was 4.7%.
- HIV prevalence among children aged 0-14 years was 0.4%. Based on parents' report and ARV detection data, it is estimated that among children aged 0-14 years living with HIV, 50.1%* had been diagnosed with HIV. The overall VLS among children living with HIV (CLHIV) aged 0-14 years, (irrespective of awareness of HIV-positive status or ART status) was 18.4%*.
- Among HIV-positive males aged 15 years and older, over half of those residing in urban (53.0%) and rural (55.8%) areas were not aware of their HIV-positive status based on self-report. Among HIV-positive females aged 15 years and older, 39.0% and 50.9% of those residing in urban and rural areas, respectively, were not aware of their HIV status based on self-report.
- Concordance between self-report of ART and detection of ARVs was high among HIV-positive individuals aged 15 years and older, with 94.9% of those who reported current ART use having detectable ARVs in their blood. However, 9.7% of those who self-reported not being previously diagnosed with HIV had detectable ARVs in their blood, indicating underreporting of HIV status.
- Immunosuppression (median CD4 count of less than 500 cells/microliter [μ L]) was higher among those living with HIV who had not been diagnosed (68.7%) compared to those who are diagnosed and on ART (54.6%). Among individuals unaware of their HIV-positive status, 45.1% and 19.8% had median CD4 cell count <350 (advanced immunosuppression) and <200 cells/ μ L (severe immunosuppression), respectively.
- Among females aged 15-49 years who gave birth within 12 months preceding the survey, 92.4% were aware of their HIV status, and among those who were aware of their HIV-positive status, 97.9% self-reported to have received ARVs, which indicates high coverage of ART provision for the prevention of mother-to-child transmission of HIV (PMTCT).
- Approximately half (51.9%) of HIV-positive women are first initiated on ARVs during pregnancy. Given the high numbers of infections in young women, there could be more emphasis on diagnosis and treatment of women before they begin childbearing.
- Among infants under the age of 18 months born to HIV-positive females aged 15-49 years, 10.5%* were confirmed to be living with HIV based on virological testing.
- One in ten (9.9%) households in Tanzania had at least one HIV-positive household member. Prevalence of HIV is nearly two and a half times higher among female heads of household (12.0%) than among male heads of household (4.8%).
- Half (50.0%) of males aged 15 years and older had sex with a nonmarital, noncohabitating partner in the 12 months preceding the survey. Among these males, 34.9% reported use of a condom during their last sexual encounter with the partner. Among females aged 15 years and older, 33.5% reported having sex with a nonmarital, noncohabitating partner in the 12 months preceding the survey. Among these females, 27.3% reported use of a condom during their last sexual encounter with the partner.

- Among adults aged 15 years and older, 25.6% reported discriminatory attitudes towards PLHIV (responded “No” to either of the two questions used to assess discriminatory attitudes). Discriminatory attitudes were higher in rural settings (30.7%) than in urban ones (17.3%). More than a third (36.9%) of young persons (ages 15-24 years) identified common misconceptions about HIV.
- Among males aged 15-49 years, 52.6% reported to have undergone medical circumcision, 26.4% to have undergone a non-medical circumcision, and 18.5% reported being uncircumcised. Circumcision coverage rates varied by region (40.6% in Songwe to - 96.9% in Kilimanjaro%) and marital status (82.0% compared to 74.8% for never married and married or living together, respectively).
- Less than a fifth (17.7%) of HIV-positive females aged 30-49 years reported ever having been screened for cervical cancer.
- About a quarter (27.7%) of HIV-positive adults ever visited a tuberculosis (TB) clinic. About half (54.2%) of them were diagnosed with TB and almost all (98.7%) of those diagnosed with TB were treated.
- Prevalence of active syphilis infection was 0.9% in adults aged 15 and older: 3.7% in HIV-positive and 0.8% in HIV-negative adults.
- Prevalence of HBV infection, measured through Hepatitis B Surface Antigen (HBsAg) test, was 3.5% among adults aged 15 years and older. Hepatitis B infection prevalence was 5.2% in HIV-positive and 3.4% in HIV-negative adults aged 15 years and older.
- Prevalence of past or present HCV infection, measured through anti-HCV was 1.0% in adults aged 15-64 years: 0.5% in HIV-positive and 1.0% in HIV-negative adults.

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

The results from THIS indicate that HIV continues to cause a significant burden of disease in Tanzania. Although there has been remarkable progress toward the achievement of the UNAIDS 90-90-90 targets in adults, progress in the pediatric population is not comparable. The major challenge in both populations remains diagnosis, and a critical priority is to identify and link to care those infected but unaware of their HIV status. An additional critical priority is to urgently address very low rates of VLS among CLHIV.

1 INTRODUCTION

1.1 Background

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

In Tanzania, the survey was branded as the Tanzania HIV Impact Survey 2016-2017 (THIS) and was led by the Government of Tanzania through the Tanzania Commission for AIDS (TACAIDS) and Zanzibar AIDS Commission (ZAC), the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) and the Ministry of Health—Zanzibar (MOH), with technical assistance from the U.S. Centers for Disease Control and Prevention (CDC). The survey was implemented by the National Bureau of Statistics (NBS) in Tanzania mainland and the Office of Chief Government Statistician—Zanzibar (OCGS), and ICAP at Columbia University in collaboration with local partners, including the National Health Laboratory—Quality Assurance and Training Center (NHL-QATC), the National AIDS Control Programme (NACP), and the Zanzibar Integrated HIV, Hepatitis, Tuberculosis and Leprosy Program (ZIHHTLP).

1.2 Overview of THIS

A household-based national survey, THIS was conducted between October 2016 and August 2017 to measure the status of Tanzania's national HIV response. It offered home-based HIV testing and counseling (HBTC) with return of results and collected information about uptake of HIV care and treatment services. This survey is the first in Tanzania to measure national HIV incidence, viral load suppression (VLS) prevalence, pediatric HIV prevalence, CD4 count distribution, presence of antiretrovirals (ARVs) in blood, and transmitted HIV drug resistance. The survey also collected information on selected behaviors associated with HIV acquisition and transmission, common HIV comorbidities, including current hepatitis B virus (HBV) infection and past or present hepatitis C virus (HCV) infection, syphilis, and other health conditions.

Although facility-based sentinel surveillance and the population-based studies conducted previously, such as the Tanzania HIV/AIDS Indicator Survey (2003-04) and the Tanzania HIV/AIDS and Malaria Indicator Survey (2007-08 and 2011-12), have provided useful knowledge regarding Tanzania's HIV epidemic and HIV-control efforts, information critical to understand the current status of the epidemic and guide future interventions was limited. With its focus on directly measuring key biological endpoints, such as new HIV infections within the last year and viral load (VL) in a nationally representative sample of the population, THIS provides direct estimates of HIV-infection risk and burden. It also provides estimates of the effectiveness and population-level impact of the prevention, care, and treatment interventions implemented in the country and progress toward the achievement of the UNAIDS 90-90-90 targets.

1.3 National Policy on HIV/AIDS

The HIV/AIDS epidemic is a national public health threat affecting Tanzanian society economically, politically, socially, and culturally. The Government of Tanzania is committed to the national vision of freeing the country from the epidemic and having a generation live without fear of HIV and the acquired immunodeficiency syndrome (AIDS). This vision will be attained in line with the UNAIDS vision of three zeros: zero new HIV infections, zero discrimination, and zero AIDS-related deaths.

The Government of Tanzania has made substantial progress in HIV/AIDS prevention, care, treatment, and impact mitigation. Progress has been made in resource mobilization, communication, advocacy, and community participation. The government continues to increase the level of funding for the national response to HIV/AIDS in its annual budget and through collaboration with national and international communities.

The government has faced social, economic, and development challenges resulting from the HIV/AIDS epidemic and has made various efforts to address these challenges. This work requires a concerted, multidisciplinary effort from all HIV/AIDS stakeholders at all levels, including government and nongovernment, civil society organizations (CSOs), communities, and individuals. Under the Prime Minister's Office, TACAIDS is mandated to provide strategic leadership and coordination of the HIV/AIDS national response through development of a strategic framework and national guidelines for HIV. The development of the National Guidelines on HIV Prevention Strategy (Prime Minister's Office: TACAIDS, 2010) and the National Stigma and Discrimination Reduction Strategy (Prime Minister's Office: TACAIDS, 2012a) are the government's road maps to curbing the epidemic. The revised National HIV Policy 2011, the National Multisectoral Strategic Framework (2013-2017), and the fourth National Multisectoral Strategic Framework (2018-2023) are the guiding tools for the implementation of HIV activities (Prime Minister's Office: TACAIDS, 2012b; Prime Minister's Office: TACAIDS, 2012c; and Prime Minister's Office: TACAIDS, 2018). These documents are developed in line with international guidelines on HIV and human rights to ensure the accountability of the government and other stakeholders (the private sector, development partners, CSOs, and the community) in their actions within the national HIV/AIDS response.

The Health Sector Strategic Plan III (HSSP III) was a cross-cutting strategic plan for the health sector of Tanzania for the period July 2009-June 2015. It provided an overview of the priority strategic directions across sectors, guided by Vision 2025, the National Strategy Growth and Reduction of Poverty (MKUKUTA in Kiswahili), the Millennium Development Goals, and the National Health Policy. It served as the guiding document for development of council and hospital strategic plans and annual work plans. The formulation process of the HSSP III was led by the Health Sector Reform Secretariat under the Division of Policy and Planning, MoHCDGEC. The process involved key stakeholders from ministries, departments, and agencies as well as the participation of the private sector and development partners.

The subsequent Health Sector Strategic Plan IV (HSSP IV) 2015-2020¹, was developed to build on the successes of the third strategic plan and address remaining challenges and bottlenecks. It emphasizes the quality of health services, aiming to ensure that all households have access to and utilize preventive, curative, and promotional health services of the highest quality, including for HIV. In tandem with this priority, the fourth HIV strategic plan aims at ensuring that the entire population of Tanzania has access to high quality HIV prevention, care, and treatment services. It introduced the monitoring of the HIV care and treatment cascade to measure the progress and impact of the HIV response in Tanzania.

1.4 National Policy on Viral Hepatitis

Prevention of transmission

Prior to THIS, there was no national data on the burden of viral hepatitis in Tanzania. However, sub-population studies in different parts of the country showed the prevalence of HBV to range between 4.4-11.2%.² Analysis of data on blood screening from 2007 to 2016 at the National Blood Transfusion Service revealed a prevalence of 6.2% of HBsAg among blood donors.³ Hepatitis B vaccination is part of the routine childhood immunization program in Tanzania. There is a national policy on injection safety in healthcare settings, an infection control policy for blood banks, and all donated blood and blood products nationwide are screened for HBV and HCV. A national policy and guidelines relating to the prevention of viral hepatitis are under development. The draft 2017-2021 national strategic plan and guidelines for the control of viral hepatitis, define the guiding principles and strategies for the control and treatment of viral hepatitis in Tanzania.⁴ The plan focuses on hepatitis B and hepatitis C, owing to the relative public health burden they represent compared to viral hepatitis A, D, and E. Data from THIS will help to guide the identification of the target population(s) and the prioritization of interventions.

Screening, care, and treatment

Healthcare professionals in Tanzania obtain the skills and competencies required to effectively care for people with viral hepatitis through on-the-job training. There are national clinical guidelines for the management of viral hepatitis, which include recommendations for cases with HIV co-infection.⁵ Hepatitis B and hepatitis C testing are free of charge for blood donors and for people with HIV and other chronic illnesses. This may actually lead to the under-diagnosis of clinical hepatitis B and hepatitis C in HIV-negative individuals who are not blood donors. Hepatitis B and hepatitis C testing are compulsory in blood donation, but there is no system to actively refer those who test positive for either of the two diseases to care and management. Publicly-funded treatment is not available for hepatitis B or hepatitis C. Tenofovir, used for the treatment of HBV, is included on the national essential medicines list and is subsidized by the government. Drugs for the treatment and cure of HCV are not included on the national essential medicines list or subsidized by the government.

1.5 National Policy on STIs (Syphilis)

The Government of Tanzania recognizes that the identification and treatment of sexually transmitted infections (STIs) is an important aspect of public health. Through a comprehensive approach of providing specialized training to healthcare workers and increased opportunities for counselling and screening. The National STI guidelines (June 2017) recommend screening for syphilis in pregnant females at the first antenatal care (ANC) visit, or as early as possible and to repeat screening in the third trimester, resources permitting, to detect infection acquired during the pregnancy.⁶ The guidelines also recommends testing during labor for females who do not attend ANC. They also recommend screening for syphilis among clients with STI syndromes other than genital ulcer. Data from ANC surveillance among pregnant females revealed an overall syphilis prevalence of 2.5 % in 2003 and 2004.⁷

1.6 Sustainable Development Goals (SDGs)

One of the targets of the SDGs related to health (SDG 3: Ensure healthy lives and promote wellbeing for all at all ages) is to, by 2030, end the epidemics of AIDS, TB, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases.⁸ Two particular indicators in this report, the number of new HIV infections per 1,000 uninfected population (by sex, age, and key populations) and HBV incidence per 100,000 population, both speak directly to progress toward that goal.

1.7 Survey Objectives

The goal of THIS was to estimate HIV incidence and prevalence in Tanzania, to assess the coverage and impact of HIV services at the population level, and to characterize HIV-related risk behaviors using a nationally representative sample of adults and children. Primary and secondary objectives included the following:

Primary Objectives

- To estimate national-level annual HIV incidence among adults aged 15-64 years.
- To estimate regional-level prevalence of VLS (VLS; defined as HIV RNA less than 1,000 copies/mL of plasma) among HIV-positive persons aged 15-64 years.

Secondary Objectives

- To estimate national-level prevalence of HIV among persons aged 0-14 years.
- To estimate national and regional-level prevalence of HIV among persons aged 15 years and older.
- To assess CD4 count distribution, presence of ARVs, and transmitted drug resistance among PLHIV.
- To describe the socioeconomic and behavioral risk factors associated with HIV infection in a household-based, nationally representative sample.
- To estimate syphilis prevalence in a household-based, nationally representative sample of persons aged 10 years and older.
- To estimate current hepatitis B prevalence and prevalence of past or current hepatitis C in a household-based, nationally representative sample of persons aged 15 years and older.
- To estimate national and regional coverage of HIV testing.

The survey was statistically powered for estimating national-level annual HIV incidence among adults aged 15-64 years, national and regional-level prevalence of VLS in persons 15-64 years and national and regional-level HIV prevalence among persons aged 15 years and older. The sample was statistically powered to obtain reasonably precise estimates (95% CI of +/- 10% or lower) of the prevalence of VLS for high prevalence regions. While we also measured VLS in children under the age of 15 years, the sample size was not powered to assure the same level of precision at the regional level. Therefore, analysis of VLS at the regional level focuses on adults.

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2 SURVEY DESIGN, METHODS, AND RESPONSE RATES

The Tanzania HIV Impact Survey 2016-2017 (THIS) was a nationally representative, cross-sectional, population-based survey of households across Tanzania. Its target population corresponded to children aged 0-14 years and adults aged 15 years and older. The survey population excluded institutionalized children and adults.

2.1 Sample Frame and Design

The THIS used a two-stage, stratified cluster sample design. The sampling frame was comprised of all enumeration areas (EAs) in the country based on the 2012 Tanzania Population and Housing Census (2012 PHC), which included 106,642 EAs, containing an estimated 9,362,758 households.¹ The first stage selected 526 EAs (clusters) using a Probability Proportional to Size (PPS) method. The 526 EAs were stratified by 31 geographical regions. During the second stage, a sample of households was randomly selected within each EA, using a PPS method, where the average number of households to be selected per EA was 30, but the actual number of households selected per EA ranged from 15 to 61 (Table 2.1.A).

The sample size was calculated to provide a representative national estimate of HIV incidence among adults aged 15 years and older, with a relative standard error less than or equal to 37.0%, as well as representative regional estimates of VLS prevalence among HIV-positive adults aged 15 years and older, with 95% CI with $\pm 10\%$ bounds around the point estimates for high prevalence regions. Based on the selected households, one-third were randomly selected for inclusion of children aged 0-14 years, which was designed to provide a representative national estimate of pediatric HIV prevalence, with a relative standard error less than or equal to 16.2%. Although the survey also measured VLS in children under the age of 15 years, the sample size has not been powered to assure the same level of precision for pediatric VLS. The target sample size was 31,730 for adults aged 15 years and older, and 8,296 for children aged 0-14 years.

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

Number of sampled enumeration areas and households in each region, THIS 2016-2017

Region	Enumeration Areas			Households		
	Urban	Rural	Total	Urban	Rural	Total
Dodoma	2	9	11	75	264	339
Arusha	3	6	9	113	164	277
Kilimanjaro	3	7	10	120	188	308
Tanga	2	8	10	70	238	308
Morogoro	5	9	14	180	251	431
Pwani	12	25	37	369	770	1139
Dar es Salaam	32	0	31	985	0	985
Lindi	1	5	6	31	154	185
Mtwara	2	6	8	61	185	246
Ruvuma	8	24	32	278	707	985
Iringa	7	18	25	349	421	770
Mbeya	10	16	26	383	418	801
Songwe	7	19	26	245	556	801
Singida	1	6	7	37	179	216
Tabora	7	34	41	229	1033	1262
Rukwa	9	26	35	281	797	1078
Kigoma	2	9	11	79	260	339
Shinyanga	7	23	30	266	658	924
Kagera	2	14	16	91	402	493
Mwanza	8	11	19	251	334	585
Mara	2	10	12	51	319	370
Manyara	2	5	7	91	125	216
Njombe	5	13	18	210	344	554
Katavi	10	27	37	392	747	1139
Simiyu	1	8	9	38	239	277
Geita	3	9	12	130	240	370
Kaskazini Unguja	0	4	4	0	123	123
Kusini Unguja	1	3	4	38	85	123
Mjini Magharibi	5	5	10	162	146	308
Kaskazini Pemba	0	4	4	0	123	123
Kusini Pemba	1	3	4	31	92	123
Total	159	366	525	5636	10562	16198

2.2 Eligibility, Recruitment, and Consent Procedures

Households were eligible for participation in this survey if they were within the predefined EA and were randomly selected for inclusion in the survey. A household was eligible if the person recognized within the household as the head was aged 18 years and older or considered an emancipated minor if aged 15-17 years.

The eligible survey population included:

- Females and males aged 18 years and older who slept in the household the night before the survey and were willing and able to provide verbal informed consent in Kiswahili or English.
- Persons aged 10-17 years who slept in the household the night before the survey, who were willing and able to provide verbal assent in Kiswahili or English, and whose parents or guardians were willing and able to provide verbal permission for their participation in Kiswahili or English.
- Children aged 0-9 years who slept in the household the night before the survey, whose parents or guardians were willing and able to provide verbal informed consent in Kiswahili or English for their participation.

An electronic informed consent form was administered using a tablet computer. Respondents provided verbal informed consent, which was then noted in the tablet. A designated head of household provided consent for household members to participate in the survey, after which individual members had to provide consent/assent for an interview. After completing the interview, individuals aged 18 years and older provided verbal consent for participation in the biomarker component of the survey, including HBTC and syphilis testing, with return of HIV and syphilis test results and CD4 counts during the household visit. People in the household aged 10-17 years were asked for assent to the interview and biomarker components after permission was granted by their parents or guardians. Parents provided consent for biomarker testing for minors below the age of assent (ages 0-9 years). A CD4 count was conducted for all participants who tested HIV positive and 2.0% of the HIV-negative participants who were randomly selected by a computerized algorithm. Receipt of test results was a requirement for participation in the biomarker component. If an individual did not want to receive his or her HIV test result, this was considered a refusal and the survey was concluded. Participants were also asked for consent/assent to store their blood samples in a repository for future use to perform additional tests.

All participants were assessed for cognitive ability prior to obtaining their consent. Cognitive ability to consent was assessed by providing information on survey participation and then asking participants to summarize their understanding of the purpose of the survey and what is requested from them if they chose to participate. In addition to verbal consent, participants who consented were provided with a hardcopy version of the same consent form.

2.3 Survey Implementation

Ethical considerations

The THIS protocol was reviewed and approved by the institutional review boards of CDC, Columbia University, Westat, the National Institute for Medical Research , and Zanzibar Medical Research and Ethics Committee before initiation of data collection. All survey staff including laboratory technologists, nurse interviewers, and supervisors were trained on good clinical and laboratory practices as well as ethical protection of survey respondents and signed a data confidentiality agreement.

Survey Staff Recruitment

A total of 46 laboratory technologists and 187 nurse counsellors were recruited from public health facilities after they were identified through a competitive process overseen by the MOH through the Regional Medical Offices. Those who qualified were recruited to serve as interviewers, counsellors, and testers during the survey. The selection criteria for a nurse interviewer for THIS was the individual had to be a certified nurse and accredited by the MOH as an HIV counsellor. Additional survey management, supervision, and support staff were also recruited and trained accordingly prior to data collection.

Training of Field Staff

The field staff training took place in Dodoma over seven weeks (25th July to 14th September 2016). A total of 323 participants participated in the training that comprised 187 interviewers, 31 supervisors, 51 facilitators, and 46 laboratory technicians. Facilitators and supervisors were from the NBS, OCGS, ICAP at Columbia University, TACAIDS, NHLQATC, MOH Zanzibar, MoHCDGEC, ZIHHTLP, CDC both Tanzania and Atlanta, U.S., Westat and other staff from the private sector. Survey staff received training on the contents of the data collection instruments and tablet use. The training curriculum included:

- Scientific objectives of the survey
- Survey design and methodology
- Completion of survey forms
- Data collection
- Staff responsibilities
- Recruitment of participants
- Informed consent procedures, including human subject's protection, privacy, and confidentiality
- Blood collection for children and adults, including venipuncture and finger/heel-stick
- HIV testing and counseling
- CD4 count measurement using the PIMA POC analyzer
- Syphilis testing and counseling
- Referral of participants to health and social services, as required
- Management and transportation of blood specimens
- Biosafety
- Communication skills
- Protocol deviations, adverse events, and reporting of events

Laboratory staff were trained in specimen management, including sample processing, labeling, and quality assurance (QA). Central laboratory staff were trained in VL measurement, early infant diagnosis (EID), HIV confirmatory testing, HIV drug resistance testing, hepatitis B and hepatitis C testing, and HIV recency testing using the Limiting Antigen (LAg) Avidity enzyme immunoassay (EIA).

Household Listing

The listing operation consisted of visiting each EA, drawing a sketch map of the structures in an EA, and filling in an electronic listing form generated using Open Data Kit (ODK) software installed in the tablet. The main objective of the household listing was to obtain a household sampling frame to be used in selection of households in a selected EA.

The household listing exercise started on the 2nd April 2016 and ended on 20th May 2016 in 526 selected EAs in all regions of Tanzania mainland and Zanzibar. A total number of 500 EAs were selected in Tanzania mainland with 499 EAs enumerated. One EA was dropped from the sample, as there were no household dwellings, and was not replaced. All the selected 26 EAs in Zanzibar were enumerated. Therefore, a total of 525 EAs were listed.

2.4 Fieldwork Organization

Community Sensitization and Mobilization

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

Data Collection

Data collection started in November 2016 and was completed in August 2017. Fieldwork was conducted by 28 field teams composed of a team leader, six nurse-counselors, and a driver. A total of 287 field staff, comprised of field teams, field coordinators, community mobilizers, and supervisors participated in data collection. Survey personnel were selected based on their qualifications and areas of expertise. In addition, 46 laboratory technicians processed samples and performed additional procedures for HIV-1 VL, infant virologic HIV testing, and quality control (QC) and assurance.

The data collection exercise was carried out in 521 out of 525 listed EAs in all regions in Tanzania. Four selected EAs in Pwani region were not visited because of security issues in Rufiji district at the time of data collection.

Supervision

The field teams were supervised by five field coordinators and managed by 10 QC supervisors who guided and oversaw data collection activities, performed quality checks, and provided technical support. Data-collection teams were continuously overseen by field-based supervisors and periodically monitored by national and international teams with representation from collaborating institutions. Monitoring teams visited field and laboratory sites at least monthly, and provided direct supervision, as well as verification of results by household revisits. Daily monitoring forms for household and individual outcome tracking were also reviewed by monitors for completeness. Field-based supervisors also supported teams by organizing supplies and transport of blood samples, coordinating community-mobilization efforts, providing technological troubleshooting, and checking the quality of household procedures and data collected.

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

Electronic monitoring system

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

Questionnaire

Questionnaire and biomarker data were collected on mobile tablet computers using an application programmed in ODK. Three questionnaires were used for THIS: The Household Questionnaire, the Adult Questionnaire, and the Early Adolescent Questionnaire. All the questionnaires were prepared in English, translated into Kiswahili, and translated back into English by a different person to assess accuracy of the translation.

The Household Questionnaire was used to list all the usual members and visitors in selected households and it was administered to the designated heads of households. Basic demographic information was collected on the characteristics of each person listed. Questions regarding orphans and vulnerable children, household deaths, characteristics of the household, and economic support were also asked in the Household Questionnaire (Appendix D). After completion of the Household Questionnaire, eligible adults aged 15 years and older were invited to complete the Adult Questionnaire and adolescents aged 10-14 years from one-third of households were randomly selected to complete the Early Adolescent Questionnaire.

The Adult Questionnaire included questions on respondent background, reproduction, sexual activity, and HIV testing, care, and treatment (Appendix E). The Early Adolescent Questionnaire included questions on socio-demographic characteristics, sexual behavior, and HIV testing (see Appendix F). Participants who self-reported that they were HIV positive were asked questions about their HIV care experience. Parents answered questions about their children's (ages 0-14 years) health and participation in HBTC services (this pertains to all rostered children in all sampled household as well as the one-third sample included for HIV testing). Participants of any age who reported being victims of violence and minors who reported being victims of sexual exploitation were provided with referrals to social services.

2.5 Field-Based Biomarker Testing

Blood Collection

Blood was collected by trained nurse-counselors from consenting participants. Fourteen mL of venous blood was collected from persons aged 15 years and older, while six mL was collected from children aged 2-14 years. One mL of capillary blood was collected from children aged 0-2 years, via finger-stick for children aged 6-24 months and heel-stick for children aged 6 months and younger.

Blood samples were labeled with a unique bar-coded participant identification number (ID) and stored in temperature-controlled coolers. Samples were transported to a satellite laboratory at the end of each day for processing into plasma and freezing within 24 hours of blood collection.

HIV Home-Based Testing and Counseling (HBTC)

HIV HBTC was conducted in each household using the national HIV rapid-test algorithm- SD Bioline (Abbott Molecular Inc., Chicago, Illinois, U.S., formerly Alere), followed by Uni-Gold (Trinity Biotech Manufacturing, Ltd., County Wicklow, Ireland). Participants who tested indeterminate via the national

algorithm were referred to a local facility for follow up testing within two weeks of their home-based test. In order to have a final result for all survey samples, the samples of indeterminate participants were resolved for the PHIA data by laboratory testing using Geenius HIV 1/2 Supplemental Assay (Bio-Rad Laboratories, Hercules, CA, U.S.). (Figure 2.5.A).

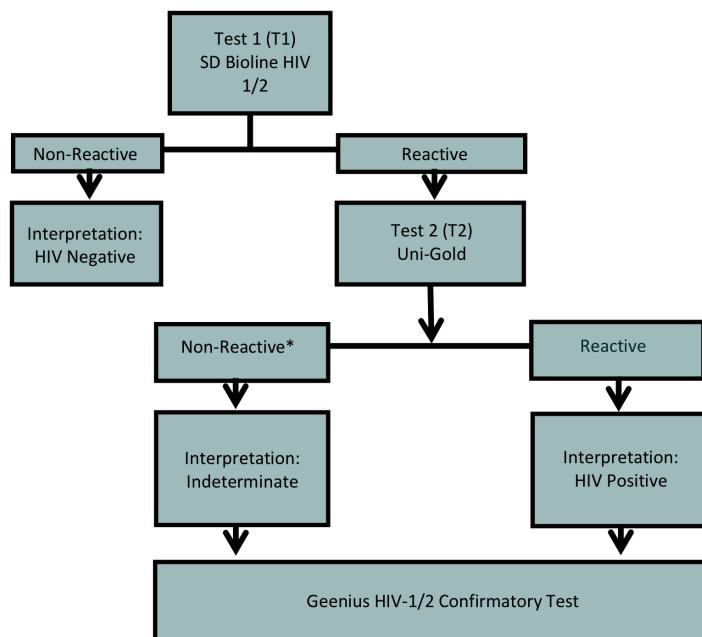
HIV-seropositive participants were referred to HIV care and treatment services at a health facility of their choice. For children under the age of 18 years, results were provided to a parent or guardian. Participants with indeterminate HIV results were advised to attend a health facility in two weeks for repeated testing per national guidelines.

Infants younger than the age of 18 months were screened for HIV exposure using SD Bioline the first test in the national HIV rapid-testing algorithm. If the test was reactive, HIV Total Nucleic Acid (TNA) polymerase chain reaction (PCR) for EID was performed at the central laboratory (Appendix B, Figure B.3.B: Final HIV Status Classification Algorithm (<18 months), THIS 2016-2017).

For participants who self-reported an HIV-positive status, but tested HIV negative at the time of the survey, additional laboratory-based testing was conducted using HIV TNA PCR for confirmation of the status. In conjunction with MoHCDGEC and MOH Zanzibar, survey staff revisited these participants to provide counseling and guidance on next steps to confirm these results, particularly for those on ART.

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

Figure 2.5.A Household-based HIV-testing algorithm, THIS 2016-2017*



*This algorithm applies to participants >=18 months of age. Appendix B, figure B.3.B shows algorithm for classification of HIV status for infants <18 months. Note: Participants who tested reactive on the first test and non-reactive on the second test were referred to a local facility for a re-test after 14 days.

CD4 Count Measurement

All participants who tested HIV positive during HBTC, and a random sample of 2.0% of those who tested HIV negative underwent CD4 measurement and received the result in the field. The measurement was performed using the Pima™ CD4 Analyzer (Abbott Molecular Inc., Chicago, Illinois, U.S., formerly Alere).

Syphilis Testing

Syphilis testing at the household was offered to participants aged 10 years and older using the Chembio DPP Syphilis Screen & Confirm Assay (Chembio Diagnostic Systems, Inc, Medford, NY, U.S.) for the simultaneous detection of antibodies against non-Treponemal and *Treponema pallidum* antigens. The test distinguishes between active syphilis infection (positive for both Treponemal and non-Treponemal antibodies) and previous infection (positive for Treponemal antibodies only). QC using a panel of syphilis-positive and negative DTS was performed on a weekly basis by each field staff performing the testing. Participants with active syphilis infection were referred to care and treatment services at a health facility of their choice. For children aged 18 years and younger, results were provided at the household to a parent or guardian.

2.6 Laboratory-Based Biomarker Testing

Satellite and Central Laboratories

Twenty-eight fixed satellite laboratories for the survey were established in existing health facility laboratories. In addition, two mobile laboratories moved with the teams in particularly remote areas. One central reference laboratory, the NHL-QATC, conducted specialized tests. At each satellite laboratory, trained technicians processed whole blood into plasma aliquots and dried blood spot (DBS) samples for storage at -20°C and conducted HIV confirmatory and QA testing. Confirmatory testing by Geenius HIV 1/2 Supplemental Assay (Bio-Rad Laboratories, Hercules, CA, U.S.) was conducted on all samples that tested HIV positive or indeterminate during HBTC. In order to confirm quality of rapid testing conducted in the field, QA testing was performed on a random sample of approximately 5% of samples that tested HIV negative during HBTC and the first 50 HIV test results for each field tester, using the national HIV rapid-testing algorithm. Central laboratory procedures included VL testing, EID, HIV recency testing, testing of samples with indeterminate results from HIV HBTC, testing for hepatitis B and hepatitis C, HIV drug resistance testing, and long-term storage of samples at -80°C.

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

Viral Load Testing

HIV-1 VL (viral copies per mL) of HIV-positive participants was measured using the COBAS AmpliPrep/Taqman 48 and 96 (Roche Diagnostics, Indianapolis, IN, U.S.). 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. Specimen preparation is automated using COBAS AmpliPrep with amplification and detection using Taqman.

Viral load results were returned within 10-12 weeks to the health facility chosen by each HIV-positive participant. Additionally, participants were provided with a referral form during HBTC for subsequent retrieval of their results. In addition, survey staff also contacted participants informing them that their results were available at the chosen health facility and further advising them to seek care and treatment.

Infant HIV Virologic Testing

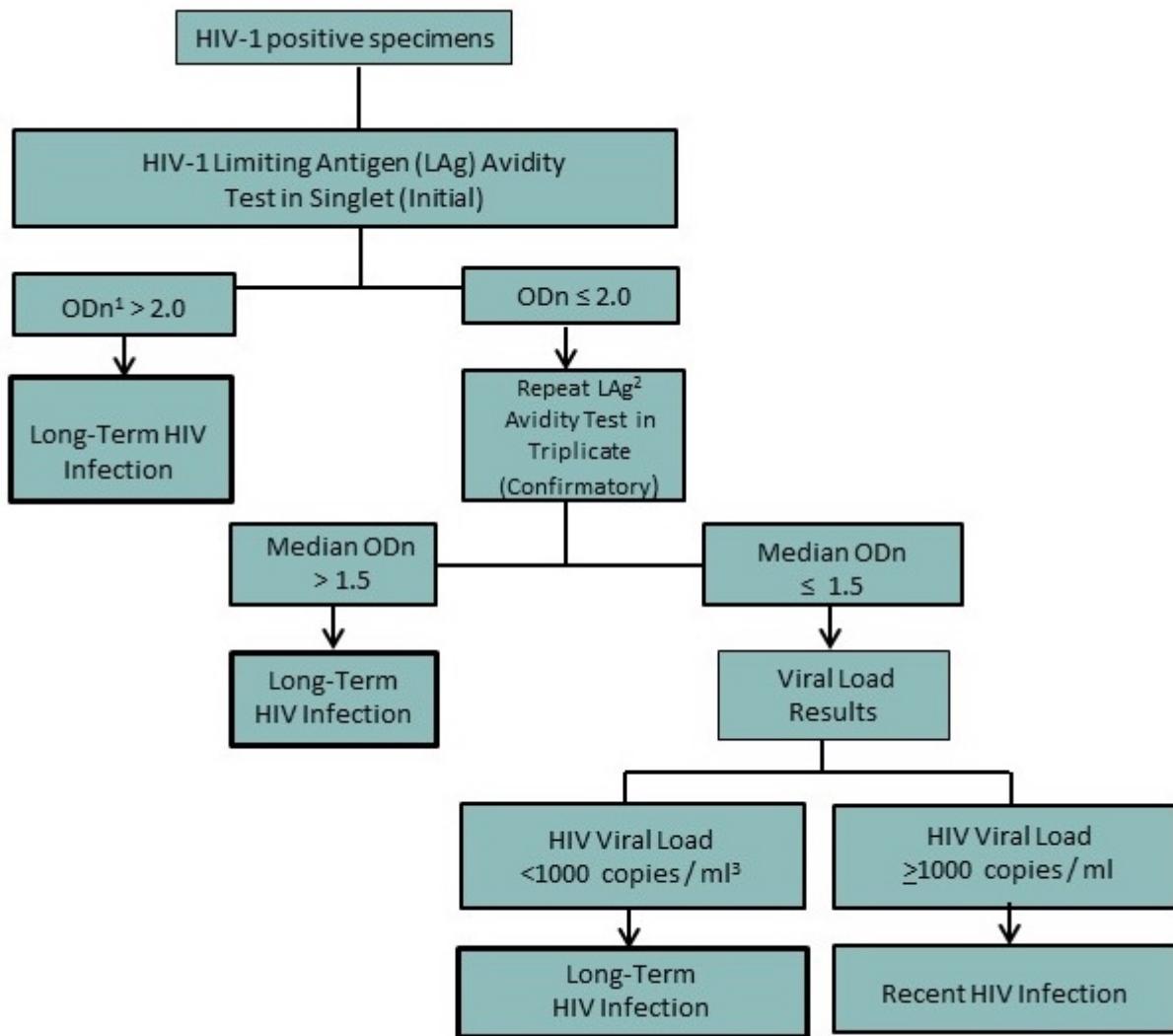
For infants under the age of 18 months who had a reactive rapid test result for HIV during HBTC, virologic testing was conducted via HIV TNA PCR using the COBAS AmpliPrep/Taqman 48 and 96. Results were returned within eight weeks to a health facility selected by the child's parent or guardian. Survey staff also contacted the parent or guardian via mobile text message to inform them that the child's results were available at the health facility.

HIV Recent Infection Testing Algorithm

To distinguish recent from long-term HIV infections, the survey used two different laboratory-based testing algorithms. Each algorithm employed a combination of assays: 1) HIV-1 LAg Avidity EIA (Sedia Biosciences Corporation, Portland, Oregon, U.S.) and VL (Figure 2.6.A) and 2) HIV-1 LAg Avidity EIA, VL, and ARV detection (Figure 2.6.B), as described in Appendix B. Results from recency testing were used to estimate HIV incidence.

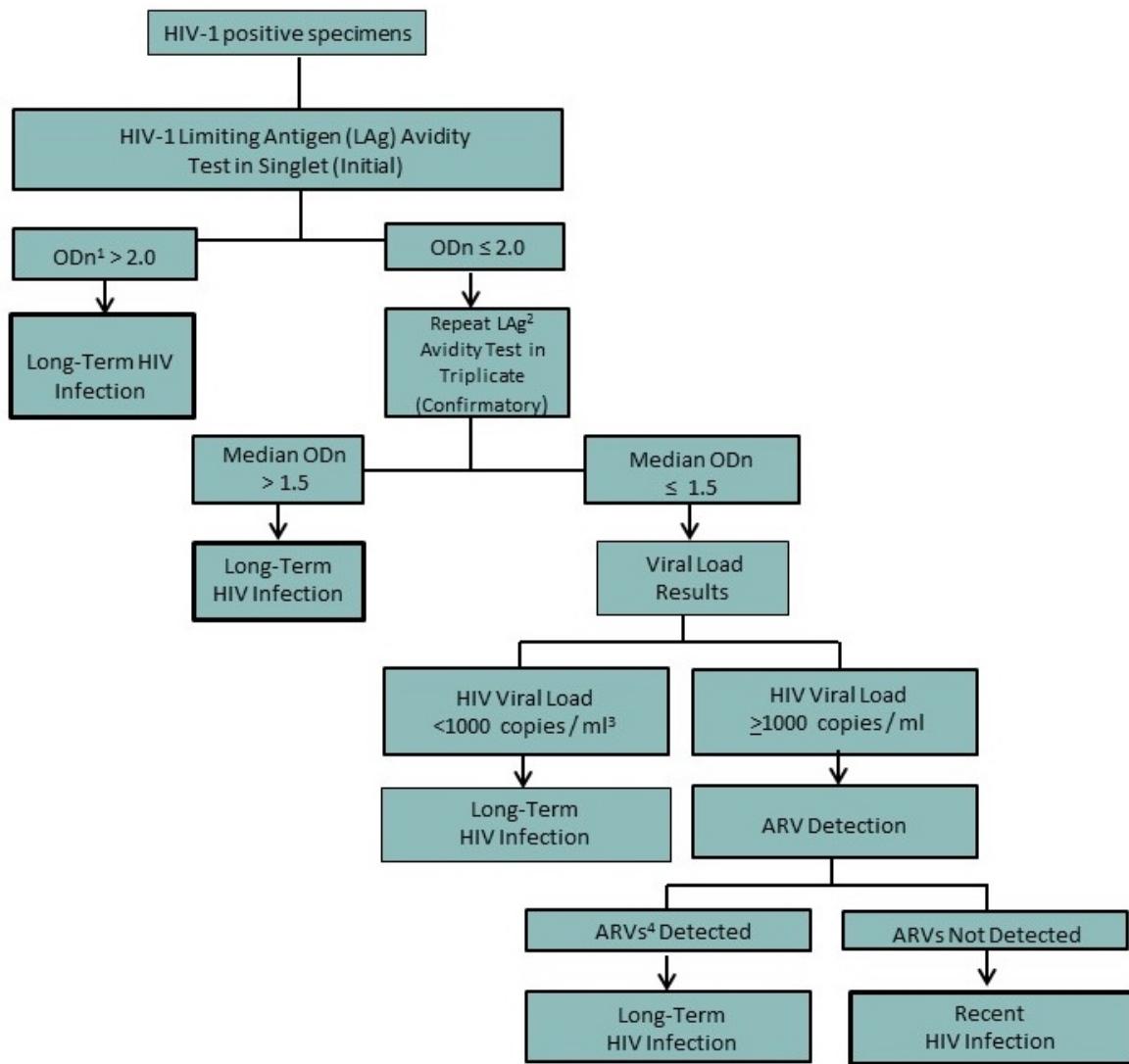
Specimens with median normalized optical density (OD_n) ≤ 1.5 were classified as potential recent infections, and their VL results were assessed. Specimens with $VL < 1,000$ copies/mL were classified as long-term infections, while those with $VL \geq 1,000$ copies/mL were classified as recent infections (Figure 2.6.A). In the algorithm involving LAg Avidity assay, VL and ARV detection, specimens with $VL \geq 1,000$ copies/mL and with detectable ARVs were classified as long-term infections. Specimens with $VL \geq 1,000$ copies/mL and without detectable ARVs were classified as recent infections.

Figure 2.6.A HIV-1 recent infection testing algorithm (LAG/VL algorithm), THIS 2016-2017



¹ODn: normalized optical density; ²LAG: Limiting Antigen; ³ml: milliliter

Figure 2.6.B HIV-1 recent infection testing algorithm (LA_g/VL/ARV algorithm), THIS 2016-2017



¹ODn: normalized optical density; ²LA_g: Limiting Antigen; ³ml: milliliter; ⁴ARV: antiretroviral

Detection of Antiretroviral Drug Resistance

HIV resistance to ARVs was assessed for all those HIV-positive participants aged 18 months and older, classified as recent HIV infections, and a small subset of confirmed long-term infections. Mutations in the HIV protease and reverse transcriptase genes that confer ARV drug resistance, per the Stanford drug resistance database, were detected simultaneously using the CDC in-house multiplex allele-specific drug resistance assay.

Detection of Antiretrovirals

Qualitative screening for detectable concentrations of ARVs was conducted on DBS specimens from all HIV-positive adults and children, by means of high-performance liquid chromatography coupled with tandem mass spectrometry. The method used for ARV detection is a modified version of the methodology described by Koal and colleagues (2005).² This qualitative assay is 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 is cost-prohibitive, three ARVs were selected as markers for the most commonly prescribed first- and second-line regimens: efavirenz, lopinavir, and nevirapine. These ARVs were also selected based on their relatively long half-lives, allowing for a longer period in which they are detectable following intake.

Detection of ARVs is considered indicative of participant use of a given drug at the time of blood collection. Results below the limit of detection among individuals who self-reported on ART indicate that there was no recent exposure to the regimen and suggest sub-optimal adherence to a prescribed regimen, 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 regimes that do not include those tested for in the survey.

ARV detection was performed at the laboratory in the Department of Clinical Pharmacology of the Department of Medicine at the University of Cape Town in South Africa.

Hepatitis B and C Testing

A sub-sample of 4,874 were tested for hepatitis C antibody (anti-HCV); anti-HCV positive results indicated past infection that either naturally resolved or were treated, or current acute or chronic hepatitis C. A sub-sample of 1,310 were tested for hepatitis B surface antigen (HBsAg); positive HBsAg results indicated current acute or chronic hepatitis B. Alere Determine (Abbott Molecular Inc., Chicago, Illinois, U.S., formerly Alere) on plasma was used to perform HBsAg and results were returned to participants found to have hepatitis B infection via the same methods as the return of VL results. Participants were contacted and advised that additional test results were available at their chosen facility and referred to the facility for follow up. Murex HCV Antigen/Antibody (Ab) Combination EIA (DiaSorin, Saluggia, Italy) was used to detect anti-HCV in plasma specimens at the central lab, the NHL-QTC in Dar es Salaam. The previously described QA/QC for laboratory-based testing was also applied for viral hepatitis testing.

2.7 Data Processing and Analysis

All field data were collected on tablet computers, 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, U.S.). Laboratory data were cleaned and merged with the final questionnaire database using unique specimen bar codes and study IDs.

All results presented in the report are based on weighted estimates, unless otherwise noted. Analysis weights account for sample selection probabilities and are adjusted for nonresponse and noncoverage. Nonresponse adjusted weights were calculated for households, individual interviews, and individual blood draws in a hierarchical form. Adjustment for nonresponse for initial individual and blood-level weights was based on the development of weighting adjustment cells, defined by a combination of variables that are potential predictors of response and HIV status. The nonresponse adjustment cells were constructed using the chi-square automatic interaction detection, or 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 five-year age groups.

Descriptive analyses of RR, characteristics of respondents, HIV prevalence, CD4 count distribution, HIV testing, self-reported HIV status, self-reported ART, VLS, PMTCT indicators, and sexual behavior were conducted using SAS 9.4.

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

2.8 Response Rates

Household RR were calculated using the American Association for Public Opinion Research Response Rate 4 method (AAPOR, 2015)³ as the number of complete and incomplete household interviews among all eligible households, and those estimated to be eligible among those with unknown eligibility (households not located, not attempted or unreachable). Vacant and destroyed households, nonresidential units, and household units with no eligible respondents were considered not eligible and excluded from the calculation.

Individual interview RR were calculated as the number of individuals who were interviewed divided by the number of individuals eligible to participate in the survey. Blood draw RR for those aged 10 years and older were calculated as the number of individuals who provided blood divided by the number of individuals who were interviewed. Blood draw RR for those aged 0-9 years were calculated as the number of individuals who provided blood divided by the number of individuals eligible to participate in the survey.

Of the 16,198 selected households, 15,504 and 14,811 were occupied and interviewed, respectively (Table 2.8.A). The overall household RR was 94.8%: 95.3% in urban areas and 94.5% in rural areas. Household RR were almost similar in Zanzibar (94.1%) and Tanzania mainland (94.8%) (Table 2.8.B, Table 2.8.C).

A total of 16,235 males and 19,852 females aged 15 years and older were eligible to participate in THIS. Interview RR were 88.5% for males and 93.2% for females aged 15 years and older. For males and females aged 15 and older, more than nine out of 10 (94.4% and 95.2%, respectively) persons who were interviewed also had their blood drawn (Table 2.8.D).

In THIS, children aged 0-14 years in one-third of the selected households were eligible for blood draw. For young persons aged 10-14 years, the interview RR were 91.6% and 92.5% for males and females, respectively. The blood draw RR was 97.1% for males and 97.7% for females. More than nine out of 10 (91.4% for males and 91.6% for females) eligible persons aged 0-9 years had their blood drawn. Blood draw RR among ages 0-9 years were similar between genders in rural areas (92.2%). In urban areas, however, females had a slightly higher RR (89.8%) than males (89.3%).

Table 2.8.A Household Response Rates, United Republic of Tanzania

Number of households selected, occupied, and interviewed and household response rates (unweighted and weighted), by residence, THIS 2016-2017

Result	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	5,636	10,562	16,198
Households occupied	5,435	10,069	15,504
Households interviewed	5,179	9,632	14,811
Household response rate ¹ (unweighted)	94.5	94.8	94.7
Household response rate ¹ (weighted)	95.3	94.5	94.8

¹Household response rate was calculated using the American Association for Public Opinion Research (AAPOR) Response Rate 4 (RR4) method:

http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf

Table 2.8.B Household Response Rates, Zanzibar

Number of households selected, occupied, and interviewed and household response rates (unweighted and weighted), in Zanzibar, THIS 2016-2017

Result	Region		Zanzibar
	Unguja	Pemba	
Household interviews			
Households selected	554	245	799
Households occupied	531	237	768
Households interviewed	506	220	726
Household response rate ¹ (unweighted)	95	93	94
Household response rate ¹ (weighted)	95	93	94

¹Household response rate was calculated using the American Association for Public Opinion Research (AAPOR) Response Rate 4 (RR4) method:

https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions2015_8theditionwithchanges_April2015_logo.pdf

Table 2.8.C Household Response Rates, Mainland

Number of households selected, occupied, and interviewed and household response rates (unweighted and weighted), by residence, in Tanzania mainland, THIS 2016-2017

Result	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	5,405	9,994	15,399
Households occupied	5,213	9,523	14,736
Households interviewed	4,970	9,115	14,085
Household response rate ¹ (unweighted)	95	95	95
Household response rate ¹ (weighted)	95	94	95

¹Household response rate was calculated using the American Association for Public Opinion Research (AAPOR) Response Rate 4 (RR4) method:

https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions2015_8theditionwithchanges_April2015_logo.pdf

Table 2.8.D Interview and blood draw response rates, United Republic of Tanzania

Number of eligible individuals and response rates for individual interviews¹ and blood draws² (unweighted and weighted), by residence and sex, THIS 2016-2017

Result	Residence					
	Urban		Rural		Total	
	Males	Females	Males	Females	Males	Females
Eligible individuals, ages 0-9 years						
Number of eligible individuals	968	902	2,843	2,764	3,811	3,666
Blood draw response rate (unweighted)	90.5	90.4	92.7	92.9	92.1	92.3
Blood draw response rate (weighted)	89.3	89.8	92.2	92.2	91.4	91.6
Eligible individuals, ages 10-14 years						
Number of eligible individuals	387	414	1,095	1,079	1,482	1,493
Interview response rate (unweighted)	93.8	96.1	92.4	93.2	92.8	94.0
Interview response rate (weighted)	92.4	95.2	91.3	91.3	91.6	92.5
Blood draw response rate (unweighted)	97.2	97.2	98.0	98.4	97.8	98.1
Blood draw response rate (weighted)	96.1	97.9	97.5	97.7	97.1	97.7
Eligible individuals, ages 15-24 years						
Number of eligible individuals	1,683	2,295	3,596	4,095	5,279	6,390
Interview response rate (unweighted)	89.8	94.7	88.8	94.2	89.1	94.4
Interview response rate (weighted)	88.9	94.6	88.2	93.8	88.5	94.2
Blood draw response rate (unweighted)	94.0	96.0	97.0	97.4	96.0	96.9
Blood draw response rate (weighted)	93.1	95.5	96.0	96.8	95.0	96.3
Eligible individuals, ages 15-49 years						
Number of eligible individuals	4,413	5,739	8,646	10,318	13,059	16,057
Interview response rate (unweighted)	84.5	95.4	90.2	94.6	88.3	94.9
Interview response rate (weighted)	84.3	95.2	89.9	94.1	87.8	94.6
Blood draw response rate (unweighted)	92.1	94.5	96.6	96.9	95.1	96.0
Blood draw response rate (weighted)	91.5	94.0	95.7	96.2	94.2	95.3
Eligible individuals, ages 50+ years						
Number of eligible individuals	814	1,000	2,362	2,795	3,176	3,795
Interview response rate (unweighted)	88.2	92.2	92.4	86.4	91.3	88.0
Interview response rate (weighted)	87.2	90.5	92.8	86.3	91.2	87.5
Blood draw response rate (unweighted)	93.5	93.3	96.6	96.9	95.8	95.9
Blood draw response rate (weighted)	92.5	92.6	96.1	95.8	95.1	94.8
Eligible individuals, ages 15+ years						
Number of eligible individuals	5,227	6,739	11,008	13,113	16,235	19,852
Interview response rate (unweighted)	85.1	94.9	90.7	92.9	88.9	93.6
Interview response rate (weighted)	84.8	94.5	90.6	92.4	88.5	93.2
Blood draw response rate (unweighted)	92.4	94.4	96.6	96.9	95.3	96.0
Blood draw response rate (weighted)	91.7	93.8	95.8	96.1	94.4	95.2

¹Interview response rate = number of individuals interviewed/number of eligible individuals

²Blood draw response rate = number of individuals who provided blood/number of individuals interviewed

Weighted figures calculated using trmpnr1w0, indiv_bwt0.

Table 2.8.E Interview and blood draw response rates, Zanzibar

Number of eligible individuals and response rates for individual interviews¹ and blood draws² (unweighted and weighted), by residence and sex, Zanzibar, THIS 2016-2017

Result	Region					
	Unguja		Pemba		Zanzibar	
	Males	Females	Males	Females	Males	Females
Eligible individuals, ages 0-9 years						
Number of eligible individuals	123	140	80	79	203	219
Blood draw response rate (unweighted)	90.2	92.1	80.0	75.9	86.2	86.3
Blood draw response rate (weighted)	89.7	91.4	79.1	75.4	86.0	86.5
Eligible individuals, ages 10-14 years						
Number of eligible individuals	49	54	36	34	85	88
Interview response rate (unweighted)	98.0	98.1	88.9	88.2	94.1	94.3
Interview response rate (weighted)	97.5	98.7	88.2	87.7	94.0	95.1
Blood draw response rate (unweighted)	97.9	96.2	93.8	100.0	96.3	97.6
Blood draw response rate (weighted)	97.2	96.4	94.2	100.0	96.1	97.6
Eligible individuals, ages 15-24 years						
Number of eligible individuals	206	250	75	103	281	353
Interview response rate (unweighted)	85.9	93.2	89.3	92.2	86.8	92.9
Interview response rate (weighted)	86.1	93.2	89.6	91.7	86.9	92.8
Blood draw response rate (unweighted)	98.3	97.0	89.6	94.7	95.9	96.3
Blood draw response rate (weighted)	98.2	96.2	89.5	94.7	96.1	95.8
Eligible individuals, ages 15-49 years						
Number of eligible individuals	520	648	173	252	693	900
Interview response rate (unweighted)	83.3	94.1	86.1	94.8	84.0	94.3
Interview response rate (weighted)	82.7	93.8	86.1	94.5	83.4	94.0
Blood draw response rate (unweighted)	95.6	95.9	90.6	92.9	94.3	95.1
Blood draw response rate (weighted)	95.1	95.5	90.4	92.8	94.1	94.9
Eligible individuals, ages 50+ years						
Number of eligible individuals	90	119	55	76	145	195
Interview response rate (unweighted)	86.7	92.4	92.7	94.7	89.0	93.3
Interview response rate (weighted)	85.6	91.1	92.8	94.9	88.1	92.5
Blood draw response rate (unweighted)	94.9	98.2	94.1	91.7	94.6	95.6
Blood draw response rate (weighted)	92.8	98.5	93.4	91.6	93.0	95.8
Eligible individuals, ages 15+ years						
Number of eligible individuals	610	767	228	328	838	1,095
Interview response rate (unweighted)	83.8	93.9	87.7	94.8	84.8	94.2
Interview response rate (weighted)	83.1	93.4	87.7	94.6	84.2	93.8
Blood draw response rate (unweighted)	95.5	96.3	91.5	92.6	94.4	95.2
Blood draw response rate (weighted)	94.8	95.9	91.1	92.5	93.9	95.0

¹Interview response rate = number of individuals interviewed/number of eligible individuals

²Blood draw response rate = number of individuals who provided blood/number of individuals interviewed

Table 2.8.F Interview and blood draw response rates, Mainland

Number of eligible individuals and response rates for individual interviews¹ and blood draws² (unweighted and weighted), by residence and sex, in Tanzania mainland, THIS 2016-2017

Result	Residence					
	Urban		Rural		Total	
	Males	Females	Males	Females	Males	Females
Eligible individuals, ages 0-9 years						
Number of eligible individuals	912	847	2,696	2,600	3,608	3,447
Blood draw response rate (unweighted)	90.5	90.1	93.1	93.5	92.5	92.7
Blood draw response rate (weighted)	89.3	89.6	92.4	92.5	91.5	91.7
Eligible individuals, ages 10-14 years						
Number of eligible individuals	361	396	1,036	1,009	1,397	1,405
Interview response rate (unweighted)	93.4	96.0	92.5	93.3	92.7	94.0
Interview response rate (weighted)	92.1	95.0	91.3	91.3	91.5	92.4
Blood draw response rate (unweighted)	97.3	97.4	98.1	98.4	97.9	98.1
Blood draw response rate (weighted)	96.1	98.0	97.5	97.6	97.2	97.8
Eligible individuals, ages 15-24 years						
Number of eligible individuals	1,594	2,197	3,404	3,840	4,998	6,037
Interview response rate (unweighted)	90.0	94.8	89.0	94.3	89.3	94.5
Interview response rate (weighted)	88.9	94.7	88.3	93.9	88.5	94.2
Blood draw response rate (unweighted)	93.8	96.1	97.1	97.4	96.1	96.9
Blood draw response rate (weighted)	92.9	95.6	96.0	96.8	94.9	96.3
Eligible individuals, ages 15-49 years						
Number of eligible individuals	4,186	5,483	8,180	9,674	12,366	15,157
Interview response rate (unweighted)	84.5	95.3	90.6	94.7	88.5	94.9
Interview response rate (weighted)	84.3	95.2	90.1	94.2	87.9	94.6
Blood draw response rate (unweighted)	92.0	94.5	96.7	97.0	95.2	96.1
Blood draw response rate (weighted)	91.4	94.0	95.7	96.2	94.2	95.3
Eligible individuals, ages 50+ years						
Number of eligible individuals	783	966	2,248	2,634	3,031	3,600
Interview response rate (unweighted)	88.6	92.2	92.4	86.0	91.5	87.7
Interview response rate (weighted)	87.5	90.5	92.8	86.1	91.2	87.4
Blood draw response rate (unweighted)	93.5	93.2	96.6	97.0	95.9	95.9
Blood draw response rate (weighted)	92.6	92.5	96.1	95.8	95.1	94.8
Eligible individuals, ages 15+ years						
Number of eligible individuals	4,969	6,449	10,428	12,308	15,397	18,757
Interview response rate (unweighted)	85.1	94.9	91.0	92.8	89.1	93.5
Interview response rate (weighted)	84.8	94.5	90.7	92.4	88.6	93.2
Blood draw response rate (unweighted)	92.2	94.3	96.7	97.0	95.3	96.0
Blood draw response rate (weighted)	91.6	93.8	95.8	96.1	94.4	95.2

¹Interview response rate = number of individuals interviewed/number of eligible individuals

²Blood draw response rate = number of individuals who provided blood/number of individuals interviewed

Weighted figures calculated using trmpn1w0, indiv_bwt0.

2.9 References

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3 SURVEY HOUSEHOLD CHARACTERISTICS

3.1 Key Findings

- Among households, 71.4% were male-headed.
- About 46% of the total population were children aged 0-14 years.
- The median household size was four members.
- Among households with PLHIV, 17.2% had more than one PLHIV.

3.2 Background

This chapter describes the characteristics of households surveyed in THIS. Household composition is described in terms of sex of the head of household, age and sex of other members of the household, and the size of the household. The chapter also describes the prevalence and composition of THIS households impacted by HIV, which are households with one or more HIV-positive members.

3.3 Household Composition

Overall, the majority of the households (71.4%) were male-headed. This distribution was similar between urban and rural areas: 69.3% of urban households were male-headed, while 72.8% of rural households were male-headed. Zanzibar had a lower percent of female-headed households (19.1%) compared to Tanzania mainland (28.8%). The median household size in Tanzania was four members (interquartile range [IQR] 3-6) and the median number of children under the age of 18 years in households was two (IQR 1-4).

Table 3.3.A Household composition, United Republic of Tanzania

Percent distribution of households by sex of head of household; median size of household and median (Q1¹, Q3²) number of children aged 18 years and younger, by residence, THIS 2016-2017

Characteristic	Residence					
	Urban		Rural		Total	
	Percent	Number	Percent	Number	Percent	Number
Head of household						
Male	69.3	3,586	72.8	7,175	71.4	10,761
Female	30.7	1,593	27.2	2,457	28.6	4,050
Total	100.0	5,179	100.0	9,632	100.0	14,811

Characteristic	Residence					
	Urban		Rural		Total	
	Media n	Q1, Q3	Media n	Q1, Q3	Media n	Q1, Q3
Size of households	4	(2, 5)	5	(3, 7)	4	(3, 6)
Number of children aged 18 years and younger	2	(0, 3)	2	(1, 4)	2	(1, 4)

¹Q1: quartile one

²Q3: quartile three

Table 3.3.B Household composition, Zanzibar

Percent distribution of households by sex of head of household; median size of household and median (Q1¹, Q3²) number of children aged 18 years and younger, in Zanzibar, THIS 2016-2017

Characteristic	Region					
	Unguja		Pemba		Zanzibar	
	Percent	Number	Percent	Number	Percent	Number
Household headship						
Male	82.9	414	75.5	166	80.9	580
Female	17.1	92	24.5	54	19.1	146
Total	100.0	506	100.0	220	100.0	726

Characteristic	Region					
	Unguja		Pemba		Zanzibar	
	Median	Q1, Q3	Median	Q1, Q3	Median	Q1, Q3
Size of households	5	(3, 7)	6	(4, 8)	5	(3, 7)
Number of children aged 18 years and younger	2	(1, 4)	3	(2, 5)	3	(1, 4)

¹Q1: quartile one

²Q3: quartile three

Weighted figures calculated using hhwt0.

Table 3.3.C Household composition, Mainland

Percent distribution of households by sex of head of household; median size of household and median (Q1¹, Q3²) number of children aged 18 years and younger, by residence, in Tanzania mainland, THIS 2016-2017

Characteristic	Residence					
	Urban		Rural		Total	
	Percent	Number	Percent	Number	Percent	Number
Household headship						
Male	68.9	3,410	72.7	6,771	71.2	10,181
Female	31.1	1,560	27.3	2,344	28.8	3,904
Total	100.0	4,970	100.0	9,115	100.0	14,085

Characteristic	Residence					
	Urban		Rural		Total	
	Median	Q1, Q3	Median	Q1, Q3	Median	Q1, Q3
Size of households	4	(2, 5)	5	(3, 7)	4	(3, 6)
Number of children aged 18 years and younger	2	(0, 3)	2	(1, 4)	2	(1, 4)

¹ Q1: quartile one

² Q3: quartile three

Weighted figures calculated using hhwt0

The age and sex distribution of the de facto household population is illustrated by a population pyramid (Figure 3.3.A). Children under the age of 15 years comprised 45.6% (22.9% males and 22.6% females) of the de facto household population, while those aged 15-49 years constituted 43.5% (19.4% males and 24.1% females), and those aged 50 years and older constituted 10.9% (5.0% males and 5.9% females). More than half (54.6%) of the population were under the age of 20 years (Table 3.3.D).

Table 3.3.D Distribution of de facto household population

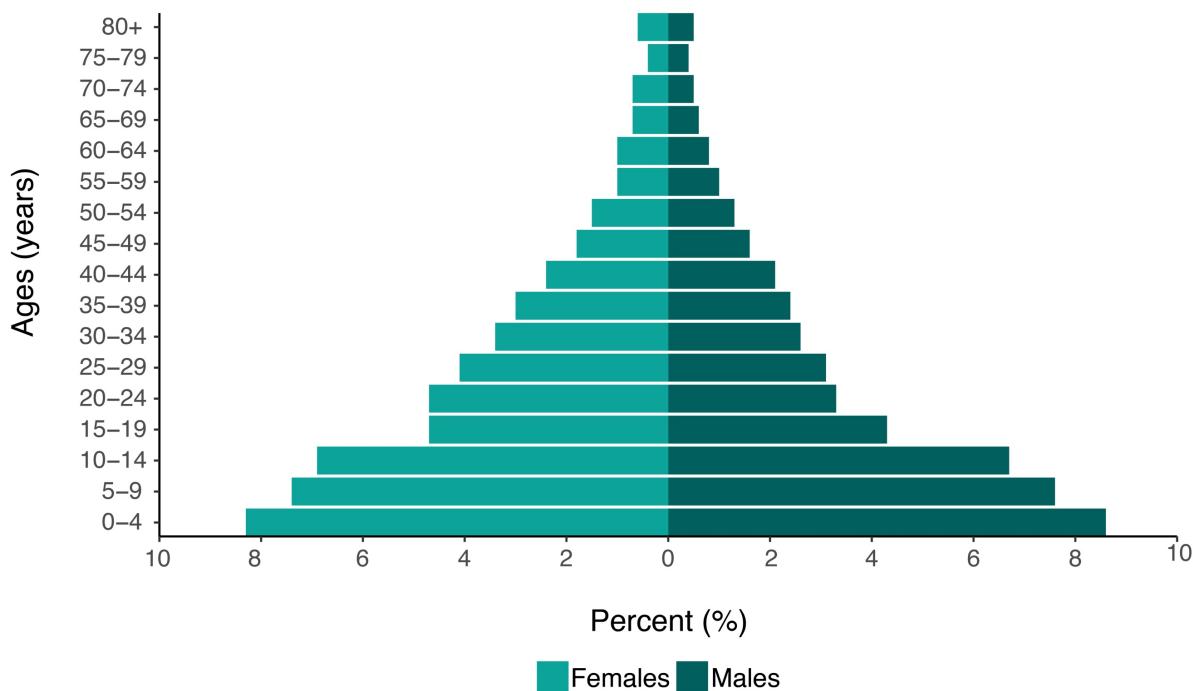
Percent distribution of the de facto household population, by five-year age groups and sex, THIS 2016-2017

Age	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
0-4	8.6	5924.0	8.3	5,840	16.9	11,764
5-9	7.6	5298.0	7.4	5,267	15.0	10,565
10-14	6.7	4522.0	6.9	4,723	13.6	9,245
15-19	4.3	2958.0	4.7	3,285	9.1	6,243
20-24	3.3	2322.0	4.7	3,107	8.0	5,429
25-29	3.1	2032.0	4.1	2,797	7.2	4,829
30-34	2.6	1774.0	3.4	2,264	6.0	4,038
35-39	2.4	1582.0	3.0	1,897	5.4	3,479
40-44	2.1	1372.0	2.4	1,552	4.5	2,924
45-49	1.6	1022.0	1.8	1,157	3.4	2,179

Table 3.3.D Distribution of de facto household population (continued)

Percent distribution of the de facto household population, by five-year age groups and sex, THIS 2016-2017

Age	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
50-54	1.3	826.0	1.5	955	2.8	1,781
55-59	1.0	653.0	1.0	659	2.0	1,312
60-64	0.8	519.0	1.0	631	1.8	1,150
65-69	0.6	378.0	0.7	455	1.3	833
70-74	0.5	291.0	0.7	406	1.1	697
75-79	0.4	217.0	0.4	282	0.8	499
≥80	0.5	292.0	0.6	408	1.1	700
Total	47.2	31982.0	52.8	35,685	100.0	67,667

Figure 3.3.A Distribution of the de facto population by sex and age, THIS 2016-2017

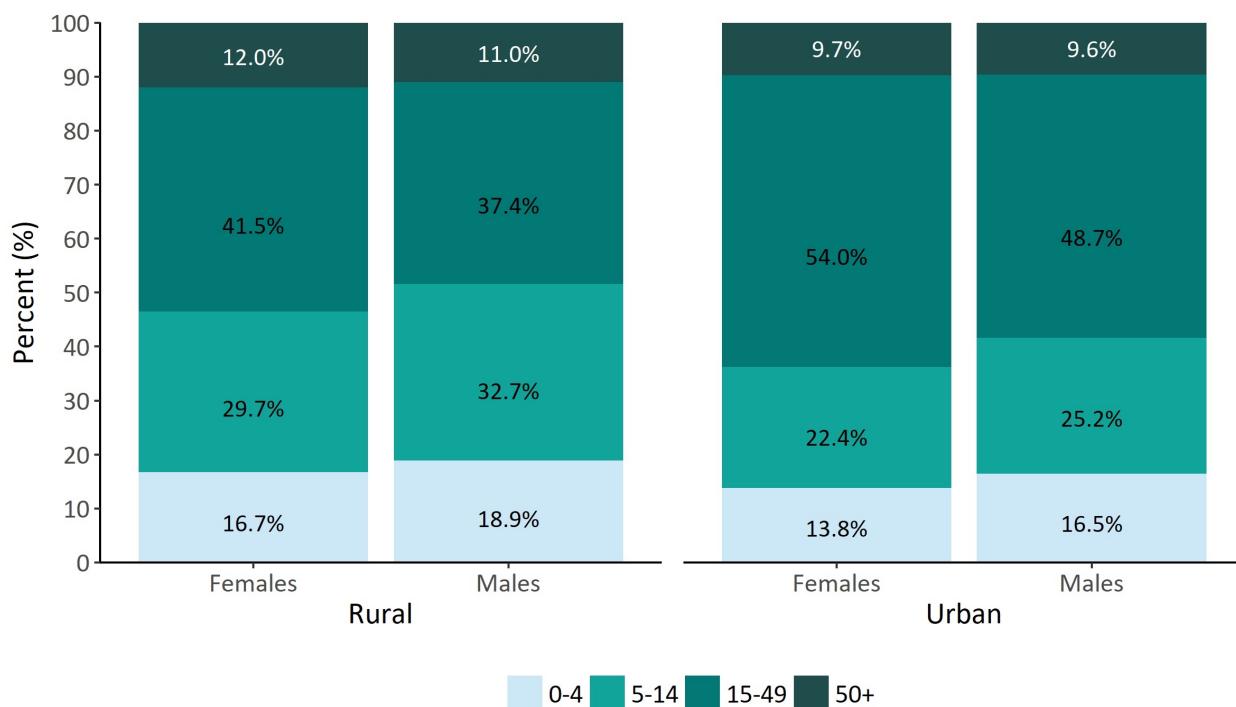
Overall, the population in rural areas was younger than that in urban areas: 48.9% of the rural population was under the age of 15 years compared with 38.7% of the urban population. In urban areas, around half (51.6%) of the population was 15-49 years of age (48.7% of males and 54.0% of females), and 9.7% were over 50 years of age. In rural areas, 39.6% of the population was comprised of individuals aged 15-49 years, and 11.5% were over the age of 50 years (Table 3.3.E).

Table 3.3.E Distribution of de facto household population by age, sex, and residence

Percent distribution of the household population, by sex, age, and residence, THIS 2016-2017

Age	Urban					
	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
0-4	16.5	1,556	13.8	1,546	15.0	3,102
5-14	25.2	2,430	22.4	2,594	23.7	5,024
15-49	48.7	4,415	54.0	5,739	51.6	10,154
≥50	9.6	814	9.7	1,000	9.7	1,814
Total	100.0	9,215	100.0	10,879	100.0	20,094

Age	Rural					
	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
0-4	18.9	4,368	16.7	4,294	17.8	8,662
5-14	32.7	7,390	29.7	7,396	31.1	14,786
15-49	37.4	8,647	41.5	10,320	39.6	18,967
≥50	11.0	2,362	12.0	2,796	11.5	5,158
Total	100.0	22,767	100.0	24,806	100.0	47,573

Figure 3.3.B Household population by age, sex, and residence, THIS 2016-201

3.4 Prevalence of HIV-Affected Households

In Tanzania, 9.9% of households had at least one HIV-positive member (11.8% of urban households and 8.7% of rural households) (Table 3.4.A, Figure 3.4.A). Among HIV-affected households, 82.8% had one HIV-positive member and 16.3% had two HIV-positive members. This distribution was almost similar for urban and rural households (Table 3.4.B, Figure 3.4.B). Overall, 7.1% of households in Tanzania had an HIV-positive head of the household. Of the male-headed households, 4.8% were headed by an HIV-positive male. Among female-headed households, 12.0% were headed by an HIV-positive female (Table 3.4.C, Figure 3.4.C).

Table 3.4.A Prevalence of HIV-affected households

Percentage of households with at least one HIV-positive household member, by residence, THIS 2016-2017

Residence	Percent	Number
Urban	11.8	4,905
Rural	8.7	9,304
Total	9.9	14,209

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

Among households with at least one HIV-positive household member, percent distribution of households by number of HIV-positive household members, by residence, THIS 2016-2017

Number of HIV-positive household members	Residence					
	Urban		Rural		Total	
	Percent	Number	Percent	Number	Percent	Number
1	84.0	533	81.8	756	82.8	1,289
2	15.5	108	17.0	161	16.3	269
3	*	3	*	12	*	15
4	*	0	*	1	*	1
5	*	0	*	0	*	0
≥6	*	0	*	0	*	0
Total	100.0	644	100.0	930	100.0	1,574

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

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

Percentage of households with an HIV-positive head of household, by sex of head of household, THIS 2016-2017

Sex of head of household	Percent	Number
Male	4.8	8,253
Female	12.0	3,557
Total	7.1	11,810

Figure 3.4.A Prevalence of HIV-affected households by residence, THIS 2016-2017

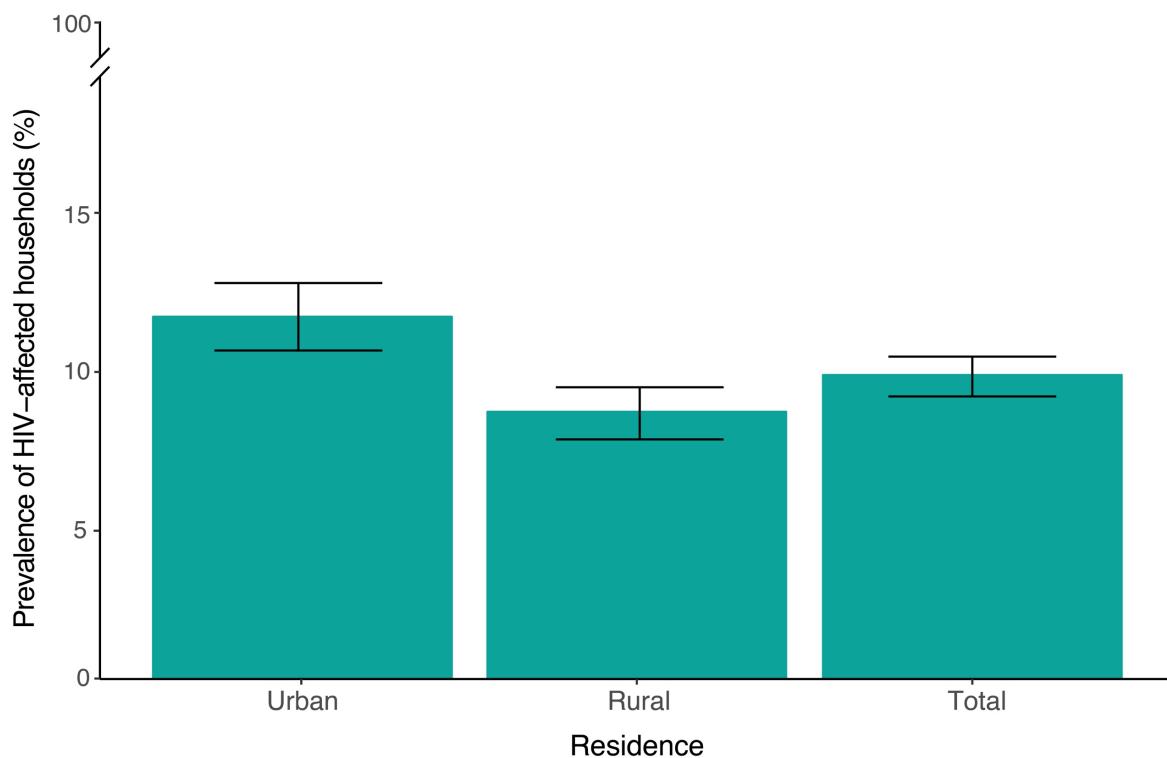


Figure 3.4.B HIV-affected households by number of HIV-positive members and residence, THIS 2016-2017

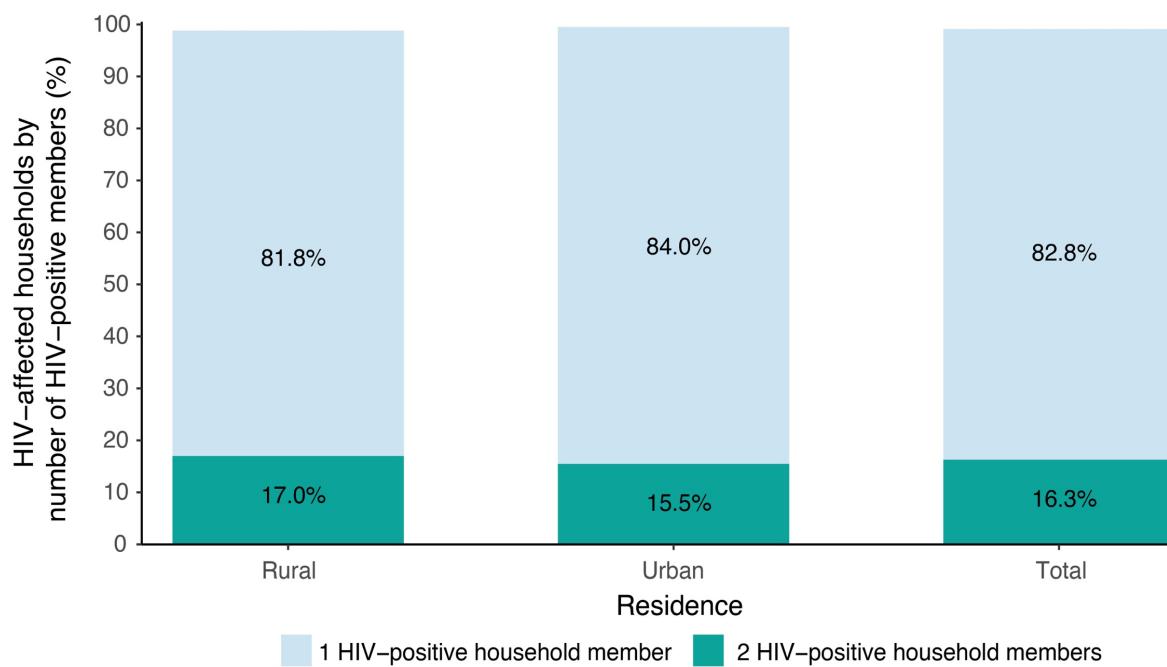
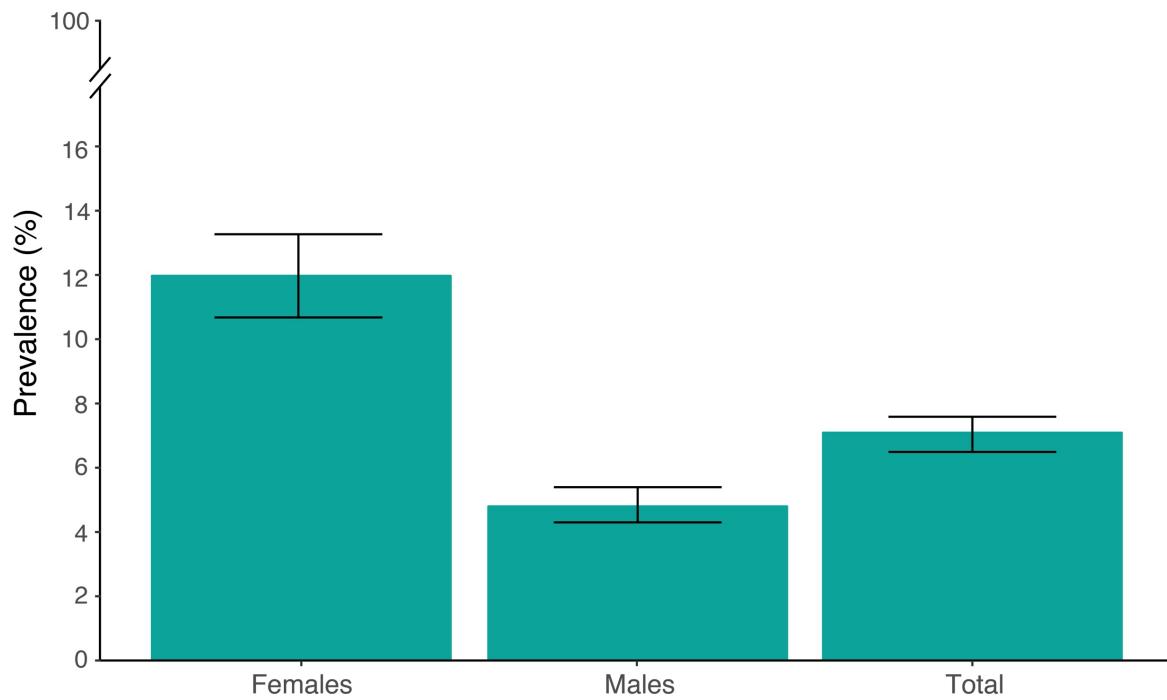


Figure 3.4.C Prevalence of households with an HIV-positive head of household by sex, THIS 2016-2017



3.5 Gaps and Unmet Needs

- More than half (54.6%) of the Tanzania population are young people aged 0-19 years.
- One in ten (9.9%) of the households had at least one HIV-positive member.
- Among households, 7.1% had an HIV-positive head of household.

4 SURVEY RESPONDENT CHARACTERISTICS

4.1 Key Findings

- Ninety seven percent (97.3%) of the adult survey population, ages 15 years and older, reside in Tanzania mainland and 2.7% reside in Zanzibar.
- Of the population of children aged 0-14 years, 97% resides in Tanzania mainland and 3% reside in Zanzibar.
- Among the population aged 0-14 years, 71.6% are under the age of 10 years.
- Sixty three percent (63.2%) of adults, ages 15 years and older, and 71.9% of children, ages 0-14 years, reside in rural areas.
- Among the respondents, ages 15 years and older, only 5.2% had more than secondary education.
- Eleven percent (11.3%) of adolescents, ages 10-14 years, were not currently attending school.
- More than half (58.6%) of the respondents, ages 15 years and older, had attended primary education, while nearly one in five (19.1%) had some secondary education.

4.2 Background

The THIS assessed key indicators and outcomes for children (0-9 years), early adolescents (10-14 years), and adults (15 years and older). To provide context for these outcomes, this chapter summarizes the basic demographic and socioeconomic characteristics of survey respondents. In this report, most key indicators are stratified according to these characteristics.

4.3 Demographic Characteristics of the Adult Population

Overall, almost two-thirds (63.2%) of respondents aged 15 years and older lived in rural areas. Among the surveyed population, 2.7% reside in Zanzibar and 97.3% reside in Tanzania mainland. The majority of adult respondents (56.6%) were married or living with a partner, while over a third (36.5%) of the males and nearly a quarter (23.4%) of the females had never been married. More than half (58.6%) of the respondents aged 15 years and older had attended primary education, while nearly one in five (19.1%) had some secondary education. Only 5.2% of the respondents aged 15 years and older had more than secondary education.

Table 4.3.A Demographic characteristics of the adult population

Percent distribution of the population aged 15 years and older, by sex and selected demographic characteristics, THIS
2016-2017

Characteristic	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
Residence						
Urban	35.2	4,446	38.3	6,395	36.8	10,841
Rural	64.8	9,986	61.7	12,177	63.2	22,163
Tanzania Mainland/Zanzibar						
Mainland	97.5	13,721	97.2	17,541	97.3	31,262
Urban	34.3	4,231	37.4	6,118	35.9	10,349
Rural	63.2	9,490	59.8	11,423	61.4	20,913
Zanzibar	2.5	711	2.8	1,031	2.7	1,742
Unguja	1.9	511	2.1	720	2.0	1,231
Pemba	0.6	200	0.7	311	0.7	511
Region						
Dodoma	4.4	247	4.3	303	4.3	550
Arusha	4.0	195	4.4	283	4.2	478
Kilimanjaro	3.8	268	4.1	373	3.9	641
Tanga	3.8	293	3.9	381	3.8	674
Morogoro	5.2	339	6.2	515	5.7	854
Pwani	2.6	823	2.9	1,155	2.8	1,978
Dar es Salaam	9.5	826	9.8	1,129	9.6	1,955
Lindi	2.2	161	1.9	188	2.1	349
Mtwara	2.8	222	2.2	223	2.5	445
Ruvuma	3.3	895	3.1	1,100	3.2	1,995
Iringa	2.6	584	2.8	826	2.7	1,410
Mbeya	4.3	601	4.6	827	4.4	1,428
Singida	2.9	153	3.1	212	3.0	365
Tabora	5.2	1,494	4.4	1,647	4.8	3,141
Rukwa	2.5	922	2.5	1,216	2.5	2,138
Kigoma	3.1	332	3.2	452	3.2	784
Shinyanga	3.7	1,030	3.3	1,225	3.5	2,255
Kagera	5.6	421	4.6	455	5.1	876
Mwanza	5.8	605	5.3	723	5.5	1,328
Mara	5.0	360	5.6	524	5.3	884
Manyara	3.7	201	3.4	238	3.6	439
Njombe	1.7	364	2.1	568	1.9	932
Katavi	1.4	1,056	1.3	1,320	1.4	2,376
Simiyu	2.8	311	2.9	427	2.8	738
Geita	3.8	392	3.3	442	3.6	834
Songwe	2.0	626	2.0	789	2.0	1,415
Kaskazini Unguja	0.2	109	0.3	181	0.3	290
Kusini Unguja	0.3	109	0.3	131	0.3	240
Mjini Magharibi	1.4	293	1.5	408	1.5	701
Kaskazini Pemba	0.3	88	0.3	144	0.3	232
Kusini Pemba	0.3	112	0.4	167	0.4	279

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

Percent distribution of the population aged 15 years and older, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
Marital status						
Never married	36.5	4,613	23.4	3,749	29.8	8,362
Married or living together	56.6	8,694	56.6	10,989	56.6	19,683
Divorced or separated	5.7	855	10.9	2,058	8.4	2,913
Widowed	1.2	240	9.1	1,743	5.3	1,983
Education						
No education	10.5	1,767	19.5	4,132	15.1	5,899
Pre-Primary	0.6	84	0.5	89	0.6	173
Primary	60.2	8,878	57.1	10,488	58.6	19,366
Post Primary Training	1.6	221	1.1	192	1.4	413
Secondary (O-Level)	20.6	2,667	17.6	3,033	19.1	5,700
Post-Secondary (O-Level) Training	3.0	348	2.6	383	2.8	731
Secondary (A-Level)	1.0	134	0.5	76	0.7	210
Post-Secondary (A-Level) Training	0.7	95	(0.2)	40	0.4	135
University	1.7	230	0.8	127	1.3	357
Wealth quintile						
Lowest	19.5	3,198	18.9	3,893	19.2	7,091
Second	21.2	3,210	19.9	3,864	20.6	7,074
Middle	20.9	3,195	20.8	4,158	20.8	7,353
Fourth	18.9	2,518	19.5	3,398	19.2	5,916
Highest	19.5	2,307	20.9	3,254	20.2	5,561
Age						
15-19	19.7	2,624	18.7	3,073	19.2	5,697
20-24	16.3	2,082	15.8	2,959	16.0	5,041
25-29	13.5	1,779	13.6	2,660	13.6	4,439
30-34	11.4	1,541	11.5	2,158	11.4	3,699
35-39	9.5	1,373	9.5	1,828	9.5	3,201
40-44	7.7	1,217	7.6	1,466	7.7	2,683
45-49	6.0	915	5.9	1,090	5.9	2,005
50-54	4.5	763	4.6	910	4.6	1,673
55-59	3.5	597	3.7	608	3.6	1,205
60-64	2.6	482	3.0	576	2.8	1,058
65-69	1.8	359	2.0	406	1.9	765
70-74	1.3	266	1.7	337	1.5	603
75-79	1.0	199	1.1	231	1.1	430
≥80	1.2	235	1.3	270	1.2	505
Total 15-24	36.0	4,706	34.5	6,032	35.3	10,738
Total 15-49	84.2	11,531	82.6	15,234	83.4	26,765
Total 15+	100.0	14,432	100.0	18,572	100.0	33,004

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

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

4.4 Demographic Characteristics of the Early Adolescent Population

The distribution of adolescents between rural and urban areas mirrors that of the adult population with 71.1% of the population aged 10-14 years residing in rural areas. In this population bracket, 11.3% were not currently in school, while the majority (80.5%) were in primary education.

Table 4.4.A Demographic characteristics of the adolescent population

Percent distribution of the population aged 10-14 years, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
Residence						
Urban	27.6	363	30.2	398	28.9	761
Rural	72.4	1,012	69.8	1,006	71.1	2,018
Tanzania Mainland/Zanzibar						
Mainland	97.0	1,295	96.9	1,321	96.9	2,616
Urban	26.5	337	29.3	380	27.9	717
Rural	70.5	958	67.5	941	69.0	1,899
Zanzibar	3.0	80	3.1	83	3.1	163
Unguja	(1.8)	48	2.1	53	2.0	101
Pemba	(1.2)	32	(1.0)	30	1.1	62
Region						
Dodoma	*	23	*	18	(5.2)	41
Arusha	*	11	*	10	*	21
Kilimanjaro	(3.9)	27	*	22	(3.6)	49
Tanga	(4.2)	31	(4.2)	31	4.2	62
Morogoro	*	22	8.1	50	5.9	72
Pwani	2.3	65	2.8	78	2.6	143
Dar es Salaam	6.5	51	(6.1)	49	6.3	100
Lindi	*	15	*	11	(1.9)	26
Mtwara	*	12	*	14	(1.7)	26
Ruvuma	3.1	78	3.4	87	3.2	165
Iringa	2.1	51	2.4	54	2.3	105
Mbeya	3.7	50	4.0	52	3.9	102
Singida	*	10	*	12	*	22
Tabora	5.3	135	5.9	152	5.6	287
Rukwa	2.7	89	3.1	105	2.9	194
Kigoma	(4.0)	43	(4.0)	44	4.0	87
Shinyanga	3.7	104	3.5	95	3.6	199
Kagera	(5.3)	41	(5.2)	36	5.3	77
Mwanza	6.5	65	5.0	50	5.8	115
Mara	8.6	58	(5.5)	39	7.1	97
Manyara	*	15	*	20	(3.1)	35
Njombe	(1.9)	38	(2.0)	37	1.9	75
Katavi	1.6	122	1.4	103	1.5	225
Simiyu	(3.5)	37	(3.1)	32	3.3	69
Geita	5.1	52	(4.1)	43	4.6	95
Songwe	1.7	50	2.6	77	2.2	127
Kaskazini Unguja	*	11	*	6	*	17
Kusini Unguja	*	8	*	14	*	22
Mjini Magharibi	(1.4)	29	(1.6)	33	1.5	62
Kaskazini Pemba	*	17	*	17	(0.6)	34
Kusini Pemba	*	15	*	13	(0.5)	28
Education						
Currently attending pre-primary school	*	23	*	15	(2.0)	38
Currently attending primary school	80.0	1,090	80.9	1,123	80.5	2,213
Currently attending post-primary training	*	3	*	3	*	6
Currently attending secondary school	5.5	70	6.6	91	6.1	161
Not currently attending school	12.1	188	10.5	172	11.3	360
Total 10-14	100.0	1,375	100.0	1,404	100.0	2,779

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

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

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

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

4.5 Demographic Characteristics of the Pediatric and Early Adolescent Population

Survey participants aged 10 years and under accounted for 71.6 % of all participants between 0-14 years of age. The majority of the respondents 0-14 years of age group resided in rural areas (71.9%), and the distribution across the five wealth quintiles ranged from 13.7% in the highest wealth quintile to 24.5% in the lowest wealth quintile (Table 4.5.A).

Table 4.5.A Demographic characteristics of the pediatric population

Percent distribution of the population aged 0-14 years, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
Age						
0-17 months	11.7	600	11.2	572	11.4	1,172
18-59 months	26.7	1,381	27.1	1,340	26.9	2,721
5-9 years	33.4	1,772	33.1	1,697	33.3	3,469
10-14 years	28.2	1,375	28.7	1,404	28.4	2,779
Residence						
Urban	28.3	1,315	27.9	1,287	28.1	2,602
Rural	71.7	3,813	72.1	3,726	71.9	7,539
Tanzania Mainland/Zanzibar						
Mainland	97.2	4,848	96.8	4,714	97.0	9,562
Urban	27.4	1,234	26.9	1,214	27.1	2,448
Rural	69.8	3,614	69.9	3,500	69.9	7,114
Zanzibar	2.8	280	3.2	299	3.0	579
Unguja	1.8	168	2.2	192	2.0	360
Pemba	1.0	112	1.0	107	1.0	219
Region						
Dodoma	5.3	95	4.8	79	5.1	174
Arusha	3.8	63	3.8	58	3.8	121
Kilimanjaro	2.9	70	2.8	66	2.9	136
Tanga	3.3	85	3.4	88	3.4	173
Morogoro	4.5	96	5.4	116	4.9	212
Pwani	2.2	225	2.4	242	2.3	467
Dar es Salaam	5.8	173	5.9	174	5.8	347
Lindi	2.1	52	(1.3)	31	1.7	83
Mtwara	(1.8)	46	(1.8)	47	1.8	93
Ruvuma	3.0	269	3.3	295	3.1	564
Iringa	2.2	176	2.3	177	2.2	353
Mbeya	3.8	183	3.9	179	3.9	362
Singida	3.6	57	(3.1)	48	3.3	105
Tabora	6.3	602	6.3	577	6.3	1,179
Rukwa	3.1	399	3.2	400	3.2	799
Kigoma	4.2	158	3.8	139	4.0	297
Shinyanga	3.9	397	4.0	392	4.0	789
Kagera	4.6	124	4.9	122	4.7	246
Mwanza	6.0	216	5.7	199	5.8	415
Mara	8.0	203	6.7	161	7.4	364
Manyara	3.4	63	3.7	68	3.5	131
Njombe	1.8	130	1.8	124	1.8	254
Katavi	1.7	438	1.5	389	1.6	827
Simiyu	3.9	153	4.0	154	4.0	307
Geita	4.4	158	4.5	165	4.5	323
Songwe	2.0	217	2.2	224	2.1	441
Kaskazini Unguja	(0.3)	46	(0.2)	38	0.3	84
Kusini Unguja	(0.2)	28	(0.3)	34	0.2	62
Mjini Magharibi	1.3	94	1.7	120	1.5	214
Kaskazini Pemba	0.6	60	0.5	52	0.5	112
Kusini Pemba	0.5	52	0.5	55	0.5	107

Table 4.5.A Demographic characteristics of the pediatric population (continued)

Percent distribution of the population aged 0-14 years, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percent	Number	Percent	Number	Percent	Number
Wealth quintile						
Lowest	24.7	1,363	24.4	1,357	24.5	2,720
Second	24.8	1,254	24.0	1,174	24.4	2,428
Middle	20.4	1,110	19.9	1,093	20.2	2,203
Fourth	17.5	865	16.9	775	17.2	1,640
Highest	12.6	536	14.8	614	13.7	1,150
Total 0-4	38.4	1,981	38.2	1,912	38.3	3,893
Total 0-14	100.0	5,128	100.0	5,013	100.0	10,141

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

Weighted figures calculated using intwt0.

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

5 HIV INCIDENCE: ADULTS

5.1 Key Findings

- Annual incidence of HIV infection among adults aged 15-64 years in Tanzania was 0.25% (0.34% for females, and 0.17% for males).
- Annual incidence of HIV infection among adults aged 15 years and older in Tanzania was 0.24% (0.32% among females and 0.16% among males).
- The incidence of HIV infection among adults aged 25-34 years is higher (0.43%) compared to other age groups. Females were almost five times more likely to be HIV positive compared to males (0.15% among males and 0.7% among females) in that particular age group.
- The incidence was highest in males in aged 35-49 years (0.37%) and in females aged 25-34 years (0.7%).

5.2 Background

HIV incidence is the measure of new HIV infections in a population over time. It can provide important information on the status of the HIV epidemic, can be used for effective targeted HIV prevention planning in groups that are most vulnerable to infection, and to measure the impact of HIV prevention programs. This chapter presents annual estimates of HIV incidence among participants aged 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 THIS was not powered to estimate incidence at the regional level or across different sub-groups.

In THIS, two laboratory-based incidence testing algorithms (HIV-1 LAg Avidity plus VL and HIV-1 LAg Avidity plus VL and ARV detection) were used to distinguish recent from long-term infection, and incidence estimates were obtained using the formula recommended by the WHO Incidence WG and Consortium for Evaluation and Performance of Incidence Assays, and with assay performance characteristics of a MDRI=130 days (95% CI: 118, 142), with T=1.0 year and residual PFR=0.00. Survey weights are utilized for all estimates. All HIV-positive participants aged 18 months and older were tested for recent infection using HIV-1 LAg Avidity assay.

Updated incidence algorithm

Incidence estimation for THIS is based on recent/long-term classification using algorithms with the LAg Avidity assay.^{1,2,3} The original algorithm incorporated VL results to mitigate misclassification from persons who may be elite controllers or on ART – both groups characterized by low VL. As ART coverage has increased, some individuals on ART for long-periods of time have the potential to be misclassified by the LAg plus VL algorithm as a recent infection. Although they may have suppressed VL for years, drug resistance or lack of adherence may result in VL \geq 1000 copies/mL, which appear as false recent cases when using only LAg plus VL algorithm. Based in part on data from multiple PHIA surveys, the updated incidence algorithm includes ARV detection as a second exclusion criteria. The addition of ARV detection is expected to produce more accurate estimates of both HIV incidence and transmitted HIV drug resistance.

5.3 HIV Incidence Among Adults

HIV incidence estimates using LAg Avidity and HIV viral load

The incidence of HIV infection among adults aged 15 years and older is 0.27% overall (0.16% among males and 0.38% among females). This corresponds to approximately 81,000 new infections per year. The estimated incidence of HIV infection was 0.27% among adults aged 15-49 years and 0.29% (0.17% among men and 0.40% among women) among those 15-64 years of age. Among males, annual incidence peaked in those 35-49 years of age (0.37%) and among females, annual incidence peaked in those aged 25-34 years (0.70%). However, these results should be interpreted with caution, as the differences are not statistically significant, and the survey was not designed to estimate age- and gender-specific differences (Table 5.3.A).

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

The incidence of HIV infection among adults aged 15 years and older is 0.24% overall (0.16% among males and 0.32% among females). This corresponds to approximately 72,000 new infections per year (about 24,000 among males and 48,000 among females). Among adults aged 15-49 years, the estimated HIV incidence was 0.24% and, for those aged 15-64 years, it was 0.25% (0.17% among males and 0.34% among females). Among males, annual incidence peaked in those aged 35-49 years (0.37%), and among females, annual incidence peaked in those aged 25-34 years (0.70%). However, these results should be interpreted with caution, as the differences are not statistically significant, and the survey was not designed to estimate age and gender specific differences (Table 5.3.B).

Table 5.3.A Annual HIV incidence using LAg/VL¹ testing algorithm

Annual incidence of HIV among persons aged 15-49 years and aged 15 years and older using LAg/VL¹ algorithm, by sex and age, THIS 2016-2017

Age	Males		Females		Total	
	Percentage annual incidence ²	95% CI ³	Percentage annual incidence ²	95% CI	Percentage annual incidence ²	95% CI
15-24	0.00	(0.00, 0.023)	0.14	(0.00, 0.31)	0.07	(0.00, 0.16)
15-19	0.00	(0.00, 0.41)	0.22	(0.00, 0.50)	0.11	(0.00, 0.25)
20-24	0.00	(0.00, 0.52)	0.05	(0.00, 0.19)	0.03	(0.00, 0.10)
25-34	0.15	(0.00, 0.38)	0.70	(0.26, 1.15)	0.43	(0.18, 0.68)
35-49	0.37	(0.00, 0.75)	0.47	(0.05, 0.90)	0.42	(0.13, 0.71)
15-49	0.14	(0.02, 0.26)	0.40	(0.22, 0.58)	0.27	(0.16, 0.38)
15-64	0.17	(0.05, 0.29)	0.40	(0.23, 0.57)	0.29	(0.18, 0.39)
15+	0.16	(0.05, 0.27)	0.38	(0.22, 0.53)	0.27	(0.17, 0.37)

¹ LAg/VL: Limiting antigen/viral load

² Relates to Global AIDS Monitoring indicator 1.3: Retention on antiretroviral therapy at 12 months

³ CI (confidence interval) indicates the interval that is expected to include the true population parameter 95% of the time

Table 5.3.B Annual HIV incidence using LAg/VL/ARV¹ testing algorithm

Annual incidence of HIV among persons aged 15-49 years and aged 15 years and older using LAg/VL/ARV¹ algorithm, by sex and age, THIS 2016-2017

Age	Males		Females		Total	
	Percentage annual incidence ²	95% CI ³	Percentage annual incidence ²	95% CI	Percentage annual incidence ²	95% CI
15-24	0.00	(0.00, 0.23)	0.14	(0.00, 0.31)	0.07	(0.00, 0.16)
15-19	0.00	(0.00, 0.41)	0.22	(0.00, 0.50)	0.11	(0.00, 0.25)
20-24	0.00	(0.00, 0.52)	0.05	(0.00, 0.19)	0.03	(0.00, 0.10)
25-34	0.15	(0.00, 0.38)	0.70	(0.26, 1.15)	0.43	(0.18, 0.68)
35-49	0.37	(0.00, 0.75)	0.24	(0.00, 0.56)	0.31	(0.05, 0.55)
15-49	0.14	(0.02, 0.26)	0.34	(0.18, 0.50)	0.24	(0.14, 0.35)
15-64	0.17	(0.05, 0.29)	0.34	(0.19, 0.50)	0.25	(0.15, 0.36)
15+	0.16	(0.05, 0.27)	0.32	(0.17, 0.46)	0.24	(0.15, 0.33)

¹LAG/VL/ARV: Limiting antigen/viral load/antiretrovirals

²Relates to Global AIDS Monitoring indicator 1.3: Retention on antiretroviral therapy at 12 months

³CI (confidence interval) indicates the interval that is expected to include the true population parameter 95% of the time

5.4 Gaps and Unmet Needs

- Incidence results parallel the gender disparity in prevalence; females have significantly higher incidence compared to males, especially among females aged 25-34 years.
- The highest incidence was among females aged 25-34 years.

5.5 References

1. Duong YT, Kassanjee R, Welte A, et al. Recalibration of the limiting antigen avidity EIA to determine mean duration of recent infection in divergent HIV-1 subtypes. *PLoS One*. 2015 Feb 24;10(2):e0114947. doi: 10.1371/journal.pone.0114947.
2. Kassanjee R, McWalter TA, Bärnighausen T, Welte A. A new general biomarker-based incidence estimator. *Epidemiology*. 2012 Sep;23(5):721-8. doi: 10.1097/EDE.0b013e3182576c07.
3. Duong YT, Qiu M, De AK, et al. Detection of recent HIV-1 infection using a new limiting-antigen avidity assay: potential for HIV-1 incidence estimates and avidity maturation studies. *PLoS One*. 2012;7(3):e33328. doi: 10.1371/journal.pone.0033328. Epub 2012 Mar 27.

6 HIV PREVALENCE: ADULTS

6.1 Key Findings

- Prevalence of HIV infection among adults aged 15 years and older in Tanzania was 4.9% (6.3% among females, and 3.4% among males). This corresponds to approximately 1.4 million PLHIV aged 15 years and older in the country.
- Prevalence among adults aged 15-49 years was 4.7% for the entire country, 4.8% in Tanzania mainland and 0.4% in Zanzibar.
- HIV prevalence among females aged 20-24 years, 25-29 years, 30-34 years, and 35-39 years was higher than in males in corresponding age groups.
- The burden of HIV infection varies across the country; HIV prevalence ranged from less than 1.0% in Zanzibar and Lindi to 11.4% in Njombe.
- Overall, HIV prevalence reduced with increasing education level for both males and females.

6.2 Background

HIV prevalence is a measure of the relative burden of disease in a population. This chapter presents representative estimates of prevalence of HIV infection at the national and regional level by selected demographic and behavioral characteristics. This chapter also presents estimates of the number of people living with HIV in Tanzania. HIV prevalence testing was conducted in each household using a serological rapid diagnostic testing algorithm based on Tanzania's national guidelines, with laboratory confirmation of seropositive samples using a supplemental assay. Appendix A describes the sample design and Appendix C provides estimates of sampling errors. Appendix B describes THIS HIV testing methodology.

6.3 Adult HIV Prevalence by Demographic Characteristics

Among adults aged 15-49 years, the prevalence of HIV infection was 4.7% (3.1% among males and 6.2% among females) with higher prevalence in urban areas at 5.5%, as compared to 4.2% in rural areas (Table 6.3.A). HIV prevalence among adults, 15 years and older was 4.9%; 3.4% in males and 6.3% in females. This corresponds to approximately 1,400,000 PLHIV, aged 15 years and older, in Tanzania.

In adults aged 15 years and older, HIV prevalence ranged from 0.7% in those aged 15-19 years to 9.7% in those aged 40-44 years. HIV prevalence was highest among females aged 45-49 years at 12.0% compared to 8.4% among males aged 40-44 years. Prevalence among those aged 15-24 years was 1.4% (2.1% among females and 0.6% among males). The disparity in HIV prevalence between males and females is most pronounced among younger adults, with females aged 15-19 years, aged 20-24 years, aged 25-29 years, aged 30-34 years, and aged 35-39 years all having prevalence double (or higher) as compared to males in corresponding age groups. Prevalence increased rapidly from 15-19 years of age (0.7%) to the ages of 35-39 years (8.6%) for both males and females (Table 6.3.C).

Among those aged 15 years and older, who have never married, HIV prevalence was 1.8%. HIV prevalence in females who were never married was approximately three-fold greater (3.1%) compared to men who were never married (0.9%). Among those who were married or living with a partner (or living together), HIV prevalence was 4.8%. Among those who were widowed, divorced, or separated, HIV prevalence was

more than twice as high as in those who were married (widowed 13.0%, divorced/separated 11.0%). (Table 6.3.B, Figure 6.3.B).

Among adults aged 15 years and older, HIV prevalence by education status ranged from 6.1% in those with no education to 0.5% in those with post-secondary (A-Level) training. Overall, prevalence decreased with increasing education level. HIV prevalence was 6.1% among those with no education, compared to 5.5% among those with primary school education and 2.7% among those with secondary/O-level education. HIV prevalence in females with no education, primary education, and secondary (O-level) education was 6.7%, 7.2% and 3.6%, compared to males with the same level of education 5.0%, 3.7%, and 2.0% respectively (Table 6.3.B).

HIV prevalence among females aged 15 years and older who were pregnant at the time of the survey was estimated at 4.7%, compared to 6.4% among females who were not pregnant (Table 6.3.B).

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

Prevalence of HIV among persons aged 15-49 years, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Residence						
Urban	2.8	3,435	7.8	5,174	5.5	8,609
Rural	3.2	7,536	5.1	9,455	4.2	16,991
Tanzania Mainland/Zanzibar						
Mainland	3.1	10,422	6.4	13,822	4.8	24,244
Urban	2.9	3,253	8.0	4,942	5.6	8,195
Rural	3.3	7,169	5.3	8,880	4.3	16,049
Zanzibar	0.0	549	0.8	807	0.4	1,356
Unguja	0.0	414	1.0	585	0.5	999
Pemba	0.0	135	0.4	222	0.2	357
Region						
Dodoma	2.5	154	5.8	204	4.2	358
Arusha	2.0	139	1.8	218	1.9	357
Kilimanjaro	1.1	159	3.1	236	2.2	395
Tanga	3.5	204	7.2	281	5.4	485
Morogoro	1.5	247	5.9	391	3.9	638
Pwani	2.6	573	7.7	852	5.3	1,425
Dar es Salaam	2.0	619	6.3	939	4.3	1,558
Lindi	0.0	127	0.7	132	0.3	259
Mtwara	1.3	142	3.1	156	2.1	298
Ruvuma	4.5	657	6.6	803	5.5	1,460
Iringa	6.6	443	15.5	617	11.2	1,060
Mbeya	4.9	450	13.2	634	9.2	1,084
Singida	1.6	100	5.3	146	3.5	246
Tabora	4.2	1,182	5.5	1,373	4.8	2,555
Rukwa	3.0	747	5.1	1,023	4.1	1,770
Kigoma	2.7	258	3.4	344	3.0	602
Shinyanga	4.0	840	7.2	1,005	5.5	1,845
Kagera	6.1	324	7.6	367	6.8	691
Mwanza	4.3	459	8.9	572	6.5	1,031
Mara	2.5	285	4.0	407	3.3	692
Manyara	1.2	160	2.4	205	1.8	365
Njombe	6.1	267	16.1	409	11.6	676
Katavi	2.9	854	8.0	1,119	5.4	1,973
Simiyu	3.2	245	3.7	362	3.5	607
Geita	3.5	319	6.9	388	5.2	707
Songwe	4.7	468	6.5	639	5.6	1,107
Kaskazini Unguja	0.0	87	1.5	136	0.8	223
Kusini Unguja	0.0	83	0.0	99	0.0	182
Mjini Magharibi	0.0	244	1.1	350	0.5	594
Kaskazini Pemba	0.0	54	0.0	91	0.0	145
Kusini Pemba	0.0	81	0.7	131	0.4	212

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

Characteristic	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Marital status						
Never married	0.9	4,330	3.0	3,517	1.7	7,847
Married or living together	4.3	5,954	5.4	9,117	4.9	15,071
Divorced or separated	7.3	603	12.4	1,527	10.7	2,130
Widowed	19.3	57	31.0	441	29.7	498
Education						
No education	5.9	1,109	7.5	2,370	6.9	3,479
Pre-Primary	8.6	57	6.3	69	7.4	126
Primary	3.3	6,708	7.2	8,690	5.3	15,398
Post Primary Training	1.9	148	7.6	148	4.3	296
Secondary (O-Level)	1.8	2,337	3.5	2,815	2.7	5,152
Post-Secondary (O-Level)	2.1	263	1.4	321	1.7	584
Training						
Secondary (A-Level)	0.3	108	1.9	66	0.9	174
Post-Secondary (A-Level)	0.7	64	(0.0)	34	0.5	98
Training						
University	1.6	174	0.3	108	1.2	282
Wealth quintile						
Lowest	2.8	2,396	5.0	2,942	3.9	5,338
Second	3.5	2,391	5.1	2,948	4.3	5,339
Middle	4.0	2,418	7.3	3,246	5.7	5,664
Fourth	3.1	1,990	8.0	2,776	5.7	4,766
Highest	1.8	1,774	5.5	2,712	3.7	4,486
Pregnancy status						
Currently pregnant	NA	NA	4.8	1,302	NA	NA
Not currently pregnant	NA	NA	6.4	13,085	NA	NA
Total 15-49	3.1	10,971	6.2	14,629	4.7	25,600

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

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

Table 6.3.B HIV prevalence by demographic characteristics: Ages 15 years and older

Prevalence of HIV among persons aged 15 years and older, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Residence						
Urban	3.4	4,106	8.3	6,034	6.0	10,140
Rural	3.4	9,644	5.0	11,795	4.2	21,439
Tanzania Mainland/Zanzibar						
Mainland	3.5	13,079	6.4	16,848	5.0	29,927
Urban	3.5	3,902	8.5	5,772	6.2	9,674
Rural	3.4	9,177	5.1	11,076	4.3	20,253
Zanzibar	0.0	671	0.8	981	0.4	1,652
Unguja	0.0	488	1.0	693	0.5	1,181
Pemba	0.0	183	0.3	288	0.2	471
Region						
Dodoma	3.8	226	6.2	280	5.0	506
Arusha	1.7	175	2.2	255	1.9	430
Kilimanjaro	2.0	241	3.1	341	2.6	582
Tanga	3.7	283	6.2	367	5.0	650
Morogoro	2.2	324	5.8	491	4.2	815
Pwani	3.0	764	7.7	1,071	5.5	1,835
Dar es Salaam	2.3	724	6.8	1,049	4.7	1,773
Lindi	0.0	156	0.6	181	0.3	337
Mtwara	1.4	206	2.8	208	2.0	414
Ruvuma	4.6	852	6.6	1,062	5.6	1,914
Iringa	6.6	550	15.3	792	11.3	1,342
Mbeya	5.4	559	12.8	765	9.3	1,324
Singida	1.8	139	5.1	193	3.6	332
Tabora	4.6	1,454	5.7	1,607	5.1	3,061
Rukwa	3.3	896	5.5	1,183	4.4	2,079
Kigoma	2.8	329	3.1	448	2.9	777
Shinyanga	4.3	1,003	7.5	1,206	5.9	2,209
Kagera	5.8	410	7.2	447	6.5	857

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

Prevalence of HIV among persons aged 15 years and older, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Mwanza	5.0	584	9.4	701	7.2	1,285
Mara	2.5	353	4.5	511	3.6	864
Manyara	1.9	191	2.7	227	2.3	418
Region (continued)						
Njombe	6.5	349	15.1	534	11.4	883
Katavi	3.5	1,024	8.2	1,302	5.9	2,326
Simiyu	3.3	303	4.5	424	3.9	727
Geita	3.7	384	6.4	436	5.0	820
Songwe	5.2	600	6.5	767	5.8	1,367
Kaskazini Unguja	0.0	106	1.1	177	0.6	283
Kusini Unguja	0.0	108	0.0	126	0.0	234
Mjini Magharibi	0.0	274	1.2	390	0.6	664
Kaskazini Pemba	0.0	77	0.0	129	0.0	206
Kusini Pemba	0.0	106	0.6	159	0.3	265
Marital status						
Never married	0.9	4,384	3.1	3,587	1.8	7,971
Married or living together	4.4	8,287	5.2	10,572	4.8	18,859
Divorced or separated	7.3	820	12.8	1,980	11.0	2,800
Widowed	10.7	232	13.4	1,660	13.0	1,892
Education						
No education	5.0	1,697	6.7	4,001	6.1	5,698
Pre-Primary	7.1	80	4.9	88	6.0	168
Primary	3.7	8,540	7.2	10,106	5.5	18,646
Post Primary Training	1.9	211	9.9	185	5.3	396
Secondary (O-Level)	2.0	2,508	3.6	2,874	2.7	5,382
Post-Secondary (O-Level)	2.9	322	1.3	351	2.1	673
Training						
Secondary (A-Level)	0.3	116	1.9	68	0.8	184
Post-Secondary (A-Level) Training	0.6	79	(0.0)	34	0.5	113
University	1.5	190	0.3	110	1.1	300
Wealth quintile						
Lowest	3.2	3,100	5.0	3,789	4.1	6,889
Second	3.6	3,124	5.1	3,763	4.3	6,887
Middle	4.4	3,075	7.3	4,004	5.8	7,079
Fourth	3.5	2,347	8.0	3,220	5.9	5,567
Highest	2.1	2,101	6.0	3,048	4.1	5,149
Pregnancy status						
Currently pregnant	NA	NA	4.7	1,307	NA	NA
Not currently pregnant	NA	NA	6.4	16,253	NA	NA
Total 15+	3.4	13,750	6.3	17,829	4.9	31,579

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

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

Figure 6.3.A HIV prevalence by marital status: Ages 15 years and older, THIS 2016-2017

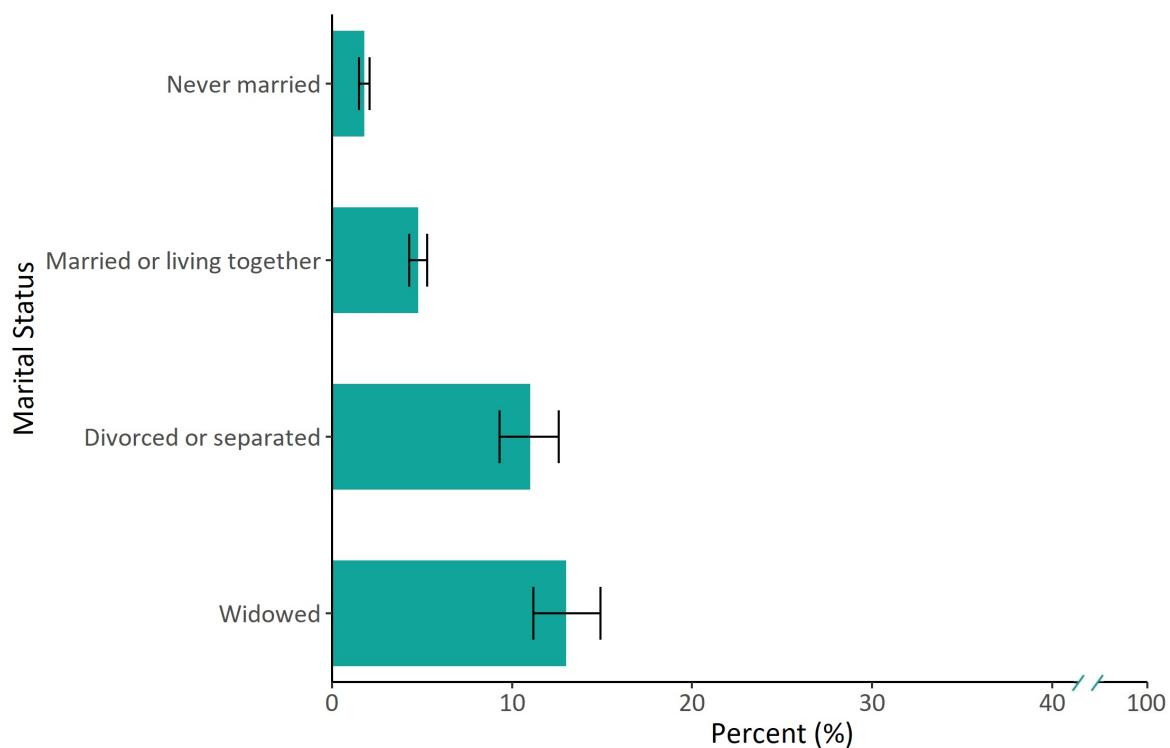


Table 6.3.C HIV prevalence by age and sex, United Republic of Tanzania

Prevalence of HIV among persons all ages, by sex and age, THIS 2016-2017

Age	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
0-17 months	0.1	538	0.4	525	0.3	1,063
18-59 months	0.2	1,312	0.7	1,251	0.4	2,563
5-9	0.5	1,661	0.5	1,607	0.5	3,268
10-14	0.3	1,345	0.3	1,377	0.3	2,722
Total 0-4	0.2	1,850	0.6	1,776	0.4	3,626
Total 0-14	0.3	4,856	0.5	4,760	0.4	9,616
15-19	0.4	2,533	1.0	2,999	0.7	5,532
20-24	0.9	1,987	3.4	2,845	2.2	4,832
25-29	2.3	1,670	5.6	2,521	4.0	4,191
30-34	3.9	1,453	8.6	2,062	6.4	3,515
35-39	5.6	1,307	11.6	1,749	8.6	3,056
40-44	8.4	1,144	11.0	1,405	9.7	2,549
45-49	6.8	877	12.0	1,048	9.4	1,925
50-54	7.4	728	9.4	872	8.4	1,600
55-59	8.0	572	9.7	580	8.9	1,152
60-64	3.6	459	6.5	558	5.2	1,017
65-69	2.3	344	3.0	395	2.7	739
70-74	1.7	254	4.4	322	3.3	576
75-79	2.0	193	0.2	221	1.0	414
≥80	0.3	229	1.2	252	0.8	481
Total 15-24	0.6	4,520	2.1	5,844	1.4	10,364
Total 15-49	3.1	10,971	6.2	14,629	4.7	25,600
Total 50+	5.0	2,779	6.5	3,200	5.8	5,979
Total 15-64	3.5	12,730	6.5	16,639	5.0	29,369
Total 15+	3.4	13,750	6.3	17,829	4.9	31,579

Figure 6.3.B HIV prevalence by age and sex, THIS 2016-2017

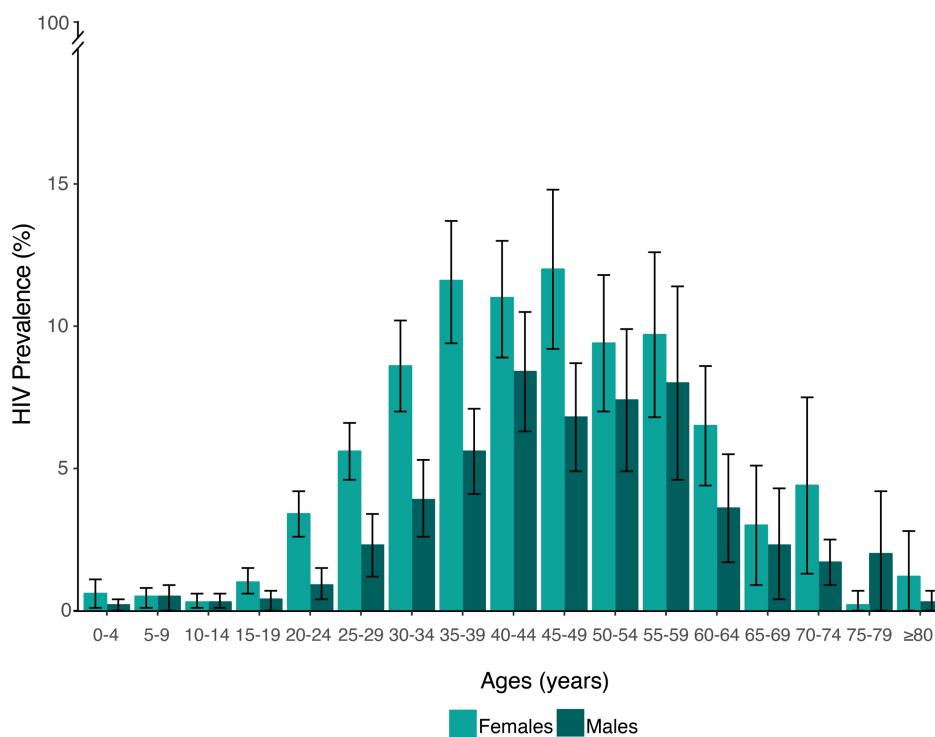


Table 6.3.D HIV prevalence by age and sex, Zanzibar

Prevalence of HIV among persons all ages, by sex and age, in Zanzibar, THIS 2016-2017

Age	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
0-14	0.0	252	0.0	270	0.0	522
15-49	0.0	549	0.8	807	0.4	1,356
50+	0.0	122	0.9	174	0.5	296
15-64	0.0	623	0.9	920	0.5	1,543
15+	0.0	671	0.8	981	0.4	1,652

Table 6.3.E HIV prevalence by age and sex, Mainland

Prevalence of HIV among persons all ages, by sex and age, in Tanzania mainland, THIS 2016-2017

Age	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
0-14	0.3	4,604	0.5	4,490	0.4	9,094
15-49	3.1	10,422	6.4	13,822	4.8	24,244
50+	5.1	2,657	6.7	3,026	6.0	5,683
15-64	3.6	12,107	6.7	15,719	5.1	27,826
15+	3.5	13,079	6.4	16,848	5.0	29,927

6.4 Adult (15+ years) HIV Prevalence by Region

Among adults 15 years and older, prevalence varied geographically across Tanzania, ranging from 11.4% in Njombe to 0.0% in Kusini Unguja and Kaskazini Pemba. HIV prevalence was estimated to be 5.0% in the mainland and 0.4% in Zanzibar (Table 6.3.B). HIV prevalence in Dar es Salaam was 4.7%. Female HIV prevalence was approximately three-fold greater in Dar es Salaam compared to male HIV prevalence (6.8% in females compared to 2.3% in males) (Table 6.3.B). HIV prevalence in Iringa was two-fold higher among females (15.3%) compared to males (6.6%). The same observation was noted in Katavi (females 8.2% compared to males 3.5%, Mbeya (females 12.8% compared to males 5.4%), Mwanza (females 9.4% compared to males 5.0%) and Njombe (females 15.1% compared to males 6.5%). The highest prevalences were observed in Iringa (11.3%), Mbeya (9.3%), and Njombe regions (11.4%), and lowest prevalences were observed in Kusini Unguja and Kaskazini Pemba (both 0.0%).

Figure 6.4.A HIV prevalence among adults aged 15 years and older, by region, THIS 2016-2017

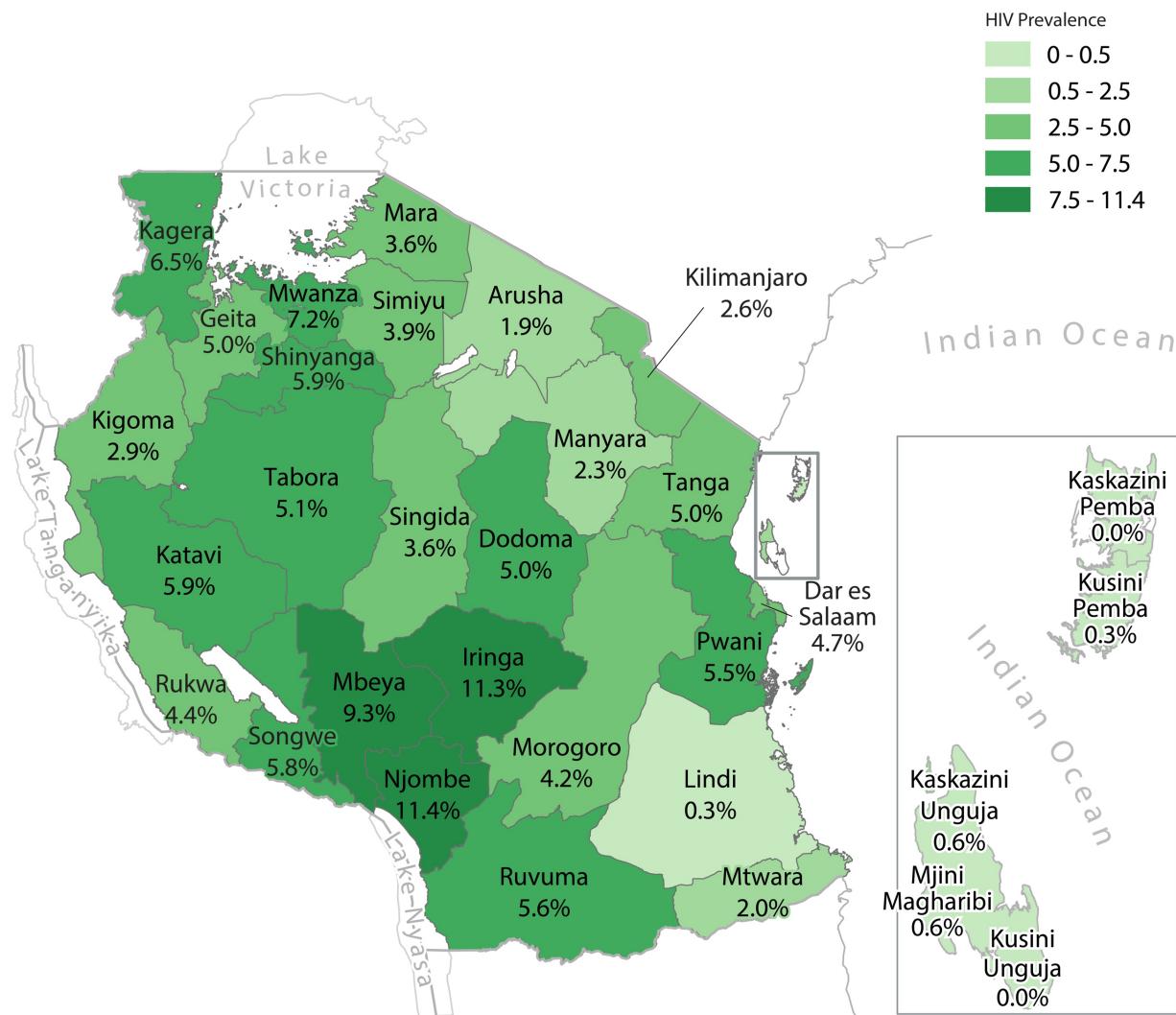
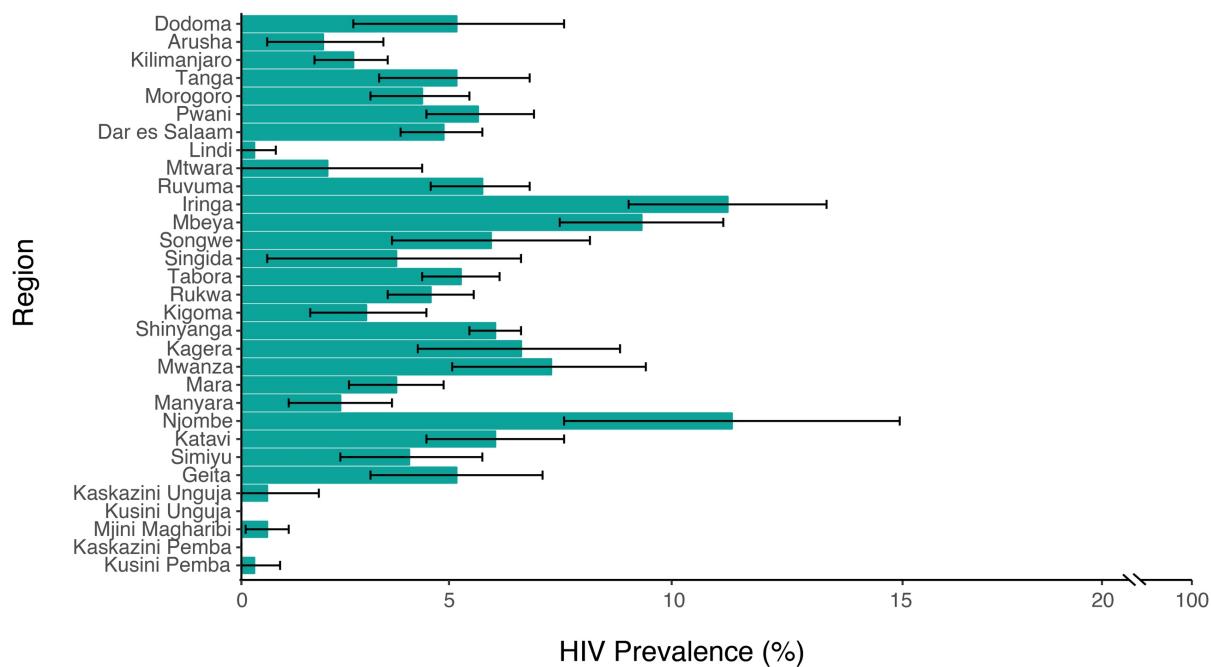


Figure 6.4.B HIV prevalence among adults aged 15 years and older, by region, THIS 2016-2017



6.5 Gaps and Unmet Needs

- Overall, females have a higher burden of HIV compared to males.
- Prevalence was greatest in women aged 35-49 years and hence it is recommended to undertake initiatives in this age group, including tailored preventive services.

7 HIV TESTING: ADULTS

7.1 Key Findings

- Sixty-five percent (65.2%) of adults 15 years and older self-reported having ever been tested for HIV (59.2% of males and 70.8% of females).
- Overall, 31.3% of adults aged 15 years and older reported having had an HIV test in the twelve months preceding the survey (29.0% of males and 33.5% of females).
- In Tanzania, 15.7% of adults aged 15 years and older who tested HIV positive during THIS reported that they had never been tested for HIV previously (19.7% of males and 13.7% of females).

7.2 Background

Awareness of HIV status is a critical component of HIV epidemic control. Awareness of HIV-positive status is the first step to engagement with HIV care and treatment services, accessing ART, prevention and counseling. Testing is essential for both HIV-positive and HIV-negative individuals to reduce risk of HIV transmission or acquisition, and access to screening services for other comorbidities.

Findings presented in this chapter pertain to male and female adults, ages 15 years and older, who self-reported ever testing for HIV and receiving the test results. Results of HIV testing in the last 12 months and receiving the test results are also presented to understand frequent or recent testing.

7.3 Self-Reported HIV Testing Among Adults

Among adults aged 15 years and older, 65.2% reported ever testing for HIV and receiving their test results. Thirty-one percent (31.3%) reported having been tested for HIV in the twelve months preceding the survey (Table 7.3.C).

Among men aged 15 years and older, 59.2% reported ever having been tested and receiving their test results for HIV, while about half (29.0%) of those reported testing in the year preceding the survey. More than three-fourths (76.6%) of males aged 25-29 years had been tested and received their results, compared to only 21.0% among males aged 15-19 years. A greater proportion (73.3%) of males, who are married or had partners, reported to have been tested and received test results compared to those who had never married (36.6%). Testing also varied with education level: coverage of testing was 77.4% among males with post-secondary education (O-level), compared to 58.3% and 48.5%, among those with primary education and no education, respectively. A similar pattern was observed across education levels for coverage of testing in the year preceding the survey. Having had a previous HIV test was more common among HIV-positive men aged 15 years and older (80.3%) than among those who were HIV negative (58.1%) (Table 7.3.A, Figure 7.3.A).

A greater proportion (70.8%) of females aged 15 years and older had ever been tested for HIV and received their test results than males (59.2%). The difference in testing among females varied considerably with age. While the coverage of ever HIV testing among young women aged 15-19 years was only 38.6%, for all age groups between 20-44 years it was over 80%, likely reflecting the high coverage of PMTCT programs. Women aged 60-64 years also reported comparatively low coverage of ever having tested (44.0%).

Differences in testing levels by marital status were notable. Among women who reported ever having been married or having a partner, 82.5% had ever tested and received test results, whereas never married women had testing rates that are considerably lower (47.1%)(Table 7.3.B; Figure 7.3.A). HIV-positive women were more likely to have been tested and received test their result (86.3%), compared to those who were HIV negative (69.4%). Conversely, HIV testing with receipt of test results in the past 12 months was slightly higher among those who were HIV negative (33.4%), compared to 26.2% among those who were HIV positive. This may reflect the fact that females who already knew that they were HIV positive would not have retested in the last year. Females who completed primary education were actually more likely to have ever been tested (75.5%) than those with secondary (O-level) education (67.0%). Females with no education were the least likely to have ever been tested (57.4%). Finally, females living in urban areas (76.5%) were more likely to have been tested than those in rural areas (67.3%).

Table 7.3.A Self-reported HIV testing: Males

Percentage of males aged 15 years and older who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results ¹	Number
Result of PHIA survey HIV test			
HIV positive	80.3	26.8	562
HIV negative	58.1	28.5	13,130
Not tested	65.2	37.9	677
Residence			
Urban	65.7	32.9	4,425
Rural	55.7	26.8	9,944
Tanzania Mainland/Zanzibar			
Mainland	59.3	29.2	13,661
Urban	66.0	33.3	4,211
Rural	55.7	27.0	9,450
Zanzibar	54.7	19.6	708
Unguja	57.3	20.9	510
Pemba	46.0	15.5	198

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

Percentage of males aged 15 years and older who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results ¹	Number
Region			
Dodoma	49.6	16.2	247
Arusha	61.4	29.5	195
Kilimanjaro	60.1	23.7	265
Tanga	51.3	20.3	291
Morogoro	59.0	25.9	338
Pwani	60.2	28.5	821
Dar es Salaam	65.5	36.2	821
Lindi	51.5	20.6	159
Mtwara	52.0	24.0	220
Ruvuma	63.7	33.8	890
Iringa	69.6	29.4	581
Mbeya	66.8	33.0	598
Singida	51.5	18.7	153
Tabora	59.7	33.4	1,488
Rukwa	64.5	34.7	919
Kigoma	56.6	31.2	332
Shinyanga	62.6	36.6	1,026
Kagera	67.7	39.2	419
Mwanza	58.0	29.9	603
Mara	49.0	27.3	359
Manyara	48.5	19.3	199
Njombe	71.4	27.9	362
Katavi	66.4	38.6	1,055
Simiyu	56.7	31.3	310
Geita	59.5	29.5	390
Songwe	59.7	27.9	620
Kaskazini Unguja	48.8	15.9	109
Kusini Unguja	53.7	17.5	109
Mjini Magharibi	59.4	22.4	292
Kaskazini Pemba	44.0	15.4	87
Kusini Pemba	47.7	15.7	111
Marital status			
Never married	36.6	19.5	4,580
Married or living together	73.3	35.1	8,673
Divorced or separated	66.6	31.2	850
Widowed	52.7	19.6	239
Education			
No education	48.5	22.3	1,757
Pre-Primary	53.8	17.4	82
Primary	58.3	27.5	8,850
Post Primary Training	68.5	35.4	220
Secondary (O-Level)	60.2	31.3	2,649
Post-Secondary (O-Level) Training	77.4	43.7	347
Secondary (A-Level)	69.9	46.3	133

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

Percentage of males aged 15 years and older who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results ¹	Number
Post-Secondary (A-Level) Training	88.0	48.9	95
University	86.7	48.4	228
Wealth quintile			
Lowest	49.5	23.7	3,181
Second	54.2	25.1	3,199
Middle	58.6	28.2	3,180
Fourth	65.0	32.0	2,512
Highest	69.3	36.3	2,293
Age			
15-19	21.0	10.5	2,595
20-24	58.2	33.7	2,076
25-29	76.6	40.8	1,775
30-34	82.0	40.2	1,539
35-39	79.0	39.0	1,367
40-44	73.3	34.5	1,215
45-49	72.2	27.6	913
50-54	63.6	25.8	762
55-59	60.5	23.1	595
60-64	57.5	25.9	482
65-69	44.9	16.4	358
70-74	33.5	11.3	264
75-79	32.1	7.8	196
≥80	20.8	6.5	232
Total 15-24	37.9	21.1	4,671
Total 15-49	60.5	30.6	11,480
Total 50+	52.4	20.5	2,889
Total 15+	59.2	29.0	14,369

¹Relates to PEPFAR HTC_TST.

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

Table 7.3.B Self-reported HIV testing: Females

Percentage of females aged 15 years and older who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results ¹	Number
Result of PHIA survey HIV test			
HIV positive	86.3	26.2	1,261
HIV negative	69.4	33.4	16,486
Not tested	77.5	44.6	735
Residence			
Urban	76.5	37.9	6,366
Rural	67.3	30.8	12,116
Tanzania Mainland/Zanzibar			
Mainland	71.1	33.8	17,454
Urban	76.7	38.1	6,089
Rural	67.5	31.1	11,365
Zanzibar	62.9	22.2	1,028
Unguja	65.3	24.3	719
Pemba	56.0	16.3	309
Region			
Dodoma	60.1	21.6	303
Arusha	70.8	27.8	281
Kilimanjaro	68.0	30.8	368
Tanga	65.9	27.7	379
Morogoro	70.7	29.7	514
Pwani	74.9	37.1	1,151
Dar es Salaam	78.4	41.0	1,124
Lindi	68.1	27.1	185
Mtwara	65.0	30.8	222
Ruvuma	77.0	43.0	1,096
Iringa	77.9	32.4	820
Mbeya	76.3	39.1	823
Singida	68.8	32.1	210
Tabora	72.4	34.8	1,637
Rukwa	67.4	38.7	1,207
Kigoma	68.1	33.8	449
Shinyanga	72.2	41.0	1,222
Kagera	74.5	39.8	454
Mwanza	71.7	34.9	722
Mara	66.6	30.6	523
Manyara	66.5	25.5	237
Njombe	78.6	31.4	564
Katavi	76.0	44.5	1,315
Simiyu	64.9	32.4	422
Geita	68.7	35.4	439
Songwe	69.7	34.0	787
Kaskazini Unguja	56.0	12.9	180
Kusini Unguja	62.6	19.7	131
Mjini Magharibi	67.6	27.3	408
Kaskazini Pemba	53.3	15.5	142
Kusini Pemba	58.4	17.1	167
Marital status			
Never married	47.1	26.7	3,731
Married or living together	82.5	38.2	10,954
Divorced or separated	80.3	38.0	2,047
Widowed	48.3	16.7	1,721

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

Percentage of females aged 15 years and older who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results ¹	Number
Education			
No education	57.4	22.9	4,091
Pre-Primary	62.0	26.3	89
Primary	75.5	34.7	10,449
Post Primary Training	69.8	34.1	192
Secondary (O-Level)	67.0	37.9	3,025
Post-Secondary (O-Level) Training	86.1	49.8	383
Secondary (A-Level)	76.3	44.2	76
Post-Secondary (A-Level) Training	(90.6)	(44.3)	40
University	94.8	47.6	126
Wealth quintile			
Lowest	62.4	26.9	3,864
Second	66.6	29.7	3,844
Middle	71.3	32.5	4,136
Fourth	76.8	38.4	3,388
Highest	76.3	39.6	3,245
Age			
15-19	38.6	23.5	3,053
20-24	85.3	47.3	2,954
25-29	94.2	48.0	2,655
30-34	92.0	42.9	2,154
35-39	88.8	38.2	1,821
40-44	82.4	29.7	1,465
45-49	72.7	25.6	1,082
50-54	60.2	22.2	906
55-59	55.4	18.9	604
60-64	44.0	16.2	571
65-69	35.0	12.2	404
70-74	26.0	8.8	330
75-79	20.2	5.7	224
≥80	11.6	4.4	259
Total 15-24	60.0	34.4	6,007
Total 15-49	76.4	37.2	15,184
Total 50+	44.2	15.7	3,298
Total 15+	70.8	33.5	18,482

¹Relates to PEPFAR HTS_TST.

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

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

Table 7.3.C Self-reported HIV testing: Total

Percentage of persons aged 15 years and older who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results ¹	Number
Result of PHIA survey HIV test			
HIV positive	84.3	26.4	1,823
HIV negative	63.9	31.0	29,616
Not tested	70.9	41.0	1,412
Residence			
Urban	71.5	35.6	10,791
Rural	61.5	28.8	22,060
Tanzania Mainland/Zanzibar			
Mainland	65.3	31.6	31,115
Urban	71.7	35.9	10,300
Rural	61.6	29.1	20,815
Zanzibar	59.1	21.0	1,736
Unguja	61.5	22.7	1,229
Pemba	51.6	16.0	507
Region			
Dodoma	55.0	18.9	550
Arusha	66.4	28.6	476
Kilimanjaro	64.3	27.5	633
Tanga	58.9	24.1	670
Morogoro	65.5	28.0	852
Pwani	68.1	33.2	1,972
Dar es Salaam	72.2	38.7	1,945
Lindi	59.4	23.7	344
Mtwara	57.9	27.1	442
Ruvuma	70.4	38.4	1,986
Iringa	74.0	31.0	1,401
Mbeya	71.8	36.3	1,421
Singida	60.6	25.7	363
Tabora	65.7	34.1	3,125
Rukwa	66.0	36.7	2,126
Kigoma	62.6	32.6	781
Shinyanga	67.3	38.7	2,248
Kagera	70.8	39.5	873
Mwanza	64.7	32.4	1,325
Mara	58.6	29.1	882
Manyara	57.4	22.3	436
Njombe	75.5	29.9	926
Katavi	71.3	41.6	2,370
Simiyu	60.9	31.9	732
Geita	63.9	32.3	829
Songwe	64.9	31.1	1,407
Kaskazini Unguja	52.9	14.2	289
Kusini Unguja	58.1	18.6	240
Mjini Magharibi	63.7	24.9	700
Kaskazini Pemba	49.4	15.5	229
Kusini Pemba	53.5	16.4	278
Marital status			
Never married	40.9	22.4	8,311
Married or living together	78.0	36.7	19,627
Divorced or separated	75.7	35.8	2,897
Widowed	48.8	17.1	1,960

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

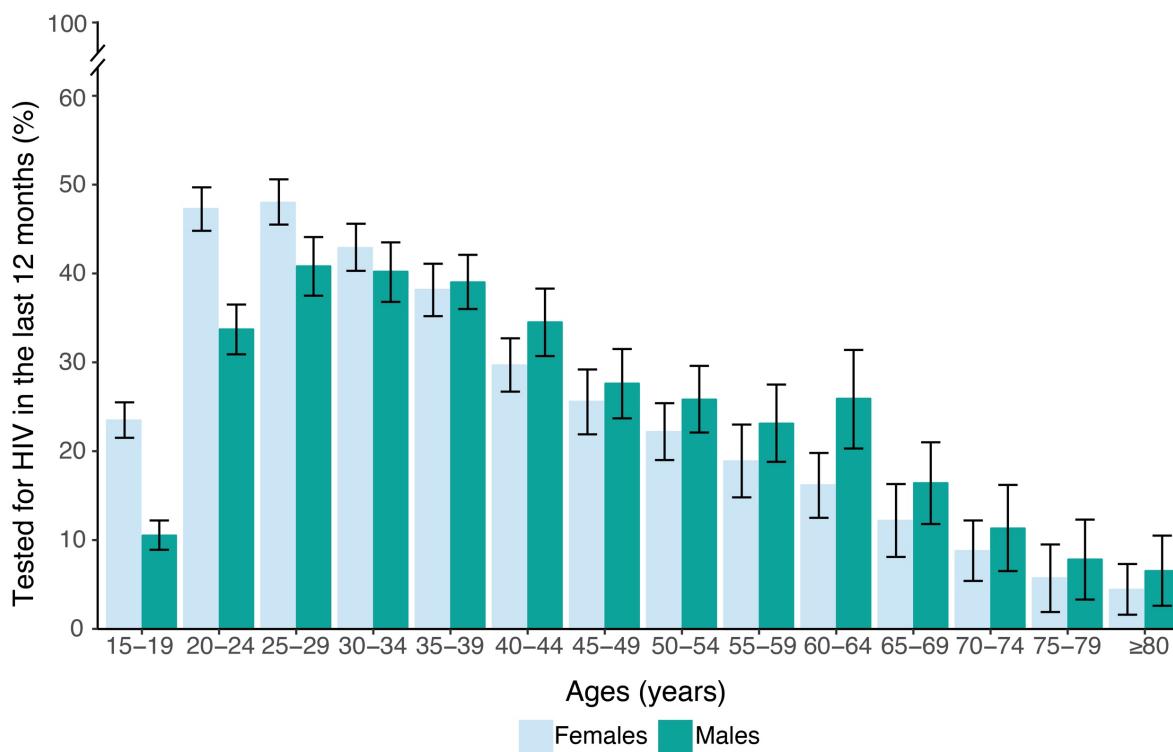
Percentage of persons aged 15 years and older who ever received HIV testing and received their test results, and percentage who received HIV testing and received their test results in the past 12 months, by result of PHIA survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who ever received HIV testing and received results	Percentage who received HIV testing in the past 12 months and received results ¹	Number
Education			
No education	54.4	22.7	5,848
Pre-Primary	57.8	21.8	171
Primary	66.9	31.1	19,299
Post Primary Training	69.0	34.9	412
Secondary (O-Level)	63.4	34.5	5,674
Post-Secondary (O-Level) Training	81.5	46.6	730
Secondary (A-Level)	72.2	45.6	209
Post-Secondary (A-Level) Training	88.7	47.7	135
University	89.3	48.1	354
Wealth quintile			
Lowest	56.0	25.3	7,045
Second	60.4	27.4	7,043
Middle	65.1	30.4	7,316
Fourth	71.1	35.3	5,900
Highest	73.0	38.1	5,538
Age			
15-19	29.8	17.0	5,648
20-24	71.9	40.5	5,030
25-29	85.7	44.5	4,430
30-34	87.1	41.6	3,693
35-39	84.0	38.6	3,188
40-44	77.9	32.1	2,680
45-49	72.5	26.6	1,995
50-54	61.9	23.9	1,668
55-59	57.8	20.9	1,199
60-64	50.2	20.6	1,053
65-69	39.5	14.1	762
70-74	29.2	9.9	594
75-79	25.6	6.7	420
≥80	15.9	5.4	491
Total 15-24	49.0	27.8	10,678
Total 15-49	68.6	33.9	26,664
Total 50+	48.0	17.9	6,187
Total 15+	65.2	31.3	32,851

¹Relates to PEPFAR HTC_TST.

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

Figure 7.3.A Proportion of adults who self-reported having received an HIV test in the last 12 months, by age and sex, THIS 2016-2017



7.4 Gaps and Unmet Needs

- About forty-one percent (40.8%) of males and 29.2% of females aged 15 and older have never had an HIV test.
- There is low HIV testing in the adolescents aged 15-19 years: 79.0% of males and 61.4% of females reporting never testing for HIV.
- Self-report of HIV testing was lower among people who were not educated compared to those who had a university education (54.4% versus 89.3%).

8 HIV DIAGNOSIS AND TREATMENT: ADULTS

8.1 Key Findings

- Based on self-reporting of HIV status, among HIV-positive adults aged 15 years and older, 51.8% were aware of their HIV-positive status (45.2% of males and 55.3% of females).
- Among those HIV-positive adults aged 15 years and older who self-reported knowing their status and being on ART, 94.9% had detectable ARVs in their blood.
- Among those who reported that they had not been previously diagnosed, 9.7% had ARVs detected in their blood (4.8% among males and 12.8% among females).
- Overall, 47.1% of HIV-positive adults reported awareness of their status and ART use (38.8% for males and 51.4% for females).
- Overall, ARVs were detected in 54.6% of HIV-positive adults aged 15 years and older.

8.2 Background

Recent studies have shown that treating PLHIV at higher CD4 counts improves immune recovery, decreases the incidence of non-AIDS events, comorbidities, and mortality, and reduces transmission. In 2016, after extensive review of evidence of both the clinical and population-level benefits of expanding ART treatment, the WHO changed their recommendation to support a policy of “Treatment for All,” regardless of CD4 count.^{1,2} By November 2017, almost all countries in sub-Saharan Africa had adopted this policy, despite the challenges in ensuring uptake and implementation.² This policy was adopted in Tanzania in October 2016.

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

Among HIV-positive adults aged 15 years and older, based on self-report, 48.2% were unaware of their HIV-positive status, 47.1% were aware of their HIV-positive status and on ART, and 4.7% were aware of their HIV-positive status, but not on ART.

Among HIV-positive adults aged 15 years and older, 54.8% of men were unaware of their HIV-positive status. Among HIV-positive men, 38.8% were aware of their status and on ART.

In urban areas, 53.0% of HIV-positive men aged 15 years and older were unaware of their HIV status, compared to 55.8% among those in rural areas. Meanwhile, 42.0% of HIV-positive males in the same age bracket in urban areas were aware of their HIV status and on ART compared to 37.0% among those in rural areas (Table 8.3A).

Among HIV-positive men, those younger than the age of 35 years were less likely to know their HIV status and, relatedly, less likely to be on ART. The percentage of males who were unaware of their HIV status ranged from 31.2% among those aged 55-59 years to 79.0% among those aged 25-29-years. The percentage of HIV-positive males who reported being on ART ranged from 12.4% among those aged 25-29 years to 67.3% among those aged 55-59 years (Table 8.3A).

Among married or cohabitating HIV-positive males aged 15 years and older, 40.0% of males were aware of their status and on ART (Table 8.3A).

Among HIV-positive women aged 15 years and older, 44.7% were unaware of their HIV-positive status. About 51% (51.4%) of HIV-positive women were aware of their HIV-positive status and on ART. As observed among HIV-positive men, younger women were far less likely to be aware of their status. Among young HIV-positive women aged 15-24 years, 59.4% were unaware of their HIV-positive status while 35.8% of them were aware of their HIV-positive status and on ART. In comparison, among HIV-positive women aged 50-54 years, only 29.4% were unaware of their status and 69.4% were on ART.

Awareness of HIV status among women, aged 15 years and older, varied by residence. Among those residing in urban areas, 39.0% were unaware of their HIV status as compared to 50.9% among those in rural areas. Among urban HIV-positive women in the same age bracket, 56.4% were aware of their HIV-positive status and on ART compared to 46.0% among those residing in rural areas (Table 8.3.B).

Among HIV-positive women, the percentage unaware of their HIV status ranged from 29.4% among those aged 50-54 years to 58.2% among those aged 20-24 years. The percentage of HIV-positive women who reported being on ART ranged from 35.8% among those aged 20-24 years to 69.4% among those aged 50-54 years (Table 8.3.B).

Among married or cohabitating HIV-positive women, 49.9% of females were aware of their status and on ART (Table 8.3.B).

Table 8.3.A HIV treatment status: Males

Percent distribution of HIV-positive males aged 15 years and older by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, THIS 2016-2017

Characteristic	Unaware of HIV status	Aware of HIV status			Total	Number
		Not on ART	On ART ¹	Total		
Residence						
Urban	53.0	5.0	42.0	100.0	157	
Rural	55.8	7.2	37.0	100.0	354	
Tanzania Mainland/Zanzibar						
Mainland	54.8	6.4	38.8	100.0	511	
Urban	53.0	5.0	42.0	100.0	157	
Rural	55.8	7.2	37.0	100.0	354	
Zanzibar	*	*	*	*	0	
Unguja	*	*	*	*	0	
Pemba	*	*	*	*	0	
Region						
Dodoma	*	*	*	*	8	
Arusha	*	*	*	*	3	
Kilimanjaro	*	*	*	*	5	
Tanga	*	*	*	*	9	
Morogoro	*	*	*	*	7	
Pwani	(43.3)	(4.0)	(52.7)	(100.0)	25	
Dar es Salaam	*	*	*	*	16	
Lindi	*	*	*	*	0	
Mtwara	*	*	*	*	3	
Ruvuma	(52.2)	(2.7)	(45.2)	(100.0)	40	
Iringa	(27.7)	(20.0)	(52.3)	(100.0)	37	
Mbeya	(51.5)	(9.1)	(39.4)	(100.0)	33	
Singida	*	*	*	*	3	
Tabora	73.9	1.7	24.4	100.0	66	
Rukwa	(63.7)	(12.0)	(24.3)	(100.0)	25	
Kigoma	*	*	*	*	9	
Shinyanga	(61.3)	(12.2)	(26.5)	(100.0)	44	
Kagera	*	*	*	*	21	
Mwanza	(69.4)	(7.5)	(23.1)	(100.0)	27	
Mara	*	*	*	*	8	
Manyara	*	*	*	*	4	
Njombe	*	*	*	*	23	
Katavi	(64.2)	(10.1)	(25.7)	(100.0)	40	
Simiyu	*	*	*	*	11	
Geita	*	*	*	*	14	
Songwe	(45.5)	(0.0)	(54.5)	(100.0)	30	
Kaskazini Unguja	*	*	*	*	0	
Kusini Unguja	*	*	*	*	0	
Mjini Magharibi	*	*	*	*	0	
Kaskazini Pemba	*	*	*	*	0	
Kusini Pemba	*	*	*	*	0	

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

Percent distribution of HIV-positive males aged 15 years and older by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, THIS 2016-2017

Characteristic	Aware of HIV status				
	Unaware of HIV status	Not on ART	On ART ¹	Total	Number
Marital status					
Never married	(66.7)	(3.8)	(29.5)	(100.0)	40
Married or living together	53.5	6.5	40.0	100.0	378
Divorced or separated	64.3	5.1	30.6	100.0	71
Widowed	*	*	*	*	22
Education					
No education	64.9	7.5	27.7	100.0	73
Pre-Primary	*	*	*	*	7
Primary	51.0	6.7	42.3	100.0	364
Post Primary Training	*	*	*	*	7
Secondary (O-Level)	(66.4)	(6.6)	(27.1)	(100.0)	49
Post-Secondary (O-Level)	*	*	*	*	8
Training	*	*	*	*	1
Secondary (A-Level)	*	*	*	*	0
Post-Secondary (A-Level)	*	*	*	*	0
Training	*	*	*	*	2
University	*	*	*	*	0
Wealth quintile					
Lowest	65.1	6.5	28.4	100.0	109
Second	53.2	11.5	35.4	100.0	115
Middle	52.6	6.0	41.4	100.0	149
Fourth	53.7	4.5	41.8	100.0	91
Highest	(48.7)	(1.0)	(50.3)	(100.0)	47
Age					
15-19	*	*	*	*	8
20-24	*	*	*	*	19
25-29	(79.0)	(8.5)	(12.4)	(100.0)	40
30-34	73.2	8.2	18.6	100.0	65
35-39	60.9	6.3	32.7	100.0	77
40-44	49.8	9.7	40.4	100.0	99
45-49	42.4	4.8	52.8	100.0	61
50-54	39.5	4.1	56.4	100.0	58
55-59	(31.2)	(1.5)	(67.3)	(100.0)	41
60-64	*	*	*	*	24
65-69	*	*	*	*	9
70-74	*	*	*	*	4
75-79	*	*	*	*	6
≥80	*	*	*	*	0
Total 15-24	(64.9)	(4.9)	(30.1)	(100.0)	27
Total 15-49	60.0	7.4	32.5	100.0	369
Total 50+	39.3	3.4	57.4	100.0	142
Total 15+	54.8	6.4	38.8	100.0	511

¹Relates to Global AIDS Monitoring indicator 1.3: People living with HIV on antiretroviral therapy.

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

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

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

Table 8.3.B HIV treatment status: Females

Percent distribution of HIV-positive females aged 15 years and older by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, THIS 2016-2017

Characteristic	Unaware of HIV status	Aware of HIV status			Total	Number
		Not on ART	On ART ¹			
Residence						
Urban	39.0	4.5	56.4	100.0	511	
Rural	50.9	3.1	46.0	100.0	587	
Tanzania Mainland/Zanzibar						
Mainland	44.6	3.9	51.5	100.0	1,090	
Urban	39.0	4.6	56.5	100.0	507	
Rural	50.7	3.1	46.1	100.0	583	
Zanzibar	*	*	*	*	8	
Unguja	*	*	*	*	7	
Pemba	*	*	*	*	1	
Region						
Dodoma	*	*	*	*	16	
Arusha	*	*	*	*	6	
Kilimanjaro	*	*	*	*	11	
Tanga	*	*	*	*	20	
Morogoro	*	*	*	*	23	
Pwani	34.3	6.1	59.6	100.0	77	
Dar es Salaam	54.6	2.7	42.7	100.0	70	
Lindi	*	*	*	*	1	
Mtwara	*	*	*	*	5	
Ruvuma	31.4	1.6	67.0	100.0	63	
Iringa	32.9	2.6	64.5	100.0	98	
Mbeya	36.9	7.2	55.9	100.0	87	
Singida	*	*	*	*	10	
Tabora	57.9	5.5	36.6	100.0	88	
Rukwa	58.0	7.0	35.1	100.0	55	
Kigoma	*	*	*	*	12	
Shinyanga	66.3	3.7	30.1	100.0	80	
Kagera	32.3	0.0	67.7	100.0	29	
Mwanza	55.0	5.4	39.5	100.0	54	
Mara	*	*	*	*	23	
Manyara	*	*	*	*	3	
Njombe	29.0	4.9	66.1	100.0	70	
Katavi	45.2	6.6	48.2	100.0	102	
Simiyu	*	*	*	*	18	
Geita	*	*	*	*	22	
Songwe	35.7	4.1	60.2	100.0	47	
Kaskazini Unguja	*	*	*	*	2	
Kusini Unguja	*	*	*	*	0	
Mjini Magharibi	*	*	*	*	5	
Kaskazini Pemba	*	*	*	*	0	
Kusini Pemba	*	*	*	*	1	

Table 8.3.B HIV treatment status: Females (continued)

Percent distribution of HIV-positive females aged 15 years and older by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, THIS 2016-2017

Characteristic	Aware of HIV status				
	Unaware of HIV status	Not on ART	On ART ¹	Total	Number
Marital status					
Never married	45.6	3.2	51.2	100.0	106
Married or living together	46.1	3.9	49.9	100.0	523
Divorced or separated	46.7	6.2	47.1	100.0	239
Widowed	38.7	1.4	59.9	100.0	229
Education					
No education	54.3	4.2	41.5	100.0	242
Pre-Primary	*	*	*	*	4
Primary	41.7	3.5	54.9	100.0	733
Post Primary Training	*	*	*	*	14
Secondary (O-Level)	48.2	4.3	47.6	100.0	94
Post-Secondary (O-Level) Training	*	*	*	*	9
Secondary (A-Level)	*	*	*	*	1
Post-Secondary (A-Level) Training	*	*	*	*	0
University	*	*	*	*	0
Wealth quintile					
Lowest	59.3	2.9	37.9	100.0	174
Second	48.4	1.5	50.1	100.0	186
Middle	36.2	3.2	60.6	100.0	290
Fourth	44.4	7.0	48.6	100.0	268
Highest	42.0	3.1	54.9	100.0	180
Age					
15-19	*	*	*	*	24
20-24	58.2	6.0	35.8	100.0	97
25-29	46.6	9.9	43.6	100.0	129
30-34	53.2	4.0	42.8	100.0	181
35-39	38.5	4.3	57.2	100.0	194
40-44	39.7	3.9	56.4	100.0	155
45-49	36.9	1.5	61.6	100.0	114
50-54	29.4	1.2	69.4	100.0	77
55-59	40.0	0.0	60.0	100.0	61
60-64	53.7	0.0	46.3	100.0	38
65-69	*	*	*	*	15
70-74	*	*	*	*	8
75-79	*	*	*	*	1
≥80	*	*	*	*	4
Total 15-24	59.4	4.8	35.8	100.0	121
Total 15-49	45.4	4.7	49.9	100.0	894
Total 50+	41.9	0.5	57.5	100.0	204
Total 15+	44.7	3.9	51.4	100.0	1,098

¹Relates to Global AIDS Monitoring indicator 1.3: People living with HIV on antiretroviral therapy.

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

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

Table 8.3.C HIV treatment status: Total

Percent distribution of HIV-positive persons aged 15 years and older by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, THIS 2016-2017

Characteristic	Unaware of HIV status	Aware of HIV status			Total	Number
		Not on ART	On ART ¹	Total		
Residence						
Urban	42.7	4.7	52.6	100.0	668	
Rural	52.9	4.8	42.3	100.0	941	
Tanzania Mainland/Zanzibar						
Mainland	48.1	4.8	47.1	100.0	1,601	
Urban	42.7	4.7	52.6	100.0	664	
Rural	52.8	4.8	42.4	100.0	937	
Zanzibar	*	*	*	*	8	
Unguja	*	*	*	*	7	
Pemba	*	*	*	*	1	
Region						
Dodoma	*	*	*	*	24	
Arusha	*	*	*	*	9	
Kilimanjaro	*	*	*	*	16	
Tanga	(43.2)	(4.0)	(52.8)	(100.0)	29	
Morogoro	(50.2)	(6.9)	(42.9)	(100.0)	30	
Pwani	36.6	5.6	57.8	100.0	102	
Dar es Salaam	55.7	2.1	42.2	100.0	86	
Lindi	*	*	*	*	1	
Mtwara	*	*	*	*	8	
Ruvuma	40.4	2.1	57.6	100.0	103	
Iringa	31.4	7.7	61.0	100.0	135	
Mbeya	41.0	7.7	51.2	100.0	120	
Singida	*	*	*	*	13	
Tabora	65.6	3.7	30.7	100.0	154	
Rukwa	60.0	8.7	31.3	100.0	80	
Kigoma	*	*	*	*	21	
Shinyanga	64.3	7.1	28.6	100.0	124	
Kagera	35.7	5.4	59.0	100.0	50	
Mwanza	60.4	6.2	33.4	100.0	81	
Mara	(46.4)	(6.0)	(47.6)	(100.0)	31	
Manyara	*	*	*	*	7	
Njombe	33.1	6.4	60.5	100.0	93	
Katavi	51.0	7.7	41.4	100.0	142	
Simiyu	(42.5)	(0.0)	(57.5)	(100.0)	29	
Geita	(71.5)	(4.3)	(24.2)	(100.0)	36	
Songwe	40.0	2.3	57.6	100.0	77	
Kaskazini Unguja	*	*	*	*	2	
Kusini Unguja	*	*	*	*	0	
Mjini Magharibi	*	*	*	*	5	
Kaskazini Pemba	*	*	*	*	0	
Kusini Pemba	*	*	*	*	1	

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

Percent distribution of HIV-positive persons aged 15 years and older by self-reported HIV diagnosis and treatment status, by selected demographic characteristics, THIS 2016-2017

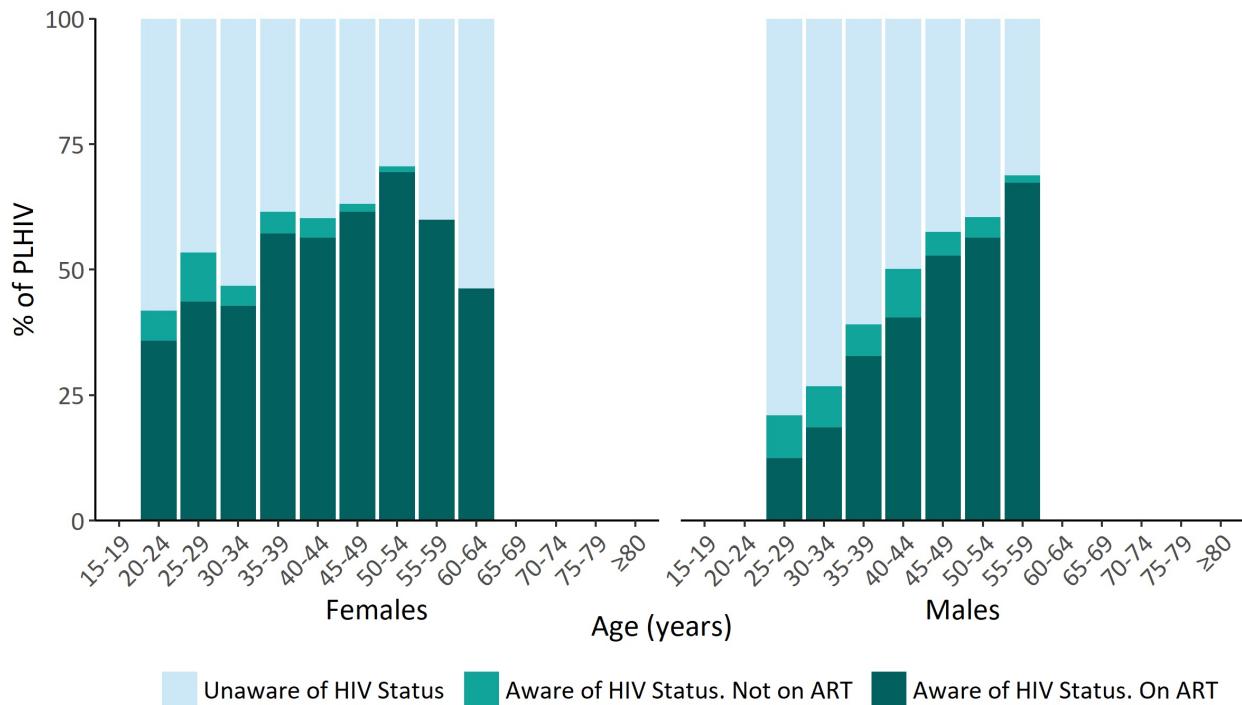
Characteristic	Aware of HIV status				
	Unaware of HIV status	Not on ART	On ART ¹	Total	Number
Marital status					
Never married	52.1	3.4	44.5	100.0	146
Married or living together	49.5	5.1	45.4	100.0	901
Divorced or separated	50.7	5.9	43.4	100.0	310
Widowed	36.8	2.7	60.5	100.0	251
Education					
No education	57.1	5.0	37.9	100.0	315
Pre-Primary	*	*	*	*	11
Primary	44.9	4.6	50.5	100.0	1,097
Post Primary Training	*	*	*	*	21
Secondary (O-Level)	55.4	5.2	39.4	100.0	143
Post-Secondary (O-Level) Training	*	*	*	*	17
Secondary (A-Level)	*	*	*	*	2
Post-Secondary (A-Level) Training	*	*	*	*	0
University	*	*	*	*	2
Wealth quintile					
Lowest	61.6	4.3	34.1	100.0	283
Second	50.4	5.8	43.8	100.0	301
Middle	42.4	4.3	53.4	100.0	439
Fourth	47.1	6.3	46.6	100.0	359
Highest	43.6	2.6	53.8	100.0	227
Age					
15-19	(64.0)	(0.5)	(35.4)	(100.0)	32
20-24	59.8	6.2	34.0	100.0	116
25-29	55.7	9.5	34.8	100.0	169
30-34	59.6	5.3	35.1	100.0	246
35-39	45.2	4.9	49.9	100.0	271
40-44	44.0	6.4	49.6	100.0	254
45-49	38.9	2.7	58.4	100.0	175
50-54	33.8	2.4	63.8	100.0	135
55-59	36.2	0.6	63.2	100.0	102
60-64	51.4	0.0	48.6	100.0	62
65-69	*	*	*	*	24
70-74	*	*	*	*	12
75-79	*	*	*	*	7
≥80	*	*	*	*	4
Total 15-24	60.9	4.8	34.3	100.0	148
Total 15-49	50.2	5.6	44.2	100.0	1,263
Total 50+	40.9	1.7	57.5	100.0	346
Total 15+	48.2	4.7	47.1	100.0	1,609

¹Relates to Global AIDS Monitoring indicator 1.2: People living with HIV on antiretroviral therapy and PEPFAR TX_CURR_NAT / SUBNAT.

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

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

Figure 8.3.A Proportion of HIV-positive adults aged 15 years and older self-reporting awareness of HIV status and antiretroviral therapy status, by age and sex, THIS 2016-2017



Estimates based on <25 observations have been suppressed

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

The THIS determined the presence of three ARVs in blood (efavirenz, lopinavir, and nevirapine) as markers of first- and second-line regimes prescribed in the country at the time of the survey. Overall, ARVs were detected in 54.6% of HIV-positive adults aged 15 years and older. Among those previously diagnosed and who reported current use of ART, ARVs were detected in 94.9% of adults (92.8% of males and 95.7% of females). Among those who reported a previous HIV diagnosis, but not on ART, 10.0% had an ARV detected in the blood (7.3% of males and 12.4% of females). Among those who reported no previous HIV diagnosis, 9.7% had an ARV detected in the blood (4.8% among males and 12.8% among females) (Tables 8.4.A, 8.4.B and 8.4.C).

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

Percent distribution of HIV-positive males aged 15 years and older by presence of detectable ARVs versus self-reported HIV treatment status, THIS 2016-2017

Characteristic	ARVs ¹		Total	Number
	Not detectable	Detectable		
Self-reported treatment status				
Not previously diagnosed	95.2	4.8	100.0	270
Previously diagnosed, not on ART ²	(92.7)	(7.3)	(100.0)	33
Previously diagnosed, on ART	7.2	92.8	100.0	205
Total 15-24	(67.6)	(32.4)	(100.0)	26
Total 15-49	59.0	41.0	100.0	401
Total 50+	44.3	55.7	100.0	148
Total 15+	55.5	44.5	100.0	549

¹Antiretroviral detection assay included only atazanavir, efavirenz, and lopinavir. Participants who reported antiretroviral therapy use and/or had undetectable viral load but had no evidence of the first three ARVs were tested for nevirapine as well.

²ART: Antiretroviral therapy

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

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

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

Percent distribution of HIV-positive females aged 15 years and older by presence of detectable ARVs versus self-reported HIV treatment status, THIS 2016-2017

Characteristic	ARVs ¹		Total	Number
	Not detectable	Detectable		
Self-reported diagnosis and treatment status				
Not previously diagnosed	87.2	12.8	100.0	480
Previously diagnosed, not on ART ²	87.6	12.4	100.0	51
Previously diagnosed, on ART	4.3	95.7	100.0	557
Total 15-24	50.7	49.3	100.0	140
Total 15-49	41.1	58.9	100.0	999
Total 50+	36.2	63.8	100.0	221
Total 15+	40.2	59.8	100.0	1,220

¹Antiretroviral detection assay included only atazanavir, efavirenz, and lopinavir. Participants who reported antiretroviral therapy use and/or had undetectable viral load but had no evidence of the first three ARVs were tested for nevirapine as well.

²ART: Antiretroviral therapy

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

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

Percent distribution of HIV-positive persons aged 15 years and older by presence of detectable ARVs versus self-reported HIV treatment status, THIS 2016-2017

Characteristic	ARVs ¹		Total	Number
	Not detectable	Detectable		
Self-reported diagnosis and treatment status				
Not previously diagnosed	90.3	9.7	100.0	750
Previously diagnosed, not on ART ²	90.0	10.0	100.0	84
Previously diagnosed, on ART	5.1	94.9	100.0	762
Total 15-24	54.4	45.6	100.0	166
Total 15-49	47.0	53.0	100.0	1,400
Total 50+	39.5	60.5	100.0	369
Total 15+	45.4	54.6	100.0	1,769

¹Antiretroviral detection assay included only nevirapine, efavirenz, and lopinavir.

²ART: Antiretroviral therapy

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

8.5 Gaps and Unmet Needs

- There is a gap in reaching and diagnosing people living with HIV, especially males of all ages, and young people aged 15-24 years.
- Sixty one percent (60.9%) of HIV-positive individuals aged 15-24 years were unaware of their HIV status.

8.6 References

1. World Health Organization. *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection*. Geneva: World Health Organization; 2016.
<https://www.who.int/hiv/pub/arv/arv-2016/en/>. Accessed November 27, 2018.
2. World Health Organization. *Treat all: policy adoption and implementation status in countries*. Geneva: World Health Organization; 2017.

9 VIRAL LOAD SUPPRESSION: ADULTS

9.1 Key Findings

- Overall, 51.9% of HIV-positive adults aged 15 years and older, had VLS (41.5% among males and 57.2% among females).
- The percentage of HIV-positive adults aged 15 years and older with VLS ranged from 32.4% in Geita region to 66.0% in Kagera region.
- Almost 88% (87.8%) of adults aged 15 years and older on ART had VLS (84.4% of males and 89.1% of females).
- Adolescents and young adults aged 15-24 years had comparatively lower VLS with 41.5% having a suppressed viral load (22.2% for males and 47.1% for females).

9.2 Background

Viral load suppression is a key indicator of treatment success in HIV-positive individuals. For the purposes of THIS, VLS was defined as VL less than 1,000 HIV RNA copies/mL of plasma. This chapter describes VLS among the population of HIV-positive persons aged 15 years and older by age, sex, region, and other socio-demographic characteristics.

9.3 Adult Viral Load Suppression by Demographic Characteristics

Overall, 51.9% of adults aged 15 years and older had VLS (41.5% among males and 57.2% among females). The proportion with VLS was highest among those who reported a previous diagnosis and being on ART (87.8%) and lowest among those who reported a previously diagnosis, but not being on ART (14.2%). Fifteen percent (15.1%) of HIV-positive persons who, by self-report, had reported that they were not previously diagnosed had VLS (Table 9.3.A).

About forty-seven percent (46.8%) of never-married HIV-positive persons had VLS; while 51.0% of married or cohabitating persons had VLS. About fifty percent (49.6%) of divorced or separated and 62.1% of widowed persons had VLS (Table 9.3.A).

Table 9.3.A Viral load suppression prevalence by demographic characteristics

Among HIV-positive persons aged 15 years and older, percentage with viral load suppression (< 1,000 copies/mL)¹, by sex, self-reported diagnosis and ART status, and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage VLS ²	Number	Percentage VLS ²	Number	Percentage VLS ²	Number
Self-reported diagnosis and treatment status						
Not previously diagnosed	8.3	272	19.4	483	15.1	755
Previously diagnosed, not on ART	(11.4)	33	16.6	51	14.2	84
Previously diagnosed, on ART	84.4	205	89.1	564	87.8	769
Missing	71.2	53	70.8	169	70.9	222
Residence						
Urban	42.6	171	60.8	576	56.0	747
Rural	40.9	392	53.4	691	48.4	1,083
Tanzania Mainland/Zanzibar						
Mainland	41.5	563	57.3	1,259	51.9	1,822
Urban	42.6	171	60.9	572	56.1	743
Rural	40.9	392	53.5	687	48.5	1,079
Zanzibar	*	0	*	8	*	8
Unguja	*	0	*	7	*	7
Pemba	*	0	*	1	*	1
Region						
Dodoma	*	9	*	18	(60.6)	27
Arusha	*	3	*	6	*	9
Kilimanjaro	*	5	*	11	*	16
Tanga	*	11	*	23	(47.2)	34
Morogoro	*	8	(51.9)	29	(45.3)	37
Pwani	(57.1)	26	65.6	85	63.5	111
Dar es Salaam	*	18	48.1	77	44.7	95
Lindi	*	0	*	1	*	1
Mtwara	*	3	*	6	*	9
Ruvuma	(44.9)	41	64.9	70	56.7	111
Iringa	(51.1)	39	58.7	116	56.6	155
Mbeya	(44.3)	36	62.4	99	57.4	135
Singida	*	3	*	10	*	13
Tabora	33.0	71	48.5	97	41.2	168
Rukwa	(33.1)	31	48.4	67	42.9	98
Kigoma	*	9	*	14	*	23
Shinyanga	(32.3)	48	44.9	95	40.1	143
Kagera	*	24	(68.9)	33	66.0	57
Mwanza	(32.3)	32	59.3	67	49.6	99
Mara	*	10	*	24	(63.4)	34
Manyara	*	4	*	6	*	10
Njombe	(40.5)	25	67.2	81	60.5	106
Katavi	(29.3)	45	55.0	117	47.3	162
Simiyu	*	11	*	20	(54.3)	31
Geita	*	16	(38.4)	29	(32.4)	45
Songwe	(60.3)	35	68.0	58	64.6	93
Kaskazini Unguja	*	0	*	2	*	2
Kusini Unguja	*	0	*	0	*	0
Mjini Magharibi	*	0	*	5	*	5
Kaskazini Pemba	*	0	*	0	*	0
Kusini Pemba	*	0	*	1	*	1

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

Among HIV-positive persons aged 15 years and older, percentage with viral load suppression (< 1,000 copies/mL)¹, by sex, self-reported diagnosis and ART status, and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage VLS ²	Number	Percentage VLS ²	Number	Percentage VLS ²	Number
Marital status						
Never married	(33.7)	44	52.7	124	46.8	168
Married or living together	43.9	412	56.7	613	51.0	1,025
Divorced or separated	29.7	80	55.2	273	49.6	353
Widowed	(53.6)	27	63.0	256	62.1	283
Education						
No education	37.9	86	50.2	281	46.8	367
Pre-Primary	*	7	*	6	*	13
Primary	41.9	398	59.8	841	53.7	1,239
Post Primary Training	*	8	*	15	*	23
Secondary (O-Level)	42.4	52	54.6	111	50.0	163
Post-Secondary (O-Level) Training	*	8	*	9	*	17
Secondary (A-Level)	*	1	*	1	*	2
Post-Secondary (A-Level) Training	*	1	*	0	*	1
University	*	2	*	1	*	3
Wealth quintile						
Lowest	38.2	118	46.3	213	43.2	331
Second	38.2	131	59.3	218	50.5	349
Middle	43.6	165	62.4	336	55.6	501
Fourth	38.7	97	58.1	293	52.5	390
Highest	52.6	52	56.1	207	55.2	259
Total 15-24	(22.2)	28	47.1	143	41.5	171
Total 15-49	36.1	414	56.0	1,040	49.6	1,454
Total 15+	41.5	563	57.2	1,267	51.9	1,830

¹Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads

²VLS: viral load suppression

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

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

9.4 Adult Viral Load Suppression by Age and Sex

Among HIV-positive adults aged 15 years and older, the prevalence of VLS ranged from 37.9% among those aged 15-19 years to 67.9% among those aged 55-59 years. Less than one quarter (22.2%) of males aged 15-24 years had VLS as compared to 58.8% of men aged 50 years and older who had suppressed viral loads. In HIV-positive men, VLS prevalence was lowest (21.5%) among those aged 25-29 years and highest (69.0%) among those aged 55-59 years. Among HIV-positive women, prevalence of VLS was lowest (44.6%) among those aged 25-29 years and highest (67.1%) among those 55-59 years (Tables 9.4.A, 9.4.B, 9.4.C, and 9.4.D; Figure 9.4.A).

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

Among HIV-positive persons all ages, percentage with viral load suppression (< 1,000 copies/mL)¹, by sex and age, THIS 2016-2017

Age	Males		Females		Total	
	Percentage VLS ²	Number	Percentage VLS ²	Number	Percentage VLS ²	Number
0-4	*	5	*	9	*	14
5-9	*	6	*	9	*	15
10-14	*	8	*	7	*	15
15-19	*	9	(45.8)	30	(37.9)	39
20-24	*	19	47.6	113	42.8	132
25-29	(21.5)	47	44.6	158	38.1	205
30-34	28.7	68	55.0	207	47.1	275
35-39	39.1	89	63.4	224	55.8	313
40-44	38.8	113	61.2	175	51.7	288
45-49	55.2	69	61.0	133	59.0	202
50-54	57.1	60	66.9	87	62.7	147
55-59	(69.0)	42	67.1	65	67.9	107
60-64	(39.0)	26	(59.4)	43	52.9	69
65-69	*	9	*	16	(58.7)	25
70-74	*	4	*	11	*	15
75-79	*	6	*	1	*	7
≥80	*	2	*	4	*	6
Total 15-24	(22.2)	28	47.1	143	41.5	171
Total 15-49	36.1	414	56.0	1,040	49.6	1,454
Total 50+	58.8	149	62.5	227	61.0	376
Total 15-64	41.2	542	57.5	1,235	52.0	1,777
Total 15+	41.5	563	57.2	1,267	51.9	1,830

¹Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads

²VLS: viral load suppression

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

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

Table 9.4.B Viral load suppression by age (10-15 Year age groups), United Republic of Tanzania

Among HIV-positive persons, percentage with viral load suppression (< 1,000 copies/mL)¹, by sex and age, THIS 2016-2017

Age	Males		Females		Total	
	Percentage VLS ²	Number	Percentage VLS ²	Number	Percentage VLS ²	Number
0-14	*	19	11.7	25	18.4	44
15-24	22.2	28	47.1	143	41.5	171
25-34	25.7	115	50.5	365	43.3	480
35-44	38.9	202	62.5	399	53.9	601
45-54	56.0	129	63.2	220	60.5	349
55-64	61.5	68	64.4	108	63.3	176
65+	*	21	42.9	32	46.6	53

¹Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads

²VLS: viral load suppression

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

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

Table 9.4.C Viral load suppression by age (10-to-15-year age groups), Zanzibar

Among HIV-positive persons all ages, percentage with viral load suppression (< 1,000 copies/mL)¹, by sex and age, in Zanzibar, THIS 2016-2017

Age	Males		Females		Total	
	Percentage VLS ²	Number	Percentage VLS ²	Number	Percentage VLS ²	Number
0-14	*	0	*	0	*	0
15-49	*	0	*	7	*	7
50+	*	0	*	1	*	1
15-64	*	0	*	8	*	8
15+	*	0	*	8	*	8

¹Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads

²VLS: viral load suppression

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

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

Table 9.4.D Viral load suppression by age (10- to 15-year age groups), Mainland

Among HIV-positive persons all ages percentage with viral load suppression (< 1,000 copies/mL)¹, by sex and age, in Tanzania mainland, THIS 2016-2017

Age	Males		Females		Total	
	Percentage VLS ²	Number	Percentage VLS ²	Number	Percentage VLS ²	Number
0-14	*	19	(11.7)	25	(18.4)	44
15-49	36.1	414	56.2	1,033	49.7	1,447
50+	58.8	149	62.3	226	60.9	375
15-64	41.2	542	57.6	1,227	52.1	1,769
15+	41.5	563	57.3	1,259	51.9	1,822

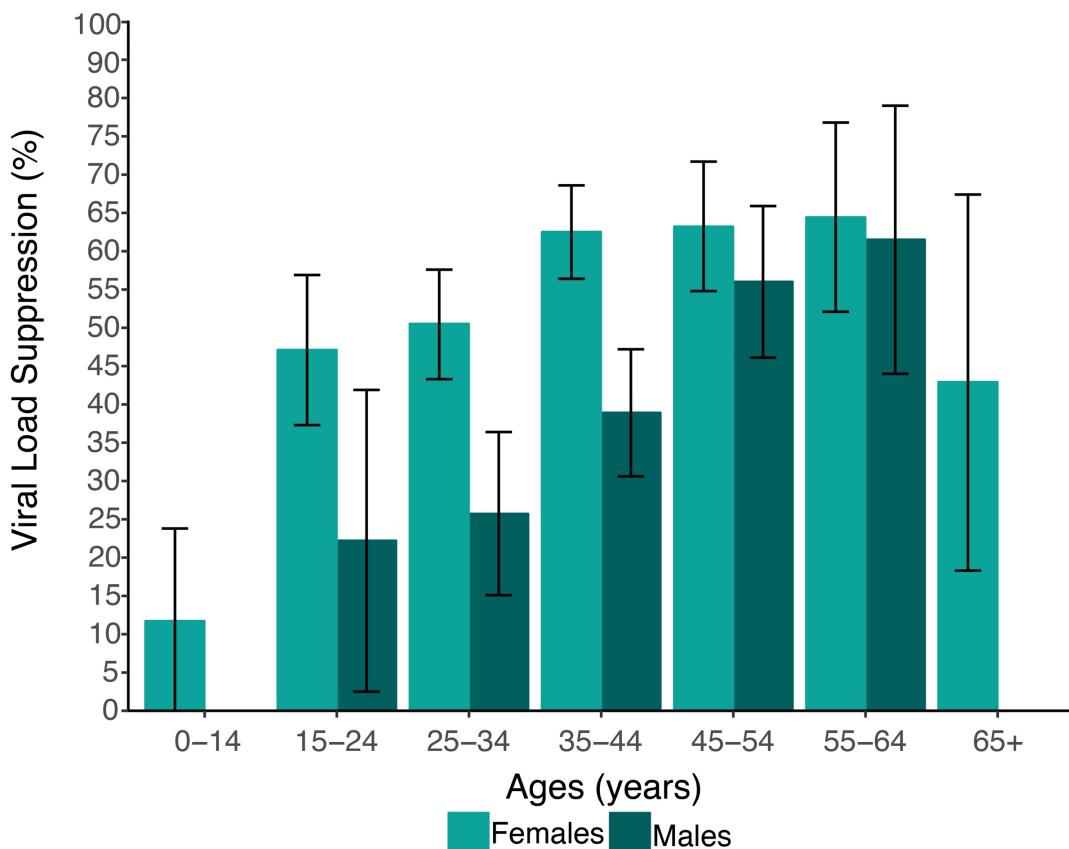
¹Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads

²VLS: viral load suppression

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

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

Figure 9.4.A Proportion of viral load suppression (<1000 copies/mL) among people living with HIV, by age and sex, THIS 2016-2017

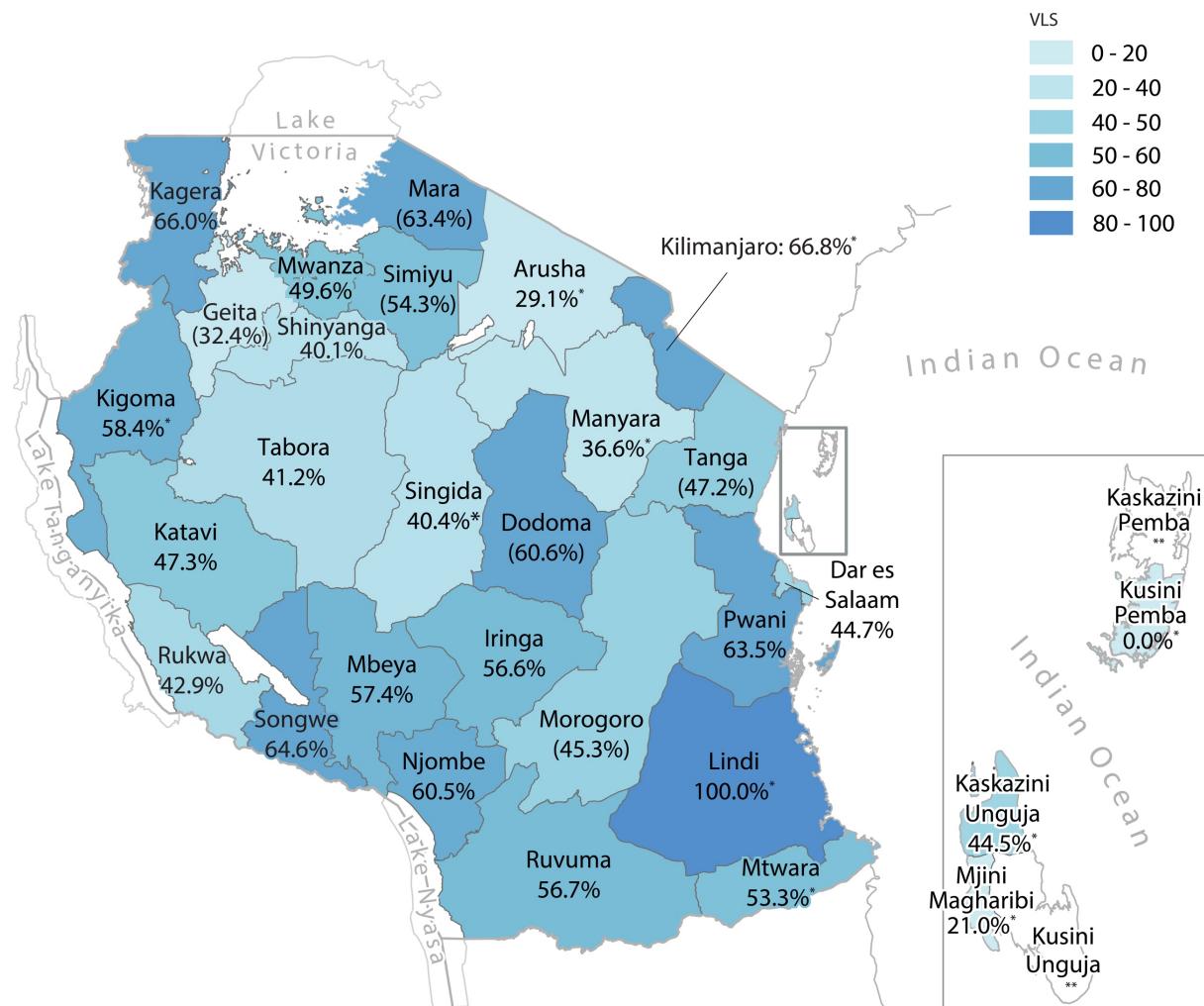


Estimates based on <25 observations have been suppressed

9.5 Adult Viral Load Suppression by Region

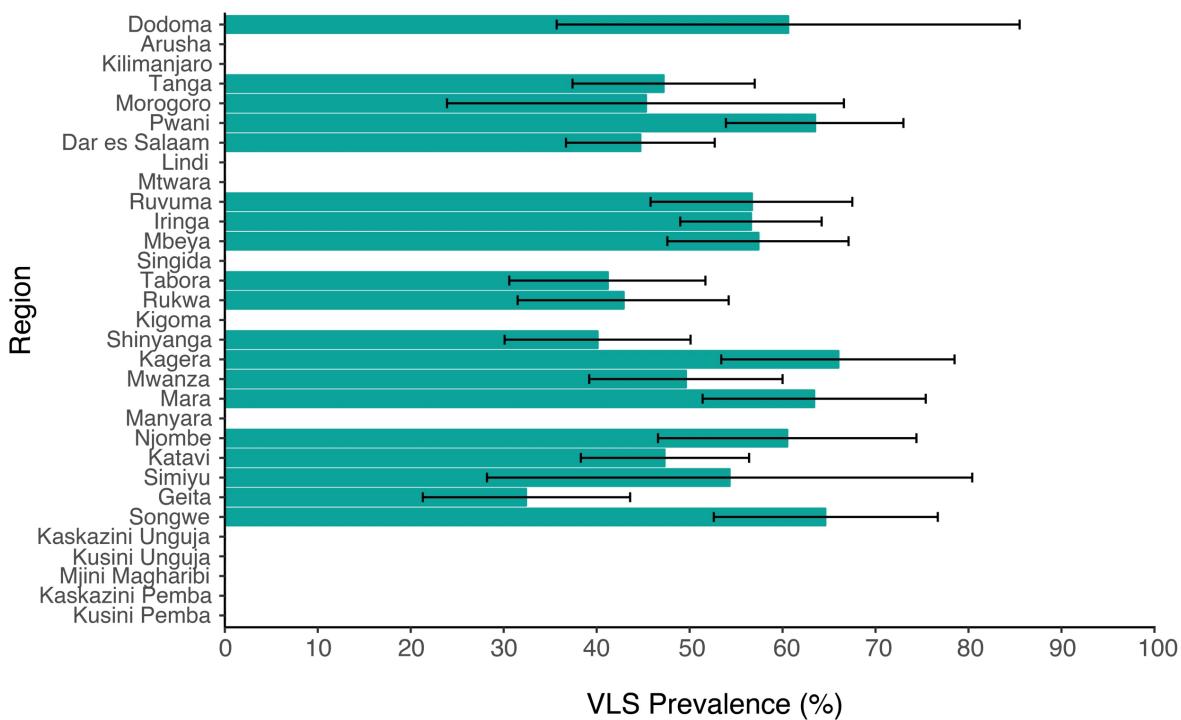
Among HIV-positive adults, aged 15 years and older, regional prevalence of VLS ranged between 32.4% in Geita and 66% in Kagera. Pwani and Kagera had the highest proportion of adults with VLS at 63.5% and 66%, respectively. (Although some other regions, such as Lindi, had higher VLS- the numbers of PLHIV in those regions were too low for the estimate of VLS to be reliable). Shinyanga (40.1%) and Geita (32.4%) had the lowest VLS relative to other regions.

Figure 9.5.A Viral load suppression (<1000 copies/mL) among HIV-positive adults aged 15 years and older, by region, THIS 2016-2017



A star indicates that estimate is based on <25 observations and should be interpreted with caution; Estimates in parentheses are based on 25-49 observations and should be interpreted with caution. A double star (**) indicates that the region had no HIV-positive samples with which to estimate viral load suppression.

Figure 9.5.B Viral load suppression (<1000 copies/mL) among HIV-positive adults aged 15 years and older), by region, THIS 2016-2017



Estimates based on <25 observations have been suppressed; Kusini Unguja and Kaskazini Pemba had no HIV-positive samples with which to estimate viral load suppression.

9.6 Gaps and Unmet Needs

- Almost half (48.1%) of adults aged 15 years and older who are living with HIV in the country do not have suppressed viral loads.
- About 58% of adolescents and young adults aged 15-24 years do not have suppressed viral loads.

10 UNAIDS 90-90-90 TARGETS: ADULTS

10.1 Key Findings

- **Diagnosis:** About 61% (60.6%) of adults 15 years and older living with HIV, know their HIV-positive status as determined by a combination of both self-report and ARV detection in their blood.
- **On treatment:** Of those 15 years of age and older who were aware of their HIV-positive status, 93.6% were on ART based on a combination self-report and ARV detection (89.6% in males and 95.3% in females).
- **Viral load suppression:** Among those 15 years of age and older who were on treatment, 87.0% had suppressed viral loads (83.2% in males and 88.6% in females).

10.2 Background

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

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

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

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

10.3 Status of the 90-90-90 Goals

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

Among adults aged 15 years and older living with HIV, 51.8% knew their HIV-positive status (45.2% in males and 55.3% in females) based on self-report of HIV status. Among HIV-positive females, awareness of HIV-positive status was highest (61.5%) among those aged 35-49 years, while in HIV-positive males, awareness of HIV-positive status was highest in those aged 50 years and older (60.7%). Awareness of HIV-positive status was lowest (39.1%) in those aged 15-24 years (35.1% in males and 40.6% in females) (Table 10.3.A).

ART status among persons aged 15 years and older who reported awareness of their HIV-positive status varied by age and sex. Overall, 90.8% reported ART use (85.8% in males and 93.0% in females). The proportion of females who were aware of their HIV-positive status and on ART ranged from 88.2% among those aged 15-24 years to 99.1% among those aged 50 years and older. The proportion of males who were aware of their HIV-positive status and on ART ranged from 66.0% among those aged 25-34 years to 94.5% in those aged 50 years and older (Table 10.3.A).

Among adults aged 15 years and older who knew their HIV-positive status and are on ART, 87.8% had VLS (84.4% in males and 89.1% in females). Among adults aged 15-49 years, VLS among those who were aware of their HIV-positive status and on ART was higher among females (88.4%) than males (78.8%). Viral load suppression was highest (92.6%) in those aged 50 years and older in both sexes (93.7% for males and 91.8% for females).

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

ARV-adjusted awareness of HIV-positive status: Among adults aged 15 years and older living with HIV, 60.6% (52.2% of males and 64.9% of females) were classified as aware, according to combined self-reported awareness and/or detectable ARV data (ARV-adjusted awareness). Generally, ARV-adjusted awareness was lowest among males compared to females across all age categories. Among females, ARV-adjusted awareness was greatest in those aged 35-49 years (71.3%) whereas in males, ARV-adjusted awareness was highest among those aged 50 years and older (63.2%). Overall, ARV-adjusted awareness of HIV-positive status was observed in 50.2% of PLHIV aged 15-24 years (35.7% of males and 54.4% of females) (Table 10.3.B).

ARV-adjusted treatment status: Based on either self-report ARV status or detectable ARVs, 93.6% of adults aged 15 years and older with ARV-adjusted awareness of status were classified as being on ART. ARV-adjusted awareness of status ranged from 88.3% among those aged 25-34 years to 97.5% among those aged 50 years and older. The greatest disparity by gender was seen in those aged 25-34 years, among whom 76.0% of males and 91.1% of females were on ART (ARV-adjusted treatment status).

Viral suppression: Among adults aged 15 years and older who either self-reported ARV use or had detectable ARVs, 87.0% had VLS, which ranged from 83.5% among those aged 15-24 years to 90.7% among those aged 50 years and older. There was a 5%-8% difference in VLS between males and females on ART, in ages 25-34 years and ages 35-49 years, with a greater percentage of VLS seen in females in both these age groups (Table 10.3.B; Figure 10.3.A).

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

90-90-90 targets among people living with HIV aged 15 years and older, by sex and age, THIS 2016-2017

Age	Diagnosed					
	Males		Females		Total	
	Percentage who self-reported HIV positive	Number	Percentage who self-reported HIV positive	Number	Percentage who self-reported HIV positive	Number
15-24	(35.1)	27	40.6	121	39.1	148
15-19	*	8	*	24	(36.0)	32
20-24	*	19	41.8	97	40.2	116
25-34	24.6	105	49.6	310	42.0	415
35-49	48.6	237	61.5	463	56.9	700
15-49	40.0	369	54.6	894	49.8	1,263
50+	60.7	142	58.1	204	59.1	346
15-64	45.3	492	55.9	1,070	52.2	1,562
15+	45.2	511	55.3	1,098	51.8	1,609
Age	On Treatment					
	Among males who self-report HIV positive		Among females who self-report HIV positive		Total	
	Percentage who self-reported ART	Number	Percentage who self-reported ART	Number	Percentage who self-reported ART	Number
15-24	*	7	(88.2)	43	87.7	50
15-19	*	2	*	9	*	11
20-24	*	5	(85.7)	34	(84.5)	39
25-34	(66.0)	28	86.9	155	83.2	183
35-49	84.8	110	94.4	293	91.5	403
15-49	81.4	145	91.5	491	88.8	636
50+	94.5	93	99.1	124	97.2	217
15-64	86.1	228	92.9	603	90.9	831
15+	85.8	238	93.0	615	90.8	853
Viral Load Suppression (VLS)						
Among males who self-report ART		Among females who self-report ART		Total		
Age	Percentage with VLS	Number	Percentage with VLS	Number	Percentage with VLS	Number
15-24	*	6	(90.6)	35	(82.3)	41
15-19	*	2	*	8	*	10
20-24	*	4	(89.6)	27	(84.7)	31
25-34	*	16	88.0	136	87.4	152
35-49	80.8	96	88.2	272	86.1	368
15-49	78.8	118	88.4	443	86.1	561
50+	93.7	87	91.8	121	92.6	208
15-64	84.0	197	89.2	553	87.7	750
15+	84.4	205	89.1	564	87.8	769

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

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

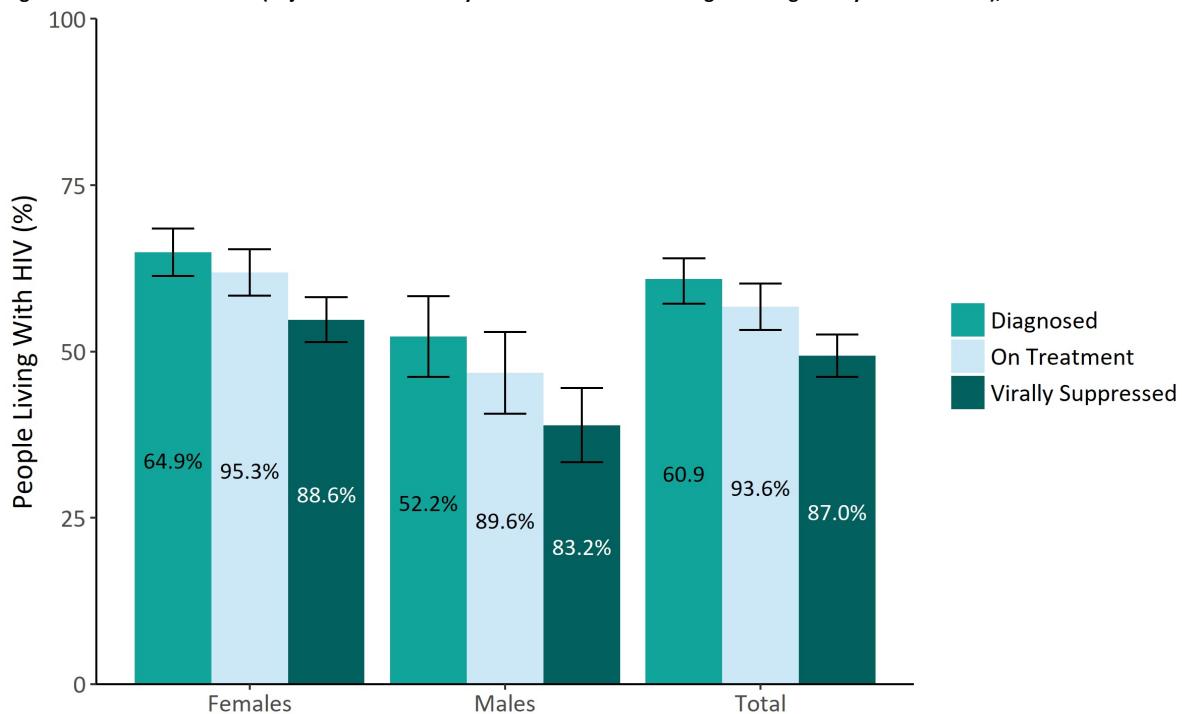
Table 10.3.B Adult 90-90-90 (self-reported antiretroviral therapy (ART) status and/or laboratory antiretroviral (ARV) data, conditional percentages)

90-90-90 targets among people living with HIV aged 15 years and older, by sex and age, THIS 2016-2017

Age	Diagnosed					
	Males		Females		Total	
	Percentage who self-reported HIV positive AND/OR with detectable ARVs ¹	Number	Percentage who self-reported HIV positive AND/OR with detectable ARVs ¹	Number	Percentage who self-reported HIV positive AND/OR with detectable ARVs ¹	Number
15-24	(35.7)	27	54.4	140	50.2	167
15-19	*	8	(59.8)	29	(53.9)	37
20-24	*	19	52.6	111	48.8	130
25-34	32.0	112	59.0	350	50.9	462
35-49	58.7	264	71.3	515	66.7	779
15-49	48.8	403	64.7	1,005	59.5	1,408
50+	63.2	149	65.9	225	64.8	374
15-64	52.4	531	65.3	1,199	60.9	1,730
15+	52.2	552	64.9	1,230	60.6	1,782
On Treatment						
Among males who self-report HIV positive AND/OR with detectable ARVs			Among females who self-report HIV positive AND/OR with detectable ARVs			Total
Age	Percentage with detectable ARVs AND/OR who self-reported current ARV usage ²	Number	Percentage with detectable ARVs AND/OR who self-reported current ARV usage ²	Number	Percentage with detectable ARVs AND/OR who self-reported current ARV usage ²	Number
15-24	*	8	93.8	69	92.6	77
15-19	*	3	*	15	*	18
20-24	*	5	91.8	54	90.0	59
25-34	(76.0)	38	91.1	210	88.3	248
35-49	90.6	148	96.3	371	94.4	519
15-49	87.4	194	94.4	650	92.5	844
50+	94.9	103	99.3	154	97.5	257
15-64	89.9	285	95.2	786	93.7	1,071
15+	89.6	297	95.3	804	93.6	1,101
Viral Load Suppression (VLS)						
Among males with detectable ARVs AND/OR who self-reported current ARV usage			Among females with detectable ARVs AND/OR who self-reported current ARV usage			Total
Age	Percentage with VLS	Number	Percentage with VLS	Number	Percentage with VLS	Number
15-24	*	7	88.9	63	83.5	70
15-19	*	3	*	14	*	17
20-24	*	4	(91.5)	49	87.8	53
25-34	(84.1)	26	89.1	192	88.3	218
35-49	79.8	137	87.9	353	85.4	490
15-49	78.8	170	88.4	608	86.0	778
50+	93.0	97	89.2	151	90.7	248
15-64	83.0	257	88.5	742	87.0	999
15+	83.2	267	88.6	759	87.0	1,026

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

Figure 10.3.A Adult 90-90-90 (adjusted for laboratory antiretroviral data¹ among adults aged 15 years and older), THIS 2016-2017



¹In the antiretroviral (ARV)-adjusted 90-90-90 participants are classified as 'Aware' or 'Diagnosed' if they self-reported HIV positive before testing HIV positive in THIS and/or had detectable ARVs in their blood. Participants are classified as 'On Treatment' if they self-reported that they were on treatment and/or if they had detectable ARVs in their blood.

*Inset numbers are conditional proportions.

10.4 Gaps and Unmet Needs

- Only 61% of PLHIV are aware of their status.
- A gender gap is apparent for each of the three 90's. In comparison to men, a greater proportion of women were diagnosed (52.2% and 64.9%), on treatment (89.6% and 95.3%), with suppressed viral loads (83.2% and 88.6%).
- A large proportion (39.4%) of people living with HIV aged 15 years and older do not know their HIV-positive status based on self-report and ARV detection; the gap was the largest among those aged 15-24 years and males.
- There is still a gap in the number of HIV-positive individuals not initiated on ART. This is highest among males aged 25-34 years, among whom 24% of those already diagnosed were not receiving ART based on ARV adjusted measures.
- Although VLS is high among those on ARV, overall VLS among all PLHIV was 41.5% in males aged 15 years and older. This was even lower in the group aged 15-24 years (22.2% in males and 47.1% in females).
- Age groups also varied in each of the 90's and provide insight for programmatic focus. For example, only half of those aged 15-24 years (50.2%) living with HIV were aware of their status of which 92.6% were on treatment; and 83.5% had suppressed viral loads.

10.5 References

1. Joint United Nations Programme on HIV/AIDS. 90-90-90. *An ambitious treatment target to help end the AIDS epidemic*. Geneva: UNAIDS; 2014.

11 CLINICAL PERSPECTIVES ON PEOPLE LIVING WITH HIV: ADULTS

11.1 Key Findings

- The proportion with immunosuppression (CD4 counts less than 500 cells/ μ L) was 61.8% among all HIV-positive individuals aged 15 years and older (73.8% in males, 55.7% in females).
- Median CD4 cell count among individuals who have not been previously diagnosed with HIV was 388 cells/ μ L compared to 420 cells/ μ L and 467 cells/ μ L in those previously diagnosed but not on treatment and those diagnosed and receiving treatment, respectively.
- Among adults aged 15 years and older living with HIV who had not been diagnosed, 21.6% of males and 18.5% of females had severe immunosuppression with CD4 count less than 200 cells/ μ L.

11.2 Background

The quality of HIV care is based on key principles of accessibility, efficiency, and safety. As countries implement treatment for all PLHIV, ensuring a sustainable health system that is people-centered and innovative requires diligent monitoring and responsiveness.¹ It is vital to assess indicators that show the potential impact of HIV on overall morbidity and mortality as well as HIV program effectiveness. The distribution of CD4 counts reflects population health, and indicates the stage of HIV disease progression (immunosuppression level) among PLHIV. Treating PLHIV at higher CD4 counts improves immune recovery, decreases the incidence of non-AIDS events, comorbidities, and mortality, and reduces transmission. Diagnosis of HIV at late stage of disease indicated by low CD4 count may reflect barriers and/or challenges in the ability of our program to reach PLHIV prior to disease progression and point to gaps in implementing “Test and Treat” strategy. Retention on ART, which reduces immunosuppression (i.e., increases CD4 counts), can provide evidence of program coverage and quality of care. Finally, the measurement of transmitted drug resistance allows optimization of national ART guidelines, including second- and third-line regimens. This survey, therefore, provides a unique opportunity to gauge progress in the expansion of HIV clinical services in Tanzania and identify gaps and future challenges.

This chapter describes the distribution of immunosuppression (CD4 count <500 cells/microliter [μ L]) among THIS participants by socio-demographic characteristics—age, sex, marital status, residence, and self-reported HIV status and ART use. The chapter also covers the distribution of HIV late diagnosis, retention on ART, and HIV drugs resistance prevalence by socio-demographic characteristics.

11.3 CD4 Counts and Immunosuppression

Overall, among HIV-positive persons aged 15 years and older, the median CD4 count was 423 cells/ μ L Table 11.3.A. The median CD4 count was lower among males (359 cells/ μ L compared to females (464 cells/ μ L). The proportion with immunosuppression was 61.8% among all HIV-positive persons aged 15 years and older (73.8% of males, 55.7% of females).

By age, median CD4 is higher among the younger age groups (ages 15-24 years), with those aged 20-24 years having the highest at a median CD4 of 551 cells/ μ L. Additionally, HIV-positive males had higher prevalence of immunosuppression when compared to their female counterparts across all age groups. In males, those aged 45-49 years were the least immunosuppressed with approximately two-thirds of

participants in this age group with immunosuppression (66.5%). Among HIV-positive women, those aged 20-24 years had the least immunosuppression (39.3%). Prevalence of immunosuppression overall was lowest among those aged 20-24 years at forty-four percent (44.1%) and highest among those aged 60-64 years at 72.6% (87.4% in men, 65.7% in women).

Among HIV-positive persons aged 15 years and older, the median CD4 count was 422 cells/ μ L and 424 cells/ μ L for urban and rural areas, respectively. The median CD4 count was lower among males (389 cells/ μ L) compared to females (438 cells/ μ L in the urban areas. It was also lower among males (343 cells/ μ L) compared to females (482 cells/ μ L) in the rural areas. Females who reported being married or living together had the lowest proportion (49.7%) of immunosuppression as compared to females who reported other marital status. Males who have never married (84.7%) or divorced (85.5%) had higher proportions of immunosuppression as compared to males who were married or living together (70.4%) or widowed (71.9%).

Median CD4 count varied by HIV self-reported diagnosis and ART use status; the highest median CD4 count (467 cells/ μ L) was among those who were previously diagnosed and on ART. Among those who reported no previous HIV diagnosis, males (80.1%) had higher proportion of immunosuppression as compared to females (61.4%).

Table 11.3.A Median CD4 count and prevalence of immunosuppression

Among HIV-positive persons aged 15 years and older, median (Q1, Q3) CD4 count and percentage with immunosuppression (<500 cells/ μ L), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, THIS 2016-2017

Characteristic	Males			Females			Total		
	Median (Q1, Q3)	Percentage < 500 cells/ μ L	Number	Median (Q1, Q3)	Percentage < 500 cells/ μ L	Number	Median (Q1, Q3)	Percentage < 500 cells/ μ L	Number
Self-reported diagnosis and treatment status									
Not previously diagnosed	334 (229, 461)	80.1	270	428 (252, 593)	61.4	481	388 (239, 547)	68.7	751
Previously diagnosed, not on ART	414 (190, 640)	(58.9)	32	429 (315, 641)	63.0	51	420 (288, 643)	61.1	83
Previously diagnosed, on ART	406 (271, 565)	64.6	204	493 (352, 673)	50.6	564	467 (328, 644)	54.6	768
Missing	300 (237, 431)	82.7	53	450 (290, 673)	54.3	168	421 (273, 584)	62.4	221
Residence									
Urban	389 (248, 493)	75.3	169	438 (312, 630)	59.0	575	422 (290, 597)	63.3	744
Rural	343 (238, 521)	72.9	390	482 (311, 656)	52.3	689	424 (266, 603)	60.5	1,079
Tanzania Mainland/Zanzibar									
Mainland	359 (241, 508)	73.8	559	464 (311, 643)	55.8	1,256	422 (277, 602)	61.8	1,815
Urban	389 (248, 493)	75.3	169	438 (311, 630)	59.0	571	422 (290, 597)	63.2	740
Rural	343 (238, 521)	72.9	390	481 (310, 655)	52.4	685	423 (266, 603)	60.6	1,075
Zanzibar	*	*	0	*	*	8	*	*	8
Unguja	*	*	0	*	*	7	*	*	7
Pemba	*	*	0	*	*	1	*	*	1
Region									
Dodoma	*	*	9	*	*	18	278 (195, 463)	(74.9)	27
Arusha	*	*	3	*	*	6	*	*	9
Kilimanjaro	*	*	5	*	*	11	*	*	16
Tanga	*	*	11	*	*	23	415 (284, 658)	(60.1)	34
Morogoro	*	*	8	396 (200, 535)	(68.5)	29	378 (202, 498)	(73.4)	37
Pwani	463 (397, 620)	(65.9)	26	546 (320, 697)	45.8	85	498 (360, 683)	50.8	111
Dar es Salaam	*	*	17	432 (309, 590)	60.0	77	428 (308, 576)	61.9	94
Lindi	*	*	0	*	*	1	*	*	1
Mtwara	*	*	3	*	*	6	*	*	9
Ruvuma	390 (263, 545)	(67.1)	41	491 (375, 655)	51.0	69	463 (295, 614)	57.7	110
Iringa	344 (232, 447)	(80.8)	39	451 (288, 616)	54.5	116	410 (252, 593)	61.7	155
Mbeya	331 (195, 382)	(87.5)	35	447 (249, 601)	64.7	98	372 (225, 530)	71.0	133
Singida	*	*	3	*	*	10	*	*	13
Tabora	390 (284, 511)	71.4	71	436 (258, 626)	60.2	96	421 (275, 550)	65.6	167
Rukwa	282 (183, 568)	(63.5)	31	542 (349, 702)	46.5	67	480 (257, 650)	52.6	98
Kigoma	*	*	9	*	*	14	*	*	23
Shinyanga	411 (227, 585)	(59.4)	48	446 (313, 648)	60.4	95	430 (281, 628)	60.0	143
Kagera	*	*	24	537 (375, 702)	(44.2)	33	527 (335, 700)	47.8	57
Mwanza	369 (197, 497)	(74.2)	32	489 (342, 660)	50.6	67	445 (293, 603)	59.1	99
Mara	*	*	9	*	*	24	489 (346, 692)	(49.5)	33
Manyara	*	*	4	*	*	6	*	*	10

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

Among HIV-positive persons aged 15 years and older, median (Q1, Q3) CD4 count and percentage with immunosuppression (<500 cells/ μ L), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, THIS 2016-2017

Characteristic	Males			Females			Total		
	Median (Q1, Q3)	Percentage < 500 cells/ μ L	Number	Median (Q1, Q3)	Percentage < 500 cells/ μ L	Number	Median (Q1, Q3)	Percentage < 500 cells/ μ L	Number
Region (continued)									
Njombe	*	*	24	427 (323, 581)	61.2	81	416 (304, 581)	63.0	105
Katavi	318 (207, 454)	(80.1)	45	456 (311, 631)	56.6	117	421 (287, 596)	63.6	162
Simiyu	*	*	11	*	*	20	346 (271, 573)	(67.4)	31
Geita	*	*	16	426 (369, 638)	(58.2)	29	388 (259, 584)	(66.5)	45
Songwe	322 (220, 456)	(79.0)	35	453 (314, 602)	55.6	58	419 (243, 579)	65.7	93
Kaskazini Unguja	*	*	0	*	*	2	*	*	2
Kusini Unguja	*	*	0	*	*	0	*	*	0
Mjini Magharibi	*	*	0	*	*	5	*	*	5
Kaskazini Pemba	*	*	0	*	*	0	*	*	0
Kusini Pemba	*	*	0	*	*	1	*	*	1
Marital status									
Never married	369 (205, 458)	(84.7)	43	423 (291, 588)	62.1	123	416 (279, 546)	68.9	166
Married or living together	371 (248, 552)	70.4	409	499 (314, 668)	49.7	612	427 (283, 620)	58.8	1,021
Divorced or separated	311 (190, 426)	85.5	80	439 (342, 610)	62.9	272	420 (278, 577)	68.0	352
Widowed	358 (184, 568)	(71.9)	27	440 (266, 628)	58.3	256	425 (262, 628)	59.7	283
Education									
No education	324 (169, 476)	76.5	86	432 (250, 641)	59.6	280	395 (239, 613)	64.3	366
Pre-Primary	*	*	7	*	*	6	*	*	13
Primary	363 (247, 538)	72.1	396	477 (325, 646)	54.4	840	429 (291, 607)	60.4	1,236
Post Primary Training	*	*	8	*	*	15	*	*	23
Secondary (O-Level)	358 (288, 455)	82.2	50	467 (308, 638)	53.8	110	423 (295, 581)	64.3	160
Post-Secondary (O-Level) Training	*	*	8	*	*	9	*	*	17
Secondary (A-Level)	*	*	1	*	*	1	*	*	2
Post-Secondary (A-Level) Training	*	*	1	*	*	0	*	*	1
University	*	*	2	*	*	1	*	*	3
Wealth quintile									
Lowest	345 (273, 503)	74.7	117	499 (286, 648)	49.7	213	430 (281, 605)	59.2	330
Second	331 (234, 542)	70.9	131	473 (343, 673)	55.1	218	424 (267, 588)	61.7	349
Middle	372 (239, 510)	73.3	163	473 (312, 675)	53.3	334	425 (266, 626)	60.5	497
Fourth	333 (165, 468)	79.3	96	444 (307, 631)	58.7	292	409 (260, 582)	64.6	388
Highest	427 (297, 519)	70.0	52	431 (310, 605)	60.0	207	431 (308, 589)	62.3	259

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

Among HIV-positive persons aged 15 years and older, median (Q1, Q3) CD4 count and percentage with immunosuppression (<500 cells/ μ L), by sex, self-reported diagnosis and ART status, and selected demographic characteristics, THIS 2016-2017

Characteristic	Males			Females			Total		
	Median (Q1, Q3)	Percentage < 500 cells/ μ L	Number	Median (Q1, Q3)	Percentage < 500 cells/ μ L	Number	Median (Q1, Q3)	Percentage < 500 cells/ μ L	Number
Age									
15-19	*	*	9	546 (430, 636)	(41.4)	30	482 (415, 582)	(51.4)	39
20-24	*	*	18	597 (418, 797)	39.3	111	551 (359, 715)	44.1	129
25-29	390 (295, 497)	(75.3)	47	440 (335, 628)	56.3	158	428 (314, 617)	61.6	205
30-34	384 (221, 480)	77.9	68	494 (309, 690)	50.1	207	439 (277, 601)	58.4	275
35-39	354 (239, 543)	70.6	87	480 (306, 645)	54.5	224	431 (279, 619)	59.4	311
40-44	330 (199, 435)	79.1	113	422 (289, 594)	62.5	174	372 (245, 568)	69.5	287
45-49	368 (193, 551)	66.5	69	396 (240, 594)	61.2	133	379 (239, 593)	63.1	202
50-54	322 (213, 499)	72.0	60	444 (278, 605)	60.3	87	416 (244, 587)	65.3	147
55-59	383 (281, 499)	(73.9)	42	425 (367, 576)	61.8	65	416 (346, 556)	66.9	107
60-64	434 (274, 467)	(87.4)	26	420 (209, 587)	(65.7)	43	433 (267, 512)	72.6	69
65-69	*	*	8	*	*	16	*	*	24
70-74	*	*	4	*	*	11	*	*	15
75-79	*	*	6	*	*	1	*	*	7
≥80	*	*	2	*	*	4	*	*	6
Total 15-24	369 (222, 547)	(68.3)	27	568 (423, 750)	39.9	141	546 (369, 689)	46.2	168
Total 15-49	355 (237, 513)	73.8	411	475 (313, 663)	54.0	1,037	426 (280, 609)	60.4	1,448
Total 50+	375 (249, 498)	73.9	148	424 (280, 591)	63.2	227	414 (270, 575)	67.5	375
Total 15+	359 (241, 508)	73.8	559	464 (311, 643)	55.7	1,264	423 (278, 602)	61.8	1,823

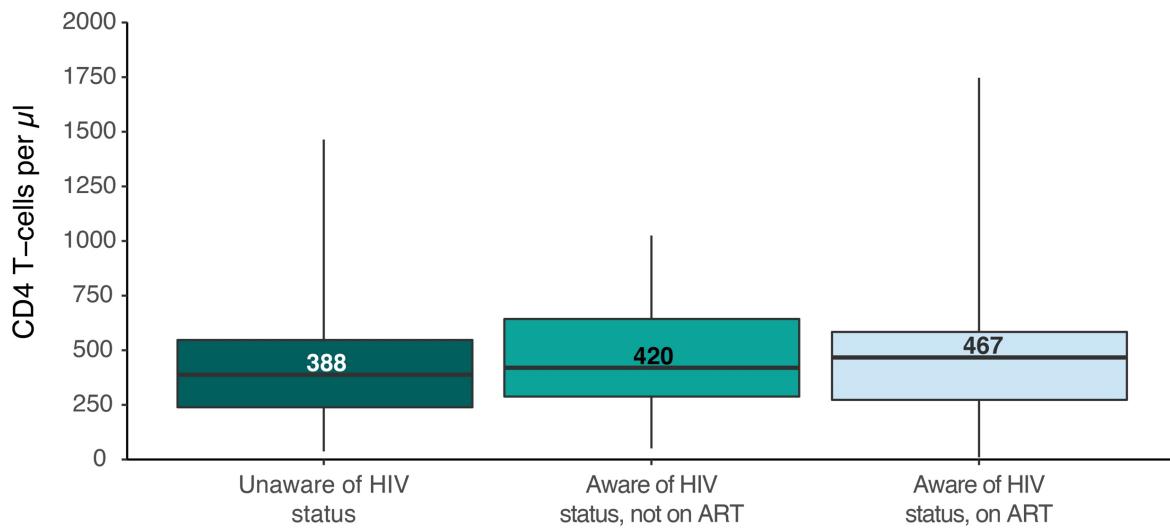
Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

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

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

The interquartile range (IQR) is a measure of variability, based on dividing a dataset into quartiles. Quartiles divide a rank-ordered dataset into four equal parts. The values that divide each part are called the first, second, and third quartiles; and they are denoted by Q1, Q2, and Q3, respectively.

Figure 11.3.A CD4 count distribution among HIV-positive adults aged 15 years and older, by antiretroviral therapy status, THIS 2016-2017



11.4 Late HIV Diagnosis

Among HIV-positive adults aged 15 years and older who were unaware of their status (that is, they self-reported being HIV negative or never tested and with no detectable ARVs), 45.1% had a CD4 count less than 350 cells/ μ L (54.6% of males and 38.4% of females) and 19.8% had a CD4 count less than 200 cells/ μ L (21.6% of males and 18.5% of females). Likewise, prevalence of severe immunosuppression with CD4 counts less than 200 cells/ μ L peaked among those residing in rural areas (21.5%), those in the fourth wealth quintile (24.7%), and those aged 45-49 years (38.3%) (Table 11.4.A).

Table 11.4.A Late HIV diagnosis

Among persons aged 15 years and older who tested HIV positive in THIS, but self-reported HIV negative and with no detectable ARVs, percentage who had a CD4 cell count < 200 cells/mL and < 350 cells/mL by sex, self-reported diagnosis and selected demographic characteristics, THIS 2016-2017

Characteristic	Males			Females			Total		
	Percentage < 200 cells/ μ l ¹	Percentage < 350 cells/ μ l ¹	Number	Percentage < 200 cells/ μ l ¹	Percentage < 350 cells/ μ l ¹	Number	Percentage < 200 cells/ μ l ¹	Percentage < 350 cells/ μ l ¹	Number
Residence									
Urban	15.9	43.6	71	18.1	39.1	174	17.3	40.7	245
Rural	24.7	60.6	182	18.9	37.8	251	21.5	48.2	433
Tanzania Mainland/Zanzibar									
Mainland	21.6	54.6	253	18.7	38.7	420	19.9	45.3	673
Urban	15.9	43.6	71	18.3	39.4	172	17.4	40.9	243
Rural	24.7	60.6	182	19.0	38.1	248	21.6	48.4	430
Zanzibar	*	*	0	*	*	5	*	*	5
Unguja	*	*	0	*	*	5	*	*	5
Pemba	*	*	0	*	*	0	*	*	0
Region									
Dodoma	*	*	5	*	*	5	*	*	10
Arusha	*	*	2	*	*	3	*	*	5
Kilimanjaro	*	*	3	*	*	1	*	*	4
Tanga	*	*	3	*	*	10	*	*	13
Morogoro	*	*	5	*	*	9	*	*	14
Pwani	*	*	7	*	*	21	(3.0)	(33.3)	28
Dar es Salaam	*	*	9	(25.1)	(36.1)	32	(25.2)	(33.2)	41
Lindi	*	*	0	*	*	0	*	*	0
MtWARA	*	*	2	*	*	1	*	*	3
Ruvuma	*	*	19	*	*	15	(20.9)	(50.2)	34
Iringa	*	*	9	(30.5)	(38.1)	30	(31.1)	(47.4)	39
Mbeya	*	*	15	(39.5)	(77.8)	26	(33.9)	(67.9)	41
Singida	*	*	2	*	*	4	*	*	6
Tabora	(14.0)	(46.3)	42	(18.2)	(47.3)	44	15.9	46.7	86
Rukwa	*	*	16	(3.2)	(18.3)	27	(9.6)	(30.9)	43
Kigoma	*	*	4	*	*	4	*	*	8
Shinyanga	(30.1)	(46.5)	25	(11.3)	(37.7)	46	18.9	41.3	71
Kagera	*	*	6	*	*	8	*	*	14
Mwanza	*	*	17	*	*	24	(19.5)	(37.8)	41
Mara	*	*	2	*	*	10	*	*	12
Manyara	*	*	2	*	*	1	*	*	3
Njombe	*	*	10	*	*	18	(19.9)	(40.4)	28
Katavi	*	*	22	(11.0)	(26.8)	42	19.4	42.8	64
Simiyu	*	*	3	*	*	9	*	*	12
Geita	*	*	10	*	*	15	(13.7)	(44.9)	25
Songwe	*	*	13	*	*	15	(16.5)	(41.9)	28
Kaskazini Unguja	*	*	0	*	*	1	*	*	1
Kusini Unguja	*	*	0	*	*	0	*	*	0
Mjini Magharibi	*	*	0	*	*	4	*	*	4
Kaskazini Pemba	*	*	0	*	*	0	*	*	0
Kusini Pemba	*	*	0	*	*	0	*	*	0
Marital status									
Never married	(5.8)	(31.4)	29	(19.4)	(31.5)	44	13.7	31.5	73
Married or living together	20.5	55.4	181	15.3	39.6	212	17.9	47.6	393
Divorced or separated	(35.3)	(67.0)	37	20.7	36.4	98	25.2	45.8	135
Widowed	*	*	6	24.4	42.6	71	26.6	44.5	77
Education									
No education	(31.3)	(56.9)	49	27.4	44.1	113	28.7	48.2	162
Pre-Primary	*	*	3	*	*	3	*	*	6
Primary	19.2	53.3	165	14.3	37.7	265	16.3	44.2	430
Post Primary Training	*	*	3	*	*	5	*	*	8
Secondary (O-Level)	(16.9)	(52.6)	29	(18.9)	(29.3)	35	17.9	40.9	64
Post-Secondary (O-Level)	*	*	2	*	*	3	*	*	5
Training									
Secondary (A-Level)	*	*	1	*	*	0	*	*	1
Post-Secondary (A-Level)	*	*	0	*	*	0	*	*	0
Training									
University	*	*	1	*	*	0	*	*	1

Table 11.4.A Late HIV diagnosis (continued)

Among persons aged 15 years and older who tested HIV positive in THIS, but self-reported HIV negative and with no detectable ARVs, percentage who had a CD4 cell count < 200 cells/mL and < 350 cells/mL by sex, self-reported diagnosis and selected demographic characteristics, THIS 2016-2017

Characteristic	Males			Females			Total		
	Percentage < 200 cells/ μ l ¹	Percentage < 350 cells/ μ l ¹	Number	Percentage < 200 cells/ μ l ¹	Percentage < 350 cells/ μ l ¹	Number	Percentage < 200 cells/ μ l ¹	Percentage < 350 cells/ μ l ¹	Number
Wealth quintile									
Lowest	19.9	56.5	64	15.5	36.5	89	17.5	45.4	153
Second	23.5	65.7	55	18.1	39.8	79	20.6	51.5	134
Middle	18.8	50.3	78	16.9	41.1	96	17.9	45.7	174
Fourth	(30.8)	(58.9)	36	21.5	40.6	97	24.7	47.0	133
Highest	*	*	20	19.6	33.4	64	17.4	33.1	84
Age									
15-19	*	*	5	*	*	14	*	*	19
20-24	*	*	14	6.5	13.9	56	6.9	24.9	70
25-29	(7.6)	(45.5)	33	13.2	33.8	58	10.9	38.6	91
30-34	(21.4)	(42.9)	41	21.1	47.7	82	21.3	45.7	123
35-39	(16.0)	(52.4)	44	18.0	39.0	59	17.2	44.5	103
40-44	(25.1)	(77.5)	45	17.5	37.7	53	21.2	57.2	98
45-49	(35.6)	(46.1)	26	(40.5)	(58.0)	32	38.3	52.7	58
50-54	*	*	20	*	*	20	(33.6)	(56.8)	40
55-59	*	*	9	*	*	20	(23.7)	(41.7)	29
60-64	*	*	8	*	*	18	(13.0)	(45.1)	26
65-69	*	*	5	*	*	4	*	*	9
70-74	*	*	1	*	*	5	*	*	6
75-79	*	*	2	*	*	1	*	*	3
≥ 80	*	*	0	*	*	3	*	*	3
Total 15-24	*	*	19	6.1	12.9	70	6.0	21.8	89
Total 15-49	18.7	52.3	208	17.8	37.0	354	18.2	43.3	562
Total 50+	(34.4)	(64.8)	45	21.7	44.9	71	26.9	53.1	116
Total 15+	21.6	54.6	253	18.5	38.4	425	19.8	45.1	678

¹Relates to Global AIDS Monitoring indicator 1.5: Late HIV diagnosis

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

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

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

11.5 Retention on Antiretroviral Therapy

Among PLHIV aged 15 years and older who self-reported ART initiation less than 12 months prior to the survey, 100% of all males and females reported that they were still taking ART at the time of the survey (Table 11.5.A).

Among PLHIV aged 15 years and older who self-reported initiating ART 12 months or more prior to the survey, 99.7% reported that they were still taking ART at the time of the survey. This was nearly identical between men and women (99.4% and 99.8% respectively). There was little variation by geographic or socio demographic characteristics. Nearly all (99.8%) PLHIV with detectable ARVs reported they were still on ART. Almost ninety-seven percent (96.8%) of people with no detectable ARVs also reported they were still on ARVs (Table 11.5.B).

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

Among HIV-positive persons aged 15 years and older who self-reported initiating ART less than 12 months prior to the survey, percentage who self-reported still receiving ART, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage still receiving ART ¹	Number	Percentage still receiving ART ¹	Number	Percentage still receiving ART ¹	Number
Presence of detectable ARVs²						
Detectable	100.0	35	100.0	73	100.0	108
Not detectable	*	1	*	2	*	3
Residence						
Urban	*	11	100.0	46	100.0	57
Rural	100.0	25	100.0	31	100.0	56
Tanzania Mainland/Zanzibar						
Mainland	100.0	36	100.0	77	100.0	113
Urban	*	11	100.0	46	100.0	57
Rural	100.0	25	100.0	31	100.0	56
Zanzibar	*	0	*	0	*	0
Unguja	*	0	*	0	*	0
Pemba	*	0	*	0	*	0
Region						
Dodoma	*	1	*	0	*	1
Arusha	*	0	*	0	*	0
Kilimanjaro	*	0	*	1	*	1
Tanga	*	0	*	1	*	1
Morogoro	*	0	*	0	*	0
Pwani	*	2	*	8	*	10
Dar es Salaam	*	2	*	7	*	9
Lindi	*	0	*	0	*	0
Mtwara	*	0	*	0	*	0
Ruvuma	*	5	*	7	*	12
Iringa	*	3	*	6	*	9
Mbeya	*	2	*	12	*	14
Singida	*	0	*	0	*	0
Tabora	*	1	*	6	*	7
Rukwa	*	4	*	3	*	7
Kigoma	*	1	*	1	*	2
Shinyanga	*	4	*	1	*	5
Kagera	*	2	*	3	*	5
Mwanza	*	2	*	2	*	4
Mara	*	0	*	1	*	1
Manyara	*	0	*	0	*	0
Njombe	*	4	*	4	*	8
Katavi	*	1	*	6	*	7
Simiyu	*	0	*	0	*	0
Geita	*	0	*	2	*	2
Songwe	*	2	*	6	*	8
Kaskazini Unguja	*	0	*	0	*	0
Kusini Unguja	*	0	*	0	*	0
Mjini Magharibi	*	0	*	0	*	0
Kaskazini Pemba	*	0	*	0	*	0
Kusini Pemba	*	0	*	0	*	0
Marital status						
Never married	*	1	*	7	*	8
Married or living together	100.0	27	100.0	39	100.0	66
Divorced or separated	*	7	*	19	100.0	26
Widowed	*	1	*	12	*	13

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

Among HIV-positive persons aged 15 years and older who self-reported initiating ART less than 12 months prior to the survey, percentage who self-reported still receiving ART, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage still receiving ART ¹	Number	Percentage still receiving ART ¹	Number	Percentage still receiving ART ¹	Number
Education						
No education	*	4	*	14	*	18
Pre-Primary	*	0	*	0	*	0
Primary	100.0	27	100.0	56	100.0	83
Post Primary Training	*	0	*	1	*	1
Secondary (O-Level)	*	5	*	4	*	9
Post-Secondary (O-Level) Training	*	0	*	1	*	1
Secondary (A-Level)	*	0	*	1	*	1
Post-Secondary (A-Level) Training	*	0	*	0	*	0
University	*	0	*	0	*	0
Wealth quintile						
Lowest	*	4	*	11	*	15
Second	*	11	*	9	*	20
Middle	*	12	*	18	100.0	30
Fourth	*	6	*	22	100.0	28
Highest	*	3	*	17	*	20
Age						
15-19	*	0	*	2	*	2
20-24	*	2	*	9	*	11
25-29	*	1	*	13	*	14
30-34	*	3	*	14	*	17
35-39	*	7	*	13	*	20
40-44	*	12	*	12	*	24
45-49	*	4	*	5	*	9
50-54	*	4	*	4	*	8
55-59	*	2	*	3	*	5
60-64	*	0	*	2	*	2
65-69	*	0	*	0	*	0
70-74	*	1	*	0	*	1
75-79	*	0	*	0	*	0
≥80	*	0	*	0	*	0
Total 15-24	*	2	*	11	*	13
Total 15-49	100.0	29	100.0	68	100.0	97
Total 50+	*	7	*	9	*	16
Total 15+	100.0	36	100.0	77	100.0	113

¹Relates to Global AIDS Monitoring indicator 1.3: Retention on antiretroviral therapy at 12 months; ²Antiretroviral (ARV) detection assay included only nevirapine, efavirenz, and lopinavir.

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

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

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

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

Among HIV-positive persons aged 15 years and older who self-reported initiating ART 12 months or more prior to the survey, percentage who self-reported still receiving ART, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage still receiving ART ¹	Number	Percentage still receiving ART ¹	Number	Percentage still receiving ART ¹	Number
Presence of detectable ARVs²						
Detectable	100.0	152	99.8	458	99.8	610
Not detectable	*	16	*	19	(96.8)	35
Residence						
Urban	100.0	60	100.0	241	100.0	301
Rural	99.0	108	99.5	241	99.4	349
Tanzania Mainland/Zanzibar						
Mainland	99.4	168	99.8	479	99.7	647
Urban	100.0	60	100.0	239	100.0	299
Rural	99.0	108	99.5	240	99.4	348
Zanzibar	*	0	*	3	*	3
Unguja	*	0	*	2	*	2
Pemba	*	0	*	1	*	1
Region						
Dodoma	*	2	*	11	*	13
Arusha	*	0	*	2	*	2
Kilimanjaro	*	2	*	6	*	8
Tanga	*	5	*	9	*	14
Morogoro	*	2	*	10	*	12
Pwani	*	13	(100.0)	38	100.0	51
Dar es Salaam	*	5	*	24	(100.0)	29
Lindi	*	0	*	1	*	1
Mtwara	*	1	*	3	*	4
Ruvuma	*	14	(100.0)	35	(100.0)	49
Iringa	*	18	100.0	57	100.0	75
Mbeya	*	10	(100.0)	38	(100.0)	48
Singida	*	1	*	5	*	6
Tabora	*	16	(96.1)	26	(97.7)	42
Rukwa	*	3	*	17	*	20
Kigoma	*	3	*	7	*	10
Shinyanga	*	10	*	23	(96.7)	33
Kagera	*	8	*	17	(100.0)	25
Mwanza	*	5	*	19	*	24
Mara	*	5	*	9	*	14
Manyara	*	2	*	1	*	3
Njombe	*	8	(100.0)	41	(100.0)	49
Katavi	*	10	(100.0)	44	100.0	54
Simiyu	*	7	*	9	*	16
Geita	*	4	*	3	*	7
Songwe	*	14	*	24	(97.5)	38
Kaskazini Unguja	*	0	*	1	*	1
Kusini Unguja	*	0	*	0	*	0
Mjini Magharibi	*	0	*	1	*	1
Kaskazini Pemba	*	0	*	0	*	0
Kusini Pemba	*	0	*	1	*	1
Marital status						
Never married	*	7	(100.0)	45	100.0	52
Married or living together	99.6	127	99.8	210	99.7	337
Divorced or separated	*	20	99.6	96	99.2	116
Widowed	*	14	100.0	130	100.0	144

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

Among HIV-positive persons aged 15 years and older who self-reported initiating ART 12 months or more prior to the survey, percentage who self-reported still receiving ART, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage still receiving ART ¹	Number	Percentage still receiving ART ¹	Number	Percentage still receiving ART ¹	Number
Education						
No education	*	14	98.8	87	99.0	101
Pre-Primary	*	4	*	1	*	5
Primary	99.2	131	100.0	339	99.8	470
Post Primary Training	*	3	*	7	*	10
Secondary (O-Level)	*	9	(100.0)	45	100.0	54
Post-Secondary (O-Level) Training	*	6	*	3	*	9
Secondary (A-Level)	*	0	*	0	*	0
Post-Secondary (A-Level) Training	*	0	*	0	*	0
University	*	1	*	0	*	1
Wealth quintile						
Lowest	(100.0)	26	98.9	53	99.3	79
Second	(96.9)	37	99.4	82	98.7	119
Middle	(100.0)	48	100.0	150	100.0	198
Fourth	(100.0)	37	100.0	115	100.0	152
Highest	*	20	100.0	82	100.0	102
Age						
15-19	*	1	*	6	*	7
20-24	*	2	*	20	*	22
25-29	*	2	(100.0)	40	(100.0)	42
30-34	*	10	100.0	68	100.0	78
35-39	*	16	100.0	99	100.0	115
40-44	(96.6)	33	100.0	76	99.0	109
45-49	(100.0)	26	100.0	63	100.0	89
50-54	(100.0)	30	(100.0)	49	100.0	79
55-59	(100.0)	25	(100.0)	36	100.0	61
60-64	*	16	*	16	(100.0)	32
65-69	*	2	*	7	*	9
70-74	*	1	*	2	*	3
75-79	*	4	*	0	*	4
≥80	*	0	*	0	*	0
Total 15-24	*	3	(97.1)	26	(97.6)	29
Total 15-49	99.0	90	99.7	372	99.6	462
Total 50+	100.0	78	100.0	110	100.0	188
Total 15+	99.4	168	99.8	482	99.7	650

¹Relates to Global AIDS Monitoring indicator 1.3: Retention on antiretroviral therapy at 12 months; ²Antiretroviral detection assay included only nevirapine, efavirenz, and lopinavir. Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

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

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

11.6 Antiretroviral Drug Resistance

As indicated in section 1.7, a secondary objective of THIS 2016-2017 was to estimate the prevalence of transmitted resistance to ARVs, using samples from HIV-positive participants who were identified as recent HIV infections using the Recent Infection Testing Algorithm (Figure 2.6.B).

Among 31 successfully amplified samples from recently infected HIV-positive adults identified in THIS, four had evidence of resistance to ARVs. All four had mutations associated with resistance to non-nucleoside reverse transcriptase inhibitors (NNRTI) and two had mutations associated with resistance to nucleoside reverse transcriptase inhibitors (NRTI). Two had mutations associated with NNRTI and NRTI. None of the individuals had mutations associated with protease inhibitors. (Table 11.6.A)

HIV subtypes - Among the subset of samples that underwent genotyping, 40.4% were Subtype C, 38.0% were subtype A, 10.8% were subtype D and 10.8% were of recombinant subtypes. (Table 11.6.B)

Table 11.6.A Resistance to antiretrovirals

Among persons aged 15 years and older who were recently infected with HIV, percentage with resistance to ARVs, by class of ARV resistance, THIS 2016-2017

	Percent	Number	DR Mutations Detected ¹
Successfully amplified ²	93.9	31	D67N, K103N, K219KN, K70KR, M184V, M41L, T215Y, Y181C, Y188L
Any	12.9	4	D67N, K219KN, K70KR, M184V, M41L, T215Y
NRTI	6.5	2	K103N, Y181C, Y188L
NNRTI	12.9	4	
PI	0.0	0	D67N, K103N, K219KN, K70KR, M184V, M41L, T215Y, Y188L
NRTI & NNRTI	6.5	2	
NRTI, NNRTI & PI	0.0	0	

¹Based on Stanford Database for HIV Drug Resistance Mutation

²Unweighted figures, from a total of 33 cases.

Table 11.6.B HIV Subtype

Percent distribution of HIV-positive persons aged 15 years and older that underwent genotyping, by HIV Subtype, THIS 2016-2017

	Total	
	Percent	Number
Subtype A	38.0	95
Subtype B	0.0	0
Subtype C	40.4	101
Subtype D	10.8	27
Subtype G	0.0	0
Recombinant	10.8	27
Total	100.0	250

Unweighted figures, excluding four samples where subtyping did not give a definitive result.

11.7 Gaps and Unmet Needs

- Among adults above 15 years of age who tested HIV positive in THIS, but who self-reported being HIV negative and had no detectable ARVs in their blood, nearly three-quarters (73.8%) of males were immunosuppressed compared to 55.7% of females.
- Advanced immunosuppression (CD4 counts less than 350 cells/ μ) among undiagnosed PLHIV aged 15 years and older is common (45.1%); it is highest among those aged 50 years and older (53.1%).

11.8 References

1. World Health Organization. *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection*. Geneva: World Health Organization; 2016.

12 PREVENTION OF MOTHER-TO-CHILD TRANSMISSION

12.1 Key Findings

- Among women aged 15-49 years, 98.9% attended at least one ANC visit for their most recent pregnancy during the three years prior to the survey.
- Among all women aged 15-49 who gave birth during the 12 months preceding the survey, 92.4% knew their HIV status.
- Among HIV-positive women aged 15-49 years who gave birth during the 12 months preceding the survey, 97.9% received ARVs; 51.9% of these women were newly initiated on ARVs during pregnancy, labor, or delivery.

12.2 Background

Pregnant women living with HIV are at high risk of transmitting HIV to their infants during pregnancy, during birth, or through breastfeeding.¹ Over 90% of new infections among infants and young children occur through mother-to-child transmission (MTCT). Without any interventions, between 20% and 45% of infants may become infected through MTCT, with an estimated risk of 5%-10% during pregnancy, 10%-20% during labor and delivery, and 5%-20% through breastfeeding.² Current global targets are to eliminate new HIV infections among children by reducing the number of children newly infected to less than 20,000 by 2020, and to reach and sustain 95% of pregnant women living with HIV with lifelong HIV treatment by 2018³.

To prevent MTCT, the United Nations recommends a comprehensive four-pronged approach including: (1) primary prevention of HIV infection among women of childbearing age; (2) preventing unintended pregnancies among women living with HIV; (3) preventing HIV transmission from women living with HIV to their infants; and (4) providing appropriate treatment, care, and support to mothers living with HIV and their children and families.²

This chapter describes ANC attendance, breastfeeding practices, awareness of a woman's HIV status prior to or during pregnancy, use of ART during pregnancy in women who were aware of their HIV-positive status during pregnancy, and infant HIV testing through biomarker collected during the survey.

12.3 Antenatal Care Attendance

Table 12.3.A presents results on ANC attendance in women aged 15-49 years who gave birth in the last three years preceding the survey. The percentage who attended at least one ANC visit for their most recent birth was 98.9%. There was very little variation across other demographic characteristics and very little regional variation (Table 12.3.A).

Table 12.3.A Antenatal care

Among women aged 15-49 years who delivered in the three years preceding the survey, percentage who attended at least one antenatal care visit for her most recent birth, by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who attended at least one ANC visit	Number
Residence		
Urban	99.3	1,780
Rural	98.7	4,400
Tanzania Mainland/Zanzibar		
Mainland	98.9	5,858
Urban	99.3	1,691
Rural	98.7	4,167
Zanzibar	100.0	322
Unguja	100.0	219
Pemba	100.0	103
Region		
Dodoma	99.2	106
Arusha	98.6	82
Kilimanjaro	98.4	69
Tanga	99.0	101
Morogoro	99.3	141
Pwani	100.0	298
Dar es Salaam	99.7	280
Lindi	(100.0)	45
Mtwara	100.0	50
Ruvuma	100.0	315
Iringa	100.0	218
Mbeya	99.6	241
Singida	100.0	68
Tabora	97.6	691
Rukwa	98.5	526
Kigoma	99.4	160
Shinyanga	98.6	442
Kagera	99.5	156
Mwanza	98.7	224
Mara	97.6	185
Manyara	100.0	94
Njombe	98.0	151
Katavi	97.4	543
Simiyu	100.0	192
Geita	95.7	206
Songwe	99.0	274
Kaskazini Unguja	100.0	50
Kusini Unguja	(100.0)	37
Mjini Magharibi	100.0	132
Kaskazini Pemba	(100.0)	48
Kusini Pemba	100.0	55

Table 12.3.A Antenatal care (continued)

Among women aged 15-49 years who delivered in the three years preceding the survey, percentage who attended at least one antenatal care visit for her most recent birth, by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who attended at least one ANC visit	Number
Marital status		
Never married	99.5	502
Married or living together	99.0	5,027
Divorced or separated	98.1	563
Widowed	99.5	86
Education		
No education	98.0	1,192
Pre-Primary	(89.7)	36
Primary	99.0	3,832
Post Primary Training	(100.0)	40
Secondary (O-Level)	99.7	904
Post-Secondary (O-Level) Training	100.0	102
Secondary (A-Level)	*	17
Post-Secondary (A-Level) Training	*	11
University	(100.0)	43
Wealth quintile		
Lowest	97.5	1,574
Second	99.4	1,403
Middle	99.0	1,284
Fourth	99.4	1,069
Highest	99.8	848
Age		
15-19	99.5	605
20-24	99.3	1,720
25-29	98.6	1,585
30-34	98.4	1,102
35-39	99.4	767
40-44	98.8	340
45-49	97.8	61
Total 15-24	99.3	2,325
Total 15-49	98.9	6,180

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

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

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

12.4 Breastfeeding

Among women aged 15-49 years who gave birth within the three years preceding the survey, 91.6% were currently breastfeeding their last-born children 9-11 months of age. Current breastfeeding decreased to 77.8% among last-born children aged 12-17 months and to 44.5% among last-born children aged 18-23 months. For children last-born to women aged 15-49 years in the three years preceding the survey, current breastfeeding was reported for 43.3% of those whose mothers tested HIV positive during the survey, and for 59.4% of those whose mothers tested HIV negative (Table 12.4.A).

Table 12.4.A Breastfeeding status by child's age and mother's HIV status

Percent distribution of last-born children born to women aged 15-49 years in the three years preceding the survey by breastfeeding status, by child's age and mother's HIV status, THIS 2016-2017

Characteristic	Never breastfed	Ever breastfed, but not currently breastfeeding	Currently breastfeeding	Total	Number
Child's age (months)					
0-1	0.3	10.4	89.3	100.0	405
2-3	0.0	8.0	92.0	100.0	442
4-5	0.6	9.6	89.9	100.0	428
6-8	0.1	8.8	91.1	100.0	548
9-11	0.4	8.0	91.6	100.0	548
12-17	0.7	21.4	77.8	100.0	1177
18-23	0.3	55.2	44.5	100.0	933
24-36	0.1	94.0	5.9	100.0	1649
Result of mother's PHIA survey HIV test					
HIV positive	1.5	55.2	43.3	100.0	311
HIV negative	0.3	40.3	59.4	100.0	5633
Not tested	0.2	48.8	51.0	100.0	200
Total	0.3	41.3	58.4	100.0	6144

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

12.5 Awareness of Mother's HIV Status

Among women aged 15-49 years who gave birth during the 12 months preceding the survey, 92.4% reported that they knew their HIV status while 90.9% reported having testing for HIV and receiving their test results during ANC for the pregnancy (1.5% reported testing positive and 89.4% reported testing negative). In urban areas, 2.1% of women reported that they already knew about their HIV-positive status, compared to 1.3% in rural areas.

A higher percentage of women over the age of 30 years already knew that they were HIV positive (2.4% among ages 30-34 years and 3.2% among ages 35-39 years). In contrast, the percentage of women aged 15-29 years who reported that they already knew their HIV-positive status ranged from 0.4%-1.9%.

Among women aged 15-49 years who gave birth during the 12 months preceding the survey, the highest percentages of women reported learning about their HIV-positive status for the first time as a result of ANC testing were in Mbeya (7.0%), Kagera (3.9%), Mwanza (4.9%), Njombe (5.2%), and Geita (3.1%) (Table 12.5.A).

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

Among women aged 15-49 years who gave birth within the past 12 months, percentage who were tested for HIV during antenatal care and received their results or who already knew they were HIV positive, by selected demographic characteristics, THIS 2016-2017

Characteristic	Tested for HIV during ANC and received results ¹		Percentage who already knew they were HIV positive	Total percentage with known HIV status	Number of women who gave birth within the past 12 months
	Percentage who tested HIV positive	Percentage who tested HIV negative			
Residence					
Urban	1.6	95.0	2.1	98.7	623
Rural	1.4	87.0	1.3	89.7	1,743
Tanzania Mainland/Zanzibar					
Mainland	1.5	89.4	1.6	92.4	2,251
Urban	1.7	94.9	2.1	98.8	590
Rural	1.4	87.0	1.3	89.8	1,661
Zanzibar	0.0	89.7	0.0	89.7	115
Unguja	0.0	91.5	0.0	91.5	73
Pemba	(0.0)	(85.5)	(0.0)	(85.5)	42
Region					
Dodoma	(0.0)	(89.0)	(0.0)	(89.0)	37
Arusha	(0.0)	(96.3)	(0.0)	(96.3)	36
Kilimanjaro	(0.0)	(100.0)	(0.0)	(100.0)	25
Tanga	(2.8)	(86.3)	(3.2)	(92.2)	36
Morogoro	0.0	98.1	1.9	100.0	50
Pwani	0.0	91.5	4.9	96.4	88
Dar es Salaam	0.0	100.0	0.0	100.0	87
Lindi	*	*	*	*	18
Mtwara	*	*	*	*	17
Ruvuma	2.3	87.4	1.7	91.4	119
Iringa	0.0	89.3	8.4	97.7	77
Mbeya	7.0	86.7	1.2	94.8	87
Singida	(0.0)	(92.6)	(0.0)	(92.6)	25
Tabora	0.3	88.3	1.1	89.7	286
Rukwa	1.4	83.5	1.5	86.5	206
Kigoma	2.6	88.0	2.6	93.2	75
Shinyanga	0.5	91.4	2.1	94.0	186
Kagera	3.9	94.8	0.0	98.7	63
Mwanza	4.9	84.2	3.1	92.3	96
Mara	1.2	83.3	0.0	84.5	74
Manyara	(0.0)	(86.4)	(0.0)	(86.4)	30
Njombe	(5.2)	(84.4)	(8.8)	(98.4)	48
Katavi	1.6	86.6	2.1	90.3	223
Simiyu	0.0	86.5	1.2	87.6	84
Geita	3.1	79.2	1.1	83.4	78
Songwe	0.0	83.7	0.9	84.6	100
Kaskazini Unguja	*	*	*	*	19
Kusini Unguja	*	*	*	*	7
Mjini Magharibi	(0.0)	(93.6)	(0.0)	(93.6)	47
Kaskazini Pemba	*	*	*	*	19
Kusini Pemba	*	*	*	*	23
Marital status					
Never married	0.8	91.6	1.1	93.4	215
Married or living together	1.2	89.6	1.5	92.2	1,950
Divorced or separated	4.6	84.7	2.5	91.8	181
Widowed	*	*	*	*	20

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

Among women aged 15-49 years who gave birth within the past 12 months, percentage who were tested for HIV during antenatal care and received their results or who already knew they were HIV positive, by selected demographic characteristics, THIS 2016-2017

Characteristic	Tested for HIV during ANC and received results ¹		Percentage who already knew they were HIV positive	Total percentage with known HIV status	Number of women who gave birth within the past 12 months
	Percentage who tested HIV positive	Percentage who tested HIV negative			
Education					
No education	0.9	85.1	1.8	87.9	471
Pre-Primary	*	*	*	*	17
Primary	1.7	88.3	1.6	91.7	1,462
Post Primary Training	*	*	*	*	13
Secondary (O-Level)	0.5	95.6	1.3	97.5	333
Post-Secondary (O-Level) Training	(0.0)	(98.5)	(0.0)	(98.5)	37
Secondary (A-Level)	*	*	*	*	10
Post-Secondary (A-Level) Training	*	*	*	*	4
University	*	*	*	*	18
Wealth quintile					
Lowest	1.3	83.4	1.2	85.8	647
Second	1.9	87.9	1.5	91.3	568
Middle	2.3	89.8	2.2	94.2	473
Fourth	1.0	93.1	1.0	95.1	381
Highest	0.7	96.3	2.0	98.9	297
Age					
15-19	0.8	85.1	1.0	86.8	322
20-24	1.4	89.9	0.4	91.6	675
25-29	1.4	92.5	1.9	95.7	596
30-34	2.2	89.0	2.4	93.7	406
35-39	1.4	87.9	3.2	92.5	256
40-44	2.2	88.1	1.6	91.9	101
45-49	*	*	*	*	10
Total 15-24	1.2	88.2	0.6	89.9	997
Total 15-49	1.5	89.4	1.5	92.4	2,366

¹Relates to PEPFAR PMTCT_STAT_NAT / SUBNAT.

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

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

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

12.6 Antiretroviral Therapy Among HIV-Positive Pregnant Women

Among self-reported HIV-positive women aged 15-49 years who gave birth within the 12 months preceding the survey, 97.9% reported receiving ARVs during pregnancy: 51.9% were newly initiated on ARVs during pregnancy or during labor and delivery, while 46.1% were already taking ARVs prior to the pregnancy (Table 12.6.A).

Table 12.6.A Prevention of mother-to-child transmission, HIV-positive pregnant women who received antiretrovirals

Among self-reported HIV-positive women aged 15-49 years who gave birth within the past 12 months, percentage who received antiretrovirals during pregnancy to reduce the risk of mother-to-child-transmission, by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who were already on ARVs prior to pregnancy	Percentage who were newly initiated on ARVs during pregnancy or labor and delivery	Total percentage who received ARVs ¹	Number of HIV-positive women who gave birth within the past 12 months
Residence				
Urban	*	*	*	24
Rural	45.9	50.8	96.7	52
Tanzania Mainland/Zanzibar				
Mainland	46.1	51.9	97.9	76
Urban	*	*	*	24
Rural	45.9	50.8	96.7	52
Zanzibar	*	*	*	0
Unguja	*	*	*	0
Pemba	*	*	*	0
Region				
Dodoma	*	*	*	0
Arusha	*	*	*	0
Kilimanjaro	*	*	*	0
Tanga	*	*	*	2
Morogoro	*	*	*	1
Pwani	*	*	*	4
Dar es Salaam	*	*	*	0
Lindi	*	*	*	0
Mtwara	*	*	*	2
Ruvuma	*	*	*	5
Iringa	*	*	*	6
Mbeya	*	*	*	5
Singida	*	*	*	0
Tabora	*	*	*	4
Rukwa	*	*	*	6
Kigoma	*	*	*	4
Shinyanga	*	*	*	5
Kagera	*	*	*	2
Mwanza	*	*	*	8
Mara	*	*	*	1
Manyara	*	*	*	0
Njombe	*	*	*	6
Katavi	*	*	*	9
Simiyu	*	*	*	1
Geita	*	*	*	4
Songwe	*	*	*	1
Kaskazini Unguja	*	*	*	0
Kusini Unguja	*	*	*	0
Mjini Magharibi	*	*	*	0
Kaskazini Pemba	*	*	*	0
Kusini Pemba	*	*	*	0
Marital status				
Never married	*	*	*	5
Married or living together	51.1	47.7	98.8	54
Divorced or separated	*	*	*	13
Widowed	*	*	*	4

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

Among self-reported HIV-positive women aged 15-49 years who gave birth within the past 12 months, percentage who received antiretrovirals during pregnancy to reduce the risk of mother-to-child-transmission, by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who were already on ARVs prior to pregnancy	Percentage who were newly initiated on ARVs during pregnancy or labor and delivery	Total percentage who received ARVs ¹	Number of HIV-positive women who gave birth within the past 12 months
Education				
No education	*	*	*	13
Pre-Primary	*	*	*	1
Primary	47.5	49.5	97.0	53
Post Primary Training	*	*	*	1
Secondary (O-Level)	*	*	*	8
Post-Secondary (O-Level) Training	*	*	*	0
Secondary (A-Level)	*	*	*	0
Post-Secondary (A-Level) Training	*	*	*	0
University	*	*	*	0
Wealth quintile				
Lowest	*	*	*	14
Second	*	*	*	19
Middle	*	*	*	24
Fourth	*	*	*	10
Highest	*	*	*	9
Age				
15-19	*	*	*	5
20-24	*	*	*	8
25-29	*	*	*	21
30-34	*	*	*	23
35-39	*	*	*	14
40-44	*	*	*	5
45-49	*	*	*	0
Total 15-24	*	*	*	13
Total 15-49	46.1	51.9	97.9	76

¹Relates to Global AIDS Monitoring indicator 2.3: Preventing the mother-to- child transmission of HIV and PMTCT_ART_NAT / SUBNAT.

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

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

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

12.7 Mother-to-Child Transmission

Among infants born to HIV-positive mothers during the 17 months prior to the survey 10.5% were confirmed as HIV positive by virological testing (virological testing was only conducted among infants who had a reactive screening test during HBTC). Among infants born to HIV-positive mothers during the 11 months preceding the survey, 6.1% were confirmed as HIV positive using virological testing. None of the infants whose mothers reported ARV use at the first ANC visit had confirmed HIV infection by virologic testing conducted as part of THIS; the estimates for percentage of infants confirmed HIV-positive, by mother's self-reported ARV status have been suppressed due to denominator being <25 (Table 12.7.A).

Table 12.7.A Mother-to-child transmission of HIV

Among infants born in the last 17 months to HIV-positive women aged 15-49 years, percentage confirmed HIV positive, by mother's self-reported ARV and breastfeeding status, THIS 2016-2017

Characteristic	Percentage of infants confirmed HIV positive ^{1, 2}	Number of infants born to HIV-positive women ^{3, 4}
Mother's self-reported ARV status		
Mother unaware of HIV status during pregnancy	*	12
Already on ARVs at first antenatal visit	*	11
Newly initiated on ARVs during pregnancy or labor and delivery	*	12
Did not receive ARVs during pregnancy	*	1
Missing self-reported ARV status	*	5
Mother's self-reported breastfeeding status		
Ever breastfed the infant	(11.0)	40
Never breastfed the infant	*	0
Missing self-reported breastfeeding status	*	1
Total 0-11 months	(6.1)	28
Total 0-17 months	(10.5)	41

¹Relates to Global AIDS Monitoring indicator 2.2: Mother-to-child transmission of HIV; ²Infants confirmed as HIV positive by virologic testing (virological testing was only conducted among infants who had a reactive screening test); ³Includes only infants who were tested for HIV during the PHIA survey; ⁴ women who tested HIV positive in the PHIA survey.

Weighted figures calculated using btwt0. Estimates in parentheses are based on a small number (25 to 49) of unweighted cases and should be interpreted with caution.

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

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

12.8 Gaps and Unmet Needs

- ANC HIV testing is lower in rural compared to urban areas.
- Approximately half (51.9%) of HIV-positive women reported first initiation on ARVs during pregnancy. Given the high numbers of infections in young women, there could be more emphasis on diagnosis and treatment of women before they begin childbearing. Evidence shows that MTCT rates are lower if women are on ART before pregnancy.

12.9 References

1. World Health Organization. *Prevention of HIV in infants and young children. Review of evidence and WHO's activities*. Geneva: World Health Organization; 2002.
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2. De Cock KM, Fowler MG, Mercier E, et al. Prevention of mother-to-child HIV transmission in resource-poor countries: translating research into policy and practice. *Journal of the American Medical Association*, 2000, 283:1175–1182.
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13 ADOLESCENTS AND YOUNG ADULTS

13.1 Key Findings

- Among those aged 15-24 years, a higher proportion of males (14.3%) than females (9.1%) reported having had sex before age 15 years.
- A higher proportion of those aged 15-24 years that were rural residents (13.4%) reported having had sex before 15 years of age compared to those aged 15-24 years that were urban residents (9.0%).
- A higher proportion of those aged 15-24 years in Tanzania Mainland (12 %) reported having had sex before 15 years of age compared to 2.6% in Zanzibar.

13.2 Background

Tanzania is home to 12 million adolescents aged 10-19 years and 5 million young adults aged 20-24 years.² Older adolescents and young adults, aged 15-24 years, are more likely to engage in risky sexual behaviors than older adults and have less frequent contact with the healthcare system.² Efforts to prevent and treat HIV in those aged 10-24 years are critical for long-term epidemic control and overall development of the country.

This chapter presents summary findings on adolescents and young adults aged 15-24 years. The chapter includes prevalence of early sexual debut before age 15 years among males and females aged 15-24 years, by marital status, region, and socio-demographic characteristics. Knowledge of HIV prevention, HIV testing, treatment and VLS of HIV; incidence; and prevalence among young males and females aged 15-24 years are also discussed. The chapter includes the 90-90-90 cascade for those aged 15-24 years and gaps and unmet needs.

13.3 Sex Before Age 15

Adolescents and young adults 15-24 years

Among young adults aged 15-24 years, a higher proportion of males (14.3%) than females (9.1%) reported having had sex before age 15 years. The total percentage of young adults reporting sexual debut before age 15 years for Tanzania mainland was 12.0% and 2.6% for Zanzibar. Of the males and females aged 15-24 years who had sex before age 15 years, 9.0% lived in urban settings and 13.4% lived in rural settings. Sexual debut before age 15 years varies by region from 22.9% in Dodoma, followed by Tabora, Mtwara, Geita, and Lindi, to 0.0% in Kusini Pemba. Of the majority of those aged 15-24 years who had sex before 15 years of age, 10.1% were never married. A higher proportion of those aged 15-24 years who had no education (21.6%) and those with primary education (14.1%) were found to have had sex before age 15 years as compared to those with secondary (A level) education (1.7%).

Table 13.3.A Sex before the age of 15

Percentage of males and females age 15–24 years who have had sexual intercourse before the age of 15; by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage who had sex before age 15	Number	Percentage who had sex before age 15	Number	Percentage who had sex before age 15	Number
Residence						
Urban	12.7	1,511	5.7	2,169	9.0	3,680
Rural	15.2	3,194	11.4	3,842	13.4	7,036
Tanzania Mainland/Zanzibar						
Mainland	14.7	4,461	9.3	5,684	12.0	10,145
Urban	13.0	1,433	5.8	2,078	9.2	3,511
Rural	15.5	3,028	11.7	3,606	13.7	6,634
Zanzibar	3.1	244	2.1	327	2.6	571
Unguja	3.6	177	2.8	232	3.2	409
Pemba	1.5	67	0.0	95	0.7	162
Region						
Dodoma	35.2	59	11.4	76	22.9	135
Arusha	(14.7)	46	4.8	85	8.9	131
Kilimanjaro	14.0	63	6.5	94	10.1	157
Tanga	10.3	79	8.7	105	9.5	184
Morogoro	16.5	84	8.4	155	11.7	239
Pwani	12.1	249	7.6	339	9.8	588
Dar es Salaam	12.5	282	4.5	384	8.4	666
Lindi	19.3	50	(8.1)	39	15.3	89
Mtwara	(19.8)	49	(11.3)	47	16.2	96
Ruvuma	12.8	260	13.0	288	12.9	548
Iringa	6.5	190	3.4	246	4.9	436
Mbeya	11.8	203	7.0	299	9.2	502
Singida	(19.0)	44	(8.1)	48	14.0	92
Tabora	22.7	569	17.7	629	20.4	1,198
Rukwa	14.9	293	12.6	457	13.6	750
Kigoma	11.5	120	7.4	137	9.6	257
Shinyanga	17.2	402	8.6	432	13.3	834
Kagera	7.7	125	8.7	130	8.1	255
Mwanza	12.6	191	10.9	230	11.8	421
Mara	14.8	139	13.7	183	14.2	322
Manyara	17.1	64	7.3	99	11.8	163
Njombe	7.6	110	2.9	144	5.1	254
Katavi	15.6	350	14.0	456	14.8	806
Simiyu	10.0	120	10.0	170	10.0	290
Geita	12.7	148	18.9	154	15.6	302
Songwe	14.0	172	8.4	258	10.9	430
Kaskazini Unguja	(7.5)	41	2.1	52	4.8	93
Kusini Unguja	(7.8)	36	(6.9)	44	7.4	80
Mjini Magharibi	2.0	100	2.2	136	2.1	236
Kaskazini Pemba	(3.7)	27	(0.0)	40	1.7	67
Kusini Pemba	(0.0)	40	0.0	55	0.0	95

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

Percentage of males and females age 15–24 years who have had sexual intercourse before the age of 15; by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage who had sex before age 15	Number	Percentage who had sex before age 15	Number	Percentage who had sex before age 15	Number
Marital status						
Never married	13.5	3,882	5.0	3,048	10.1	6,930
Married or living together	17.5	700	13.9	2,567	14.8	3,267
Divorced or separated	28.0	96	17.1	349	20.0	445
Widowed	*	0	*	23	*	23
Education						
No education	19.0	345	23.7	611	21.6	956
Pre-Primary	(14.7)	27	(13.2)	27	14.0	54
Primary	16.8	2,544	11.4	3,186	14.1	5,730
Post Primary Training	11.7	59	5.3	67	8.7	126
Secondary (O-Level)	10.6	1,511	3.1	1,892	6.9	3,403
Post-Secondary (O-Level) Training	13.9	103	0.0	152	6.4	255
Secondary (A-Level)	0.6	75	(3.8)	45	1.7	120
Post-Secondary (A-Level) Training	*	7	*	8	*	15
University	(18.7)	32	*	20	12.4	52
Wealth quintile						
Lowest	16.1	1,021	15.7	1,180	15.9	2,201
Second	15.8	1,006	11.5	1,211	13.8	2,217
Middle	16.5	1,050	9.6	1,303	13.1	2,353
Fourth	12.0	853	4.7	1,128	8.3	1,981
Highest	11.1	775	5.6	1,187	8.0	1,962
Age						
15-19	14.7	2,623	9.4	3,067	12.1	5,690
20-24	13.9	2,082	8.7	2,944	11.3	5,026
Total 15-24	14.3	4,705	9.1	6,011	11.7	10,716

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

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

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

13.4 Knowledge About HIV Prevention

The Tanzania HIV Impact Survey 2016-2017 also collected information on knowledge of HIV prevention, by asking two questions about prevention of sexual transmission of HIV and three questions related to common misconceptions about contracting HIV.

Only 37.0% of males aged 15-24 years answered all five HIV knowledge questions correctly with a higher proportion of young men in urban areas (47.7%) responding correctly to all five questions, compared to those in rural areas (31.1%). Among males in this age group, 85.3% responded correctly that you cannot contract HIV by sharing food with an infected person and 71.6% responded correctly that HIV transmission risk can be reduced by consistent condom use. A higher proportion of males in the highest wealth quintile (48.9%) answered all questions correctly, compared to those in the lowest wealth quintile (25.8%). Among young men with A level secondary education, 72.3% answered all questions correctly, compared to 16.5% of those with no education, and 28.8% of those with primary education (Table 13.4.A).

Only 36.7% of females aged 15-24 years answered all five HIV knowledge questions correctly. Among females in this age group, 86.8% responded correctly that you cannot contract HIV by sharing food with an infected person, and 66.6% correctly responded that HIV transmission risk can be reduced by consistent condom use. Among young women with post-secondary (O-level) training, 59.8% answered all questions correctly compared to 20.1% of those with no education and 28.8% of those with primary education (Table 13.4.B).

Overall, among males and females aged 15-24 years, 36.9% answered all five HIV knowledge questions correctly. Geographically, the highest proportion that responded to all five questions correctly was in Mbeya (48.5%) and the lowest proportion of young adults who responded correctly was in the Kusini Pemba (19.4%). The percentage of those answering all questions correctly varied in terms of wealth and education from 25.2% among those in the lowest wealth quintile to 45.4% among those in the highest wealth quintile, and from 18.5% among those with no education to 66.8% among those with A level secondary education. Correct knowledge was also more frequent among urban residents (45.5%) than among rural residents (31.6%). It also varied among age groups with 42.0% answering all questions correctly among those aged 20-24 years compared to 32.6% in those aged 15-19 years (Table 13.4.C).

Table 13.4.A Young people, knowledge about HIV prevention: Males

Among males aged 15-24 years, percentage who correctly identify both ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission,^{1,2} by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who correctly answered the questions:						Number ²
	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?	All five questions	
Residence							
Urban	78.7	74.6	84.4	85.5	89.9	47.7	1,511
Rural	70.8	70.0	67.9	78.5	82.7	31.1	3,189
Tanzania Mainland/Zanzibar							
Mainland	73.8	72.0	73.8	81.0	85.3	37.4	4,458
Urban	78.9	75.2	84.5	85.6	89.8	48.2	1,434
Rural	71.0	70.3	67.9	78.5	82.9	31.4	3,024
Zanzibar	65.9	57.4	73.3	79.1	82.6	24.6	242
Unguja	66.3	58.2	75.6	80.5	84.9	27.7	176
Pemba	64.5	54.8	65.9	74.5	75.3	14.6	66
Region							
Dodoma	70.1	70.7	68.0	69.5	75.2	29.6	59
Arusha	(81.7)	(68.1)	(73.6)	(91.2)	(89.1)	(46.6)	45
Kilimanjaro	75.0	79.1	73.3	88.1	77.9	34.7	63
Tanga	78.5	65.7	74.6	88.7	82.3	34.0	79
Morogoro	74.5	72.0	79.8	79.8	83.3	40.4	84
Pwani	74.0	70.4	77.9	80.4	85.6	38.5	249
Dar es Salaam	79.9	69.6	84.5	86.7	89.5	47.3	282
Lindi	80.9	78.7	79.2	63.5	77.2	40.8	50
Mtwara	(78.0)	(81.1)	(73.7)	(82.2)	(86.0)	(39.5)	49
Ruvuma	73.2	75.6	76.4	72.3	85.1	35.6	260
Iringa	78.7	82.3	78.4	79.0	88.3	41.4	190
Mbeya	77.2	72.4	82.8	92.5	95.7	50.6	203
Singida	(79.2)	(72.4)	(76.8)	(88.1)	(82.4)	(33.2)	44
Tabora	70.0	70.6	60.1	78.2	83.9	29.6	569
Rukwa	75.2	72.1	73.4	79.1	87.1	33.7	293

Table 13.4.A Young people, knowledge about HIV prevention: Males (continued)

Among males aged 15-24 years, percentage who correctly identify both ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission,^{1,2} by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who correctly answered the questions:						Number ²
	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?	All five questions	
Region (continued)							
Kigoma	71.8	72.2	75.9	81.4	85.1	43.2	119
Shinyanga	64.6	70.6	65.6	77.2	83.8	32.8	401
Kagera	74.0	82.2	76.4	75.9	88.5	40.8	125
Mwanza	74.8	76.3	73.4	84.3	85.5	39.0	191
Mara	67.5	66.7	66.7	79.7	84.9	27.7	139
Manyara	61.0	59.5	67.7	74.8	83.1	27.9	64
Njombe	80.8	77.5	79.8	81.8	90.3	47.7	110
Katavi	74.9	73.3	72.0	78.9	85.7	34.9	350
Simiyu	66.7	63.1	61.6	76.6	76.7	25.0	120
Geita	73.6	74.1	70.5	83.5	87.9	35.8	148
Songwe	73.7	66.3	80.4	76.9	89.2	34.9	172
Kaskazini Unguja	(66.2)	(56.2)	(73.4)	(71.2)	(76.3)	(14.9)	41
Kusini Unguja	(65.1)	(57.3)	(71.8)	(87.5)	(97.5)	(29.3)	36
Mjini Magharibi	66.6	58.8	76.8	80.7	83.8	29.7	99
Kaskazini Pemba	(55.1)	(59.0)	(55.9)	(73.4)	(76.9)	(18.3)	27
Kusini Pemba	(71.2)	(51.7)	(73.0)	(75.3)	(74.1)	(12.0)	39
Marital status							
Never married	73.1	72.1	73.4	81.6	85.6	37.3	3,879
Married or living together	76.5	69.1	78.5	78.4	83.9	38.4	699
Divorced or separated	80.9	66.9	68.2	74.0	87.6	24.8	96
Widowed	*	*	*	*	*	*	0
Education							
No education	59.9	52.9	52.6	60.4	73.1	16.5	343
Pre-Primary	(63.7)	(61.8)	(33.6)	(90.9)	(72.5)	(27.7)	27
Primary	69.7	68.2	68.2	76.2	82.0	28.8	2,542
Post Primary Training	92.4	89.3	61.6	90.6	84.6	37.6	59
Secondary (O-Level)	79.7	78.0	84.6	89.5	91.2	49.3	1,510
Post-Secondary (O-Level) Training	78.8	75.6	94.3	92.9	95.1	59.0	103
Secondary (A-Level)	94.7	94.1	88.2	98.0	96.8	72.3	75
Post-Secondary (A-Level) Training	*	*	*	*	*	*	7
University	(96.5)	(90.7)	(98.4)	(93.1)	(94.8)	(75.2)	32
Wealth quintile							
Lowest	68.7	66.9	59.8	76.7	80.5	25.8	1,018
Second	71.2	71.7	69.7	74.6	83.9	33.6	1,005
Middle	71.9	70.8	72.7	80.9	83.4	34.1	1,050
Fourth	74.6	74.3	80.6	85.2	89.6	42.9	852
Highest	81.8	74.2	86.0	87.6	89.0	48.9	775
Age							
15-19	69.6	70.6	68.3	80.0	82.7	32.2	2,620
20-24	78.4	72.8	80.3	82.1	88.4	42.8	2,080
Total 15-24	73.6	71.6	73.8	81.0	85.3	37.0	4,700

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

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

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

Table 13.4.B Young people, knowledge about HIV prevention: Females

Among females aged 15-24 years, percentage who correctly identify both ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission,^{1,2} by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who correctly answered the questions:						All five questions	Number ²
	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?			
Residence								
Urban	77.6	70.9	81.2	87.3	89.7	43.5	2,172	
Rural	69.6	63.7	67.4	82.6	84.8	32.0	3,849	
Tanzania Mainland/Zanzibar								
Mainland	73.0	66.8	72.9	84.5	86.7	36.9	5,694	
Urban	77.8	71.0	81.3	87.3	89.7	43.7	2,081	
Rural	69.7	63.9	67.2	82.6	84.7	32.2	3,613	
Zanzibar	67.8	58.7	75.9	84.3	89.4	29.2	327	
Unguja	67.6	61.4	77.7	85.0	91.0	30.8	232	
Pemba	68.3	50.6	70.4	81.9	84.4	24.5	95	
Region								
Dodoma	76.8	69.8	69.4	93.7	95.1	53.2	76	
Arusha	67.1	62.3	78.7	82.6	85.7	32.1	85	
Kilimanjaro	81.3	61.0	83.0	85.1	91.4	37.5	96	
Tanga	74.5	71.2	75.9	85.3	89.6	41.1	107	
Morogoro	74.3	68.8	80.5	86.4	87.0	44.0	156	
Pwani	73.4	64.7	75.5	87.2	89.4	38.6	339	
Dar es Salaam	77.3	70.2	85.0	89.0	89.2	42.6	385	
Lindi	(74.4)	(53.9)	(59.8)	(77.3)	(79.4)	(29.2)	40	
Mtwara	(61.7)	(70.4)	(79.3)	(73.6)	(88.3)	(26.9)	47	
Ruvuma	72.4	70.2	71.8	80.2	91.8	37.0	290	
Iringa	82.6	72.8	82.2	87.8	92.9	49.4	245	
Mbeya	75.0	75.2	78.6	89.9	92.9	46.8	299	
Singida	(75.3)	(75.8)	(72.5)	(90.2)	(81.2)	(43.0)	48	
Tabora	63.6	60.1	54.4	80.1	84.7	25.2	628	
Rukwa	69.9	62.4	72.7	80.0	85.5	33.4	458	
Kigoma	63.0	54.1	65.1	82.3	83.8	20.7	136	
Shinyanga	64.9	62.4	60.5	79.0	83.7	29.9	435	
Kagera	77.0	70.1	73.6	83.4	82.2	39.4	130	
Mwanza	73.6	70.7	65.1	87.2	86.7	34.4	230	
Mara	72.4	67.6	70.9	79.4	79.6	27.5	182	
Manyara	76.0	59.9	84.6	88.2	84.1	43.8	99	
Njombe	78.2	76.9	76.6	85.1	89.7	43.2	144	
Katavi	73.0	67.1	69.1	80.6	83.4	35.3	455	
Simiyu	68.4	61.0	51.8	80.0	79.0	26.9	173	
Geita	70.2	66.9	60.9	82.4	89.0	31.7	154	
Songwe	76.2	62.0	76.3	79.7	84.3	30.7	257	
Kaskazini Unguja	65.1	48.0	55.4	77.4	92.4	24.6	52	
Kusini Unguja	(69.3)	(72.6)	(74.2)	(94.2)	(93.9)	(46.4)	44	
Mjini Magharibi	67.7	61.6	82.1	84.6	90.2	28.9	136	
Kaskazini Pemba	(68.5)	(44.8)	(63.7)	(82.1)	(85.3)	(22.1)	40	
Kusini Pemba	68.1	55.0	75.5	81.7	83.7	26.4	55	

Table 13.4.B Young people, knowledge about HIV prevention: Females (continued)

Among females aged 15-24 years, percentage who correctly identify both ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission,^{1,2} by selected demographic characteristics, THIS 2016-2017

Characteristic	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?	All five questions	Number ²
Marital status							
Never married	72.5	67.5	74.5	87.0	87.7	38.5	3,049
Married or living together	72.7	65.4	71.0	81.5	85.4	34.3	2,577
Divorced or separated	78.0	69.6	71.8	81.6	87.7	36.5	350
Widowed	*	*	*	*	*	*	23
Education							
No education	63.1	53.1	53.1	69.8	74.4	20.1	612
Pre-Primary	(73.7)	(60.9)	(56.4)	(69.2)	(70.5)	(20.5)	27
Primary	67.6	60.9	67.2	82.1	83.9	28.8	3,195
Post Primary Training	72.2	69.1	78.7	90.4	90.6	38.1	68
Secondary (O-Level)	81.5	77.1	84.4	90.8	93.2	50.2	1,891
Post-Secondary (O-Level) Training	88.7	77.9	93.9	92.1	96.5	59.8	152
Secondary (A-Level)	(87.3)	(77.5)	(98.6)	(88.6)	(97.0)	(56.3)	45
Post-Secondary (A-Level) Training	*	*	*	*	*	*	8
University	*	*	*	*	*	*	20
Wealth quintile							
Lowest	66.8	59.1	57.5	78.4	80.6	24.5	1,181
Second	69.0	63.5	67.3	83.0	86.3	31.1	1,214
Middle	70.3	66.2	73.1	84.5	85.4	36.3	1,305
Fourth	77.0	73.2	79.1	89.3	89.5	45.9	1,131
Highest	79.1	69.3	83.3	86.0	90.6	42.5	1,188
Age							
15-19	68.6	64.5	69.0	84.5	85.4	32.9	3,066
20-24	77.9	69.0	77.7	84.6	88.4	41.2	2,955
Total 15-24	72.8	66.6	73.0	84.5	86.8	36.7	6,021

¹Relates to Global AIDS Monitoring indicator 5.1: Young people: Knowledge about HIV prevention.

²Includes only participants who answered all five questions.

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

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

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

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

Among males and females aged 15-24 years, percentage who correctly identify both ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission,^{1,2} by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who correctly answered the questions:						All five questions	Number ²
	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?			
Residence								
Urban	78.1	72.6	82.7	86.5	89.8	45.5	3,683	
Rural	70.2	66.9	67.7	80.5	83.7	31.6	7,038	
Tanzania Mainland/Zanzibar								
Mainland	73.4	69.4	73.3	82.8	86.0	37.1	10,152	
Urban	78.3	72.9	82.8	86.5	89.7	45.8	3,515	
Rural	70.4	67.2	67.5	80.5	83.7	31.8	6,637	
Zanzibar	66.9	58.1	74.6	81.7	86.1	27.0	569	
Unguja	67.0	59.8	76.7	82.8	88.0	29.3	408	
Pemba	66.5	52.6	68.2	78.4	80.1	19.8	161	
Region								
Dodoma	73.5	70.2	68.7	81.9	85.4	41.7	135	
Arusha	73.1	64.7	76.6	86.1	87.1	38.0	130	
Kilimanjaro	78.3	69.6	78.4	86.5	85.0	36.2	159	
Tanga	76.5	68.5	75.3	87.0	86.1	37.6	186	
Morogoro	74.4	70.1	80.2	83.7	85.5	42.5	240	
Pwani	73.7	67.5	76.7	83.9	87.6	38.5	588	
Dar es Salaam	78.6	69.9	84.8	87.8	89.3	44.9	667	
Lindi	78.6	69.7	72.2	68.5	78.0	36.6	90	
Mtwara	71.1	76.6	76.1	78.5	87.0	34.2	96	
Ruvuma	72.8	73.1	74.3	75.9	88.2	36.3	550	
Iringa	80.7	77.5	80.3	83.4	90.6	45.4	435	
Mbeya	76.0	73.9	80.5	91.1	94.2	48.5	502	
Singida	77.4	73.9	74.9	89.0	81.9	37.7	92	
Tabora	67.1	65.8	57.5	79.1	84.3	27.6	1,197	
Rukwa	72.3	66.8	73.0	79.6	86.3	33.5	751	
Kigoma	67.6	63.7	70.8	81.9	84.5	32.6	255	
Shinyanga	64.7	66.8	63.3	78.0	83.8	31.5	836	
Kagera	75.3	76.9	75.2	79.2	85.7	40.2	255	
Mwanza	74.2	73.6	69.4	85.7	86.1	36.8	421	
Mara	70.0	67.2	68.8	79.5	82.2	27.6	321	
Manyara	69.2	59.7	76.9	82.1	83.7	36.6	163	
Njombe	79.4	77.2	78.1	83.5	89.9	45.4	254	
Katavi	73.9	70.1	70.5	79.7	84.6	35.1	805	
Simiyu	67.5	62.0	56.5	78.3	77.9	26.0	293	
Geita	72.1	70.8	66.1	83.0	88.4	33.9	302	
Songwe	75.1	63.9	78.2	78.4	86.5	32.6	429	
Kaskazini Unguja	65.7	52.2	64.5	74.3	84.2	19.7	93	
Kusini Unguja	67.1	64.6	72.9	90.7	95.8	37.5	80	
Mjini Magharibi	67.2	60.2	79.5	82.7	87.1	29.3	235	
Kaskazini Pemba	62.3	51.4	60.1	78.0	81.4	20.3	67	
Kusini Pemba	69.6	53.4	74.3	78.6	79.1	19.4	94	

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

Among males and females aged 15-24 years, percentage who correctly identify both ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission,^{1,2} by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who correctly answered the questions:						Number ²
	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	Can a person reduce the risk of getting HIV by using a condom every time they have sex?	Can a healthy-looking person have HIV?	Can a person get HIV from mosquito bites?	Can a person get HIV by sharing food with someone who is infected?	All five questions	
Marital status							
Never married	72.9	70.3	73.8	83.7	86.4	37.8	6,928
Married or living together	73.7	66.3	72.9	80.8	85.0	35.4	3,276
Divorced or separated	78.8	68.9	70.9	79.6	87.7	33.5	446
Widowed	*	*	*	*	*	*	23
Education							
No education	61.7	53.0	52.9	65.7	73.9	18.5	955
Pre-Primary	68.4	61.4	44.1	80.9	71.5	24.4	54
Primary	68.6	64.5	67.7	79.2	82.9	28.8	5,737
Post Primary Training	82.9	79.8	69.6	90.5	87.5	37.8	127
Secondary (O-Level)	80.6	77.5	84.5	90.2	92.2	49.7	3,401
Post-Secondary (O-Level) Training	84.1	76.8	94.1	92.5	95.8	59.4	255
Secondary (A-Level)	92.2	88.4	91.8	94.8	96.9	66.8	120
Post-Secondary (A-Level) Training	*	*	*	*	*	*	15
University	95.7	92.4	98.9	94.8	95.9	79.4	52
Wealth quintile							
Lowest	67.8	63.2	58.7	77.5	80.6	25.2	2,199
Second	70.1	67.8	68.6	78.6	85.0	32.4	2,219
Middle	71.1	68.5	72.9	82.7	84.4	35.2	2,355
Fourth	75.8	73.8	79.8	87.3	89.6	44.4	1,983
Highest	80.3	71.5	84.5	86.7	89.9	45.4	1,963
Age							
15-19	69.1	67.6	68.7	82.2	84.0	32.6	5,686
20-24	78.2	70.9	79.0	83.4	88.4	42.0	5,035
Total 15-24	73.2	69.1	73.4	82.7	86.0	36.9	10,721

¹Relates to Global AIDS Monitoring indicator 5.1: Young people: Knowledge about HIV prevention.

²Includes only participants who answered all five questions.

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

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

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

13.5 HIV Incidence and Prevalence

Overall incidence of HIV infection among young adults aged 15-24 years was estimated at 0.07%, 0.11% among those aged 15-19 years, and 0.03% among those aged 20-24 years (Table 5.3.A). Overall HIV prevalence among ages 15-24 years was 1.4% whereby ages 15-19 years was 0.7% and ages 20-24 years was 2.2% (Table 6.3.C). The disparity in HIV prevalence between males and females is most pronounced among young adults with prevalence among females aged 15-19 years (1.0%) and aged 20-24 years (3.4%) to more than double that of males, (0.4%) and (0.9%), respectively (Table 6.3.C).

13.6 HIV Testing, Treatment, and Viral Load Suppression

Among young adults aged 15-24 years, 49.0% reported having ever had HIV testing and received test results; 29.8% of those aged 15-19 years and 71.9% of those aged 20-24 years reported having tested and

received their results(Table 7.3.C). The percentage was higher among females 60.0% (Table 7.3.B) and lower among males 37.9% (Table 7.3.A).

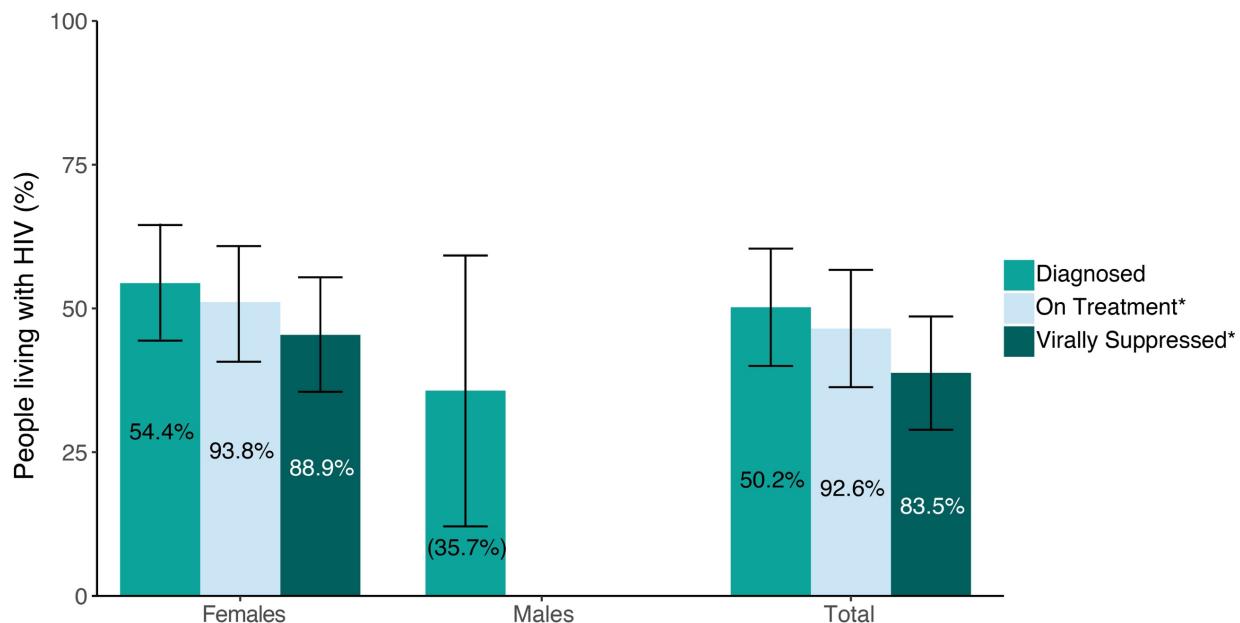
Among HIV-positive young adults aged 15-24 years, 60.9% were not aware of their HIV status, 34.3% were aware of their HIV status and on ART, while 4.8% were aware of their HIV status but not on ART Among HIV-positive females aged 15-24 years, 59.4% were unaware of their HIV status, 35.8% were aware and on ART, and the remaining 4.8% were aware, but not on ART. Among those HIV-positive males aged 15-24 years, 64.9% were unaware of their HIV status, 30.1% were aware and on ART, while 4.9% were aware, but not on ART. (Tables 8.3.A, 8.3.B, and 8.3.C).

Among individuals aged 15-24 years who reported using ARVs, only 45.6% had ARVs detected in their blood. There is disparity between males and females in ARV detection in the blood whereby there was detection of ARVs in 49.3% of females and 32.4% of males. Irrespective of treatment status, VLS was lower among males aged 15-24 years (22.2%) compared to females of the same age group (47.1%), with overall VLS of 41.5% (Tables 8.4.A, 8.4.B, 8.4.C, and 9.4.B). VLS among those from the ages of 15-24 years who are on ART was 83.5%; which is still beneath the 90% goal. This warrants further attention as adolescents and young adults are sexually active and in the reproductive age group.

13.7 Status of the 90-90-90 Goals

Based on self-report and detection of ARVs, 50.2% of HIV-positive individuals aged 15-24 years were aware of their status. Among those who were aware of their HIV-positive status, 92.6% were on ART (based on self-report and detection of ARVs), and among them, 83.5% had suppressed viral loads (Table 10.3.B).

Figure 13.7.A Adolescent and young adults 90-90-90 (laboratory ARV-adjusted data¹ among young adults aged 15-24 years), THIS 2016-2017



¹In the antiretroviral (ARV)-adjusted 90-90-90 participants are classified as 'Aware' or 'Diagnosed' if they self-reported HIV positive before testing HIV positive in THIS and/or had detectable ARVs in their blood. Participants are classified as 'On Treatment' if they self-reported that they were on treatment and/or if they had detectable ARVs in their blood.

*Inset numbers are conditional proportions.

Estimates for 'On Treatment' and 'Viral Suppression' among males have been suppressed because they are based <25 observations and therefore the bars have not been displayed on the graph above. Estimate for percent diagnosed is based on 44 observations and should be interpreted with caution.

13.8 Gaps and Unmet Needs

- Overall, there is still a challenge in HIV testing among those aged 15-24 years (49.0% were aware of their HIV-status), and the gap is seen more in males (37.9% were aware of their HIV status).
- The difference in HIV prevalence between females and males is highest in the age group 20-24 years (3.4% among females and 0.9% among males).

13.9 References

1. United Nations, Department of Economic and Social Affairs, Population Division, 2017. *World Population Prospects: The 2017 Revision*. DVD, Edition.
2. Hervish A, Clifton D. *The Status Report on Adolescents and Young People in Sub-Saharan Africa: Opportunities and Challenges*. Johannesburg and Washington, DC: Population Reference Bureau; 2012.

14 CHILDREN AND EARLY ADOLESCENTS

14.1 Key Findings

- The estimated prevalence of HIV infection among children aged 0-14 years was 0.4 %.
- Based on parents' reports and ARV detection data, it is estimated that 50.1% of children living with HIV in Tanzania were diagnosed.

14.2 Background

Estimates of prevalence of HIV in children, estimates of the number of children living with HIV (CLHIV) and viral suppression among CLHIV are most commonly derived indirectly from clinic-based data or epidemiologic models. For the first time in Tanzania, THIS provides direct measurements of these estimates among children aged 0-14 years. These data provide critical information to help inform identification of needs and gaps with regard to pediatric HIV care and treatment; to guide planning for HIV prevention, care, and treatment services for children; for evaluating PMTCT programs; and for addressing unique needs of children aged 10-14 years.

This chapter presents results on the UNAIDS 90-90-90 cascade in children and early adolescents aged 0-14 years, using both parent/guardian-reported data (on awareness of child's HIV status and ARV use) and data on detectable ARVs. Analyses for the 90-90-90 tables for children were similar to that described for adults in Chapter 10. Parents or guardians were asked about a child's HIV infection status and ARV use. Data on detectable ARVs were used in combination with self-reported ARV use to define awareness of HIV-positive status and the ARV status of a child. Presence of detectable ARVs among children who were reported as HIV negative was used to reclassify these children as aware.

14.3 HIV Prevalence

It is estimated that 0.4% of children under the age of 15 years are infected with HIV (0.3% of males and 0.5% of females) (Table 14.3.A). The prevalence of HIV infection was 0.4% among those under the age of five years, 0.5% among those aged 5-9 years, and 0.3% among those aged 10-14 years (Table 6.3.C). Among those regions with cases, the highest prevalence rates were found in Njombe (2.3%) and Iringa (1.4%) and the lowest in Rukwa (0.1%) (Table 14.3.A).

Table 14.3.A HIV prevalence by demographic characteristics 0-14 years

Prevalence of HIV among persons aged 0-14 years, by sex and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Residence						
Urban	0.3	1,229	0.4	1,202	0.4	2,431
Rural	0.3	3,627	0.5	3,558	0.4	7,185
Tanzania Mainland/Zanzibar						
Mainland	0.3	4,604	0.5	4,490	0.4	9,094
Urban	0.4	1,153	0.5	1,133	0.4	2,286
Rural	0.3	3,451	0.5	3,357	0.4	6,808
Zanzibar	0.0	252	0.0	270	0.0	522
Unguja	0.0	158	0.0	180	0.0	338
Pemba	0.0	94	0.0	90	0.0	184
Region						
Dodoma	0.0	79	0.0	68	0.0	147
Arusha	0.0	54	0.0	53	0.0	107
Kilimanjaro	1.6	65	0.0	60	0.8	125
Tanga	1.1	84	0.4	84	0.8	168
Morogoro	0.0	92	0.9	108	0.5	200
Pwani	0.8	210	0.0	217	0.4	427
Dar es Salaam	0.0	155	0.0	163	0.0	318
Lindi	(0.0)	45	(0.0)	31	0.0	76
Mtwara	(0.0)	43	(2.3)	42	1.1	85
Ruvuma	0.0	253	0.0	289	0.0	542
Iringa	0.0	167	2.8	167	1.4	334
Mbeya	1.0	169	0.0	165	0.5	334
Singida	(0.0)	47	(2.1)	38	0.9	85
Tabora	0.5	567	0.5	544	0.5	1,111
Rukwa	0.0	380	0.3	383	0.1	763
Kigoma	0.0	158	0.0	137	0.0	295
Shinyanga	0.8	387	0.5	386	0.6	773
Kagera	0.0	121	0.0	119	0.0	240
Mwanza	0.5	210	0.0	191	0.2	401
Mara	0.5	199	0.0	158	0.3	357
Manyara	0.0	60	0.0	64	0.0	124
Njombe	1.3	119	3.3	119	2.3	238
Katavi	0.3	428	1.1	375	0.7	803
Simiyu	0.0	147	0.7	147	0.3	294
Geita	0.5	155	1.6	162	1.0	317
Songwe	0.4	210	0.7	220	0.6	430
Kaskazini Unguja	(0.0)	44	(0.0)	36	0.0	80
Kusini Unguja	(0.0)	27	(0.0)	32	0.0	59
Mjini Magharibi	0.0	87	0.0	112	0.0	199
Kaskazini Pemba	(0.0)	46	(0.0)	42	0.0	88
Kusini Pemba	(0.0)	48	(0.0)	48	0.0	96
Total 0-14	0.3	4,856	0.5	4,760	0.4	9,616

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

Weighted figures calculated using btwt0.

14.4 Status of the 90-90-90 Goals

90-90-90 cascade based on guardian-reported HIV status and ART use and/or detectable ARVs in children:

ARV-adjusted awareness of HIV-positive status:

Awareness of HIV-positive status and viral load suppression in children: Among HIV-positive children (children who tested positive in THIS), aged 0-14 years, 32.2% were reported by their parent/guardian as having an HIV-positive status. Upon incorporating the results from ARV detection, nearly half (50.1%) of children were either self-reported by a parent to be HIV positive and/or had detectable ARVs in their blood. Of the 22 children who were classified as aware, all of them were on treatment (parent reported and/or ARVs detected), and of the 22 on treatment, nine children had VLS. Because the denominator for the second and third 90 are <25, we report raw numbers here, instead of weighted percentages (Tables 14.4.A and 14.4.B). Among all CLHIV, irrespective of treatment status, only 18.4% had suppressed viral loads.

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

90-90-90 targets among people living with HIV aged 0-14 years, by age, THIS 2016-2017

Age	Diagnosed		On Treatment		Viral Load Suppression (VLS)	
	Total		Among children whose parent reported that the child is HIV positive		Among children whose parent reported that the child is on ART	
	Percentage whose parent reported that the child is HIV positive	Number	Percentage whose parent reported that the child is on ART	Number	Percentage with VLS	Number
0-17 months	*	4	*	0	*	0
18-59 months	*	11	*	2	*	2
0-4 years	*	15	*	2	*	2
5-9 years	*	15	*	7	*	7
10-14 years	*	14	*	7	*	7
0-14 years	(32.2)	44	*	16	*	16

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

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

Table 14.4.B Pediatric 90-90-90 (parent-reported laboratory antiretroviral (ARV) data; conditional percentages)

90-90-90 targets among people living with HIV aged 0-14 years, by age, THIS 2016-2017

Age	Diagnosed		On Treatment		Viral Load Suppression (VLS)	
	Total		Among children whose parent reported that the child is HIV positive AND/OR with detectable ARVs		Among children with detectable ARVs AND/OR whose parent reported current ARV usage for the child	
	Percentage whose parent reported that the child is HIV positive AND/OR with detectable ARVs ¹	Number	Percentage with detectable ARVs AND/OR whose parent reported current ARV usage for the child ²	Number	Percentage with VLS ³	Number
0-17 months	*	4	*	2	*	2
18-59 months	*	11	*	2	*	2
0-4 years	*	15	*	4	*	4
5-9 years	*	15	*	9	*	9
10-14 years	*	15	*	9	*	9
0-14 years	(50.1)	45	*	22	*	22

¹Relates to Global AIDS Monitoring indicator 1.1: People living with HIV who know their HIV status, and PEPFAR DIAGNOSED_NAT; ² Relates to Global AIDS Monitoring indicator 1.2: Retention on antiretroviral therapy at 12 months, and PEPFAR TX_CURR_NAT / SUBNAT; ³Relates to Global AIDS Monitoring indicator 1.4: People living with HIV who have suppressed viral loads, and PEPFAR VL_SUPPRESSION_NAT

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

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

Weighted figures calculated using btwt0.

14.5 Gaps and Unmet Needs

- Nearly 50 percent of children under the age of 15 years who are living with HIV have not been diagnosed.
- Overall among children under the age of 15 years living with HIV, 81.6% did not have VLS.

15 HIV RISK FACTORS

15.1 Key Findings

- Approximately one-third (31.7%) of adults aged 15 years and older who reported having sex in the 12 months preceding the survey with a nonmarital, noncohabitating partner used a condom at last sexual intercourse.
- Among those who used condoms at last sexual intercourse in the past 12 months, the number of HIV-positive females (13.9%) was higher than HIV-positive males (5.3%).
- Among adults aged 15 years and older who had sexual debut before the age of 15 years, the prevalence of HIV infection was higher for females (7.0%) than for males (4.4%).
- The HIV prevalence among men who did not use condoms at their last paid sexual intercourse was lower compared to females (5.9% and 10.7%, respectively).
- The prevalence of male circumcision is higher in males who were HIV negative (77.4%) than in those who are HIV positive (60.8%).

15.2 Background

This chapter describes the prevalence of sexual behaviors that elevate risk of HIV infection. The survey asked questions about high-risk behaviors, including early sexual debut, recent engagement in multiple sexual partnerships, condom use at last sexual intercourse, recent engagement in paid sexual intercourse, and condom use at last sexual intercourse with a nonmarital, noncohabitating partner. With this information, programs can focus their efforts on those individuals most in need of information and most at risk for HIV infection.

The TACAIDS and ZAC have developed the National Multi-sectoral Condom Strategy (2016-2018) to ensure sustained use of condoms for HIV, STI, and pregnancy prevention in Tanzania. The strategy will contribute to the increase in risk perception through public education and advocacy. This will translate the current knowledge of HIV/AIDS into avoidance of risky sexual behaviors and increase condom use.

Traditional male circumcision used to be performed for religious or cultural reasons in Tanzania. Since 2007, WHO and UNAIDS have recommended voluntary medical male circumcision (VMMC) as a cost-effective strategy to reduce HIV acquisition in men. Beginning in 2010 the Government of Tanzania has created interventions to increase knowledge and information on VMMC. To inform VMMC programs, in THIS, males aged 15 years and older were asked if they had been medically or traditionally circumcised.

15.3 HIV Prevalence by Sexual Behavior

When adult participants aged 15 years and older were grouped by age of sexual debut, the prevalence of HIV infection was higher for females than for males among all groupings. HIV prevalence reduced based on age of sexual debut, with 5.6% of those who had sex before the age of 15 years testing positive, compared to 3.9% of those with sexual debut at the age of 25 years or older (Table 15.3.A).

Regardless of the number of sexual partners in the last 12 months, females had a higher HIV prevalence than males. The greatest disparity was among those with more than two sexual partners in the last 12 months with HIV prevalence among women (12.0%) that was nearly three times as high as that among

men (4.2%). Among males aged 15 years and older, HIV prevalence was lower among those who reported having one partner (3.3%) than in those who reported two or more partners (4.2%) in the 12 months preceding the survey, but the difference is not statistically significant. HIV prevalence among females with two or more partners in the 12 months preceding the survey was more than twice the prevalence in females reporting one partner in the same period of time (12.0% versus 5.6%, respectively; Table 15.3.A).

HIV prevalence among persons aged 15 years and older who reported that they used a condom at the last sexual intercourse in the past 12 months was 9.0%, compared to 4.2% among persons who reported that they did not use a condom. The percentage of HIV-positive females who used a condom at the last sexual intercourse in the past 12 months was higher (13.9%) than the percentage among HIV-positive males (5.3%) (Table 15.3.A).

The THIS defined paid sexual intercourse as paying or receiving money for sexual intercourse. HIV prevalence in adults aged 15 years and older who reported engaging in paid sexual intercourse in the 12 months preceding the survey was higher than those who did not (7.8% versus 4.7%, respectively). Females who reported having engaged in paid sexual intercourse had nearly twice the HIV prevalence (11.2%) compared to males (5.9%). However, among those females who engaged in paid sexual intercourse, HIV prevalence was similar among those who used a condom during the last paid sexual intercourse (12.0%) and those who did not (10.7%). HIV prevalence in men aged 15 years and older who reported that they engaged in paid sexual intercourse in the 12 months preceding the survey was 5.8%; versus 3.4% among males who did not engage in paid sexual intercourse (Table 15.3.A). The HIV prevalence among men who did not use condoms at their last paid sexual intercourse was lower compared to females (5.9% and 10.7%, respectively).

Table 15.3.A HIV prevalence by sexual behavior

Prevalence of HIV among persons aged 15 years and older, by sex and sexual behavior characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
Age at first sexual intercourse						
< 15	4.4	1,466	7.0	1,719	5.6	3,185
15-19	3.8	6,941	7.2	11,332	5.7	18,273
20-24	3.4	2,506	5.9	2,445	4.6	4,951
≥ 25	3.8	905	4.4	414	3.9	1,319
Number of sexual partners in the past 12 months						
0	4.5	2,115	8.6	4,010	7.0	6,125
1	3.3	6,121	5.6	10,481	4.7	16,602
≥ 2	4.2	3,445	12.0	1,186	6.0	4,631
Condom use at last sexual intercourse in the past 12 months						
Used condom	5.3	1,237	13.9	1,198	9.0	2,435
Did not use condom	3.2	7,279	5.0	10,026	4.2	17,305
No sexual intercourse in the past 12 months	4.5	2,115	8.6	4,010	7.0	6,125
Paid sexual intercourse in the past 12 months						
Yes ¹	5.8	1,158	11.2	813	7.8	1,971
Used condom at last paid sexual intercourse	5.8	514	12.0	311	7.9	825
Did not use condom at last paid sexual intercourse	5.9	619	10.7	492	7.8	1,111
No ²	3.4	8,453	5.9	10,959	4.7	19,412
Total 15-24	0.6	4,520	2.1	5,844	1.4	10,364
Total 15-49	3.1	10,971	6.2	14,629	4.7	25,600
Total 15+	3.4	13,750	6.3	17,829	4.9	31,579

¹Includes persons who paid or received money for sexual intercourse.²No paid sexual intercourse or no sexual intercourse in the past 12 months.

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

15.4 Condom Use at Last Sex with a Nonmarital, Noncohabitating Partner

Overall among adults aged 15 years and older who reported having sex in the 12 months preceding the survey, 41.8% (50.0% of males and 33.5% of females) reported having sex with a nonmarital, noncohabitating partner during this time. Of these adults, 31.7% (34.9% of males and 27.3% of females) reported using a condom during their last sexual intercourse with a nonmarital, noncohabitating partner (Tables 15.4.A, Table 15.4.B and Table 15.4.C).

The percentage of sexually active persons reporting sexual intercourse with a nonmarital, noncohabitating partner in the past 12 months was higher among those residing in urban areas (48.8%) than among those in rural areas (37.6%) (Table 15.4.C). The percentage of sexually active persons reporting sexual intercourse with a nonmarital, noncohabitating partner increased by educational level. Among males, 39.3% with no education reported sexual intercourse with a nonmarital noncohabitating partner, compared to 73.6% among those with secondary (A-level) education (Table 15.4.A). Similarly, for females,

22.0% of those with no education and 31.0% of those with primary and 51.0% with secondary education (O-level) reported sexual intercourse with a nonmarital, noncohabitating partner (Table 15.4.B). The percentage reporting condom use at last sexual intercourse with a nonmarital, noncohabitating partner followed a similar pattern, it increased with educational attainment from 19.7% of men and 12.5% of women with no education to 50.9% of men and 38.4% of women with post-secondary (O level) education (Tables 15.4.A and 15.4.B).

The percentage of sexually active adults reporting sexual intercourse with nonmarital, noncohabitating partners and condom use at last sexual intercourse with this nonmarital, noncohabitating partner was lower in Zanzibar (15.7%) compared to mainland Tanzania (31.9%). Among sexually active persons aged 15-19 years, 76.4% reported having sex with a nonmarital, noncohabitating partner and 26.5% reported using a condom at last sexual intercourse with this nonmarital, noncohabitating partner, while among those aged 65-69 years, 12.2% reported having sex with a nonmarital, noncohabitating partner and 16.2% reported using a condom at last sex with this nonmarital, noncohabitating partner (Table 15.4.C).

Table 15.4.A Condom use at last sex with a nonmarital, noncohabitating partner: Males

Among males age 15 years and older who reported having sex in the past 12 months, percentage who reported having a nonmarital, noncohabitating partner in the past 12 months; among those who reported having sex with a nonmarital, noncohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner, by selected demographic characteristics, THIS 2016-2017

Characteristic	Among males who reported having sex in the past 12 months		Among males who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner ¹	Number
Residence				
Urban	55.7	3,115	43.2	1,370
Rural	46.8	6,926	29.5	2,717
Tanzania Mainland/Zanzibar				
Mainland	50.5	9,653	35.0	4,004
Urban	56.4	2,995	43.4	1,346
Rural	47.1	6,658	29.6	2,658
Zanzibar	25.4	388	19.7	83
Unguja	27.4	280	22.3	66
Pemba	18.6	108	*	17
Region				
Dodoma	53.8	167	22.3	78
Arusha	40.2	146	34.0	52
Kilimanjaro	40.2	173	43.4	53
Tanga	49.2	195	47.9	75
Morogoro	54.1	253	33.7	112
Pwani	50.0	567	39.7	231
Dar es Salaam	56.9	588	41.4	277
Lindi	40.4	125	(26.3)	42
Mtwara	49.4	164	32.7	63
Ruvuma	55.8	667	41.4	308
Iringa	47.4	383	53.1	151
Mbeya	51.5	419	51.6	160
Singida	49.6	84	(26.3)	34
Tabora	56.8	1,104	34.6	510
Rukwa	40.8	685	29.1	238
Kigoma	29.2	214	28.7	53
Shinyanga	58.3	720	42.9	342
Kagera	40.3	291	29.9	98
Mwanza	60.9	415	30.8	210

Table 15.4.A Condom use at last sex with a nonmarital, noncohabitating partner: Males (continued)

Among males age 15 years and older who reported having sex in the past 12 months, percentage who reported having a nonmarital, noncohabitating partner in the past 12 months; among those who reported having sex with a nonmarital, noncohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner, by selected demographic characteristics, THIS 2016-2017

Characteristic	Among males who reported having sex in the past 12 months		Among males who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the past 12 months		Percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner ¹	Number
	Number			
Region (continued)				
Mara	55.9	230	25.1	113
Manyara	54.5	143	19.5	63
Njombe	49.5	234	61.2	93
Katavi	47.6	758	36.4	292
Simiyu	46.0	204	39.5	81
Geita	56.1	282	20.4	132
Songwe	36.9	442	41.1	143
Kaskazini Unguja	22.5	53	*	9
Kusini Unguja	29.1	61	*	16
Mjini Magharibi	27.7	166	(27.3)	41
Kaskazini Pemba	(16.3)	49	*	7
Kusini Pemba	20.5	59	*	10
Marital status				
Never married	98.7	2,300	36.2	1,938
Married or living together	26.7	7,097	35.7	1,632
Divorced or separated	93.5	568	26.6	449
Widowed	96.2	71	26.4	63
Education				
No education	39.3	1,196	19.7	396
Pre-Primary	(42.3)	37	*	14
Primary	46.6	6,461	30.1	2,524
Post Primary Training	42.7	151	48.9	55
Secondary (O-Level)	65.7	1,572	45.1	814
Post-Secondary (O-Level) Training	62.2	273	50.9	124
Secondary (A-Level)	73.6	75	(79.9)	40
Post-Secondary (A-Level) Training	41.7	83	(54.3)	32
University	52.1	189	55.3	87
Wealth quintile				
Lowest	45.0	2,238	21.9	867
Second	45.9	2,246	28.7	889
Middle	50.3	2,182	33.1	877
Fourth	52.8	1,756	43.5	742
Highest	56.0	1,616	45.5	711
Age				
15-19	96.6	902	24.2	769
20-24	80.7	1,591	39.8	1,045
25-29	55.6	1,470	36.4	657
30-34	40.6	1,267	38.3	453
35-39	35.8	1,124	38.2	331
40-44	35.0	997	33.8	301
45-49	30.3	736	33.8	207
50-54	24.1	588	41.5	130
55-59	18.9	440	38.5	82
60-64	12.9	326	(17.0)	45
65-69	14.4	231	(12.7)	33
70-74	10.6	170	*	17
75-79	6.0	98	*	6

Table 15.4.A Condom use at last sex with a nonmarital, noncohabitating partner: Males (continued)

Among males age 15 years and older who reported having sex in the past 12 months, percentage who reported having a nonmarital, noncohabitating partner in the past 12 months; among those who reported having sex with a nonmarital, noncohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner, by selected demographic characteristics, THIS 2016-2017

Characteristic	Among males who reported having sex in the past 12 months		Among males who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	Number	Percentage who reported using A condom the last time thy had sex with a nonmarital, noncohabitating partner ¹	Number
≥80	13.0	101	*	11
Total 15-24	86.1	2,493	33.5	1,814
Total 15-49	55.9	8,087	35.0	3,763
Total 50+	17.7	1,954	32.4	324
Total 15+	50.0	10,041	34.9	4,087

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

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

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

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

Table 15.4.B Condom use at last sex with a nonmarital, noncohabitating partner: Females

Among females aged 15 years and older who reported having sex in the past 12 months, percentage who reported having a nonmarital, noncohabitating partner in the past 12 months; among those who reported having sex with a nonmarital, noncohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner, by selected demographic characteristics, THIS 2016-2017

Characteristic	Among females who reported having sex in the past 12 months		Among females who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner ¹	Number
Residence				
Urban	42.3	4,216	31.5	1,521
Rural	28.0	7,923	23.4	1,943
Tanzania Mainland/Zanzibar				
Mainland	34.0	11,568	27.4	3,407
Urban	43.0	4,052	31.6	1,508
Rural	28.4	7,516	23.6	1,899
Zanzibar	11.2	571	8.1	57
Unguja	13.1	404	(7.7)	48
Pemba	5.3	167	*	9
Region				
Dodoma	29.6	177	18.9	50
Arusha	28.9	184	(24.1)	49
Kilimanjaro	28.8	212	19.1	57
Tanga	40.0	218	32.9	75
Morogoro	40.0	361	22.6	130
Pwani	36.6	746	28.9	246
Dar es Salaam	45.3	753	28.5	299
Lindi	27.4	124	(6.4)	30
Mtwara	30.8	158	(35.7)	45
Ruvuma	36.2	742	36.3	235
Iringa	35.0	504	32.1	160
Mbeya	40.3	560	36.1	196
Singida	36.5	145	(26.8)	48
Tabora	29.0	1,129	27.9	303
Rukwa	23.3	836	19.8	175
Kigoma	19.6	282	9.8	52
Shinyanga	33.8	805	33.5	239
Kagera	25.3	300	28.1	68
Mwanza	42.8	466	26.3	176
Mara	32.1	318	35.1	98
Manyara	33.2	156	(29.3)	49
Njombe	39.2	328	32.6	106
Katavi	28.8	941	27.5	240
Simiyu	24.0	262	24.7	59
Geita	34.2	329	18.1	99
Songwe	24.5	532	33.1	123
Kaskazini Unguja	9.3	89	*	7
Kusini Unguja	18.7	83	*	15
Mjini Magharibi	12.7	232	(10.9)	26
Kaskazini Pemba	5.1	78	*	4
Kusini Pemba	5.6	89	*	5
Marital status				
Never married	97.1	1,630	30.7	1,448
Married or living together	9.2	8,959	28.5	716
Divorced or separated	93.0	1,232	21.1	1,033
Widowed	88.2	312	25.7	261

Table 15.4.B Condom use at last sex with a nonmarital, noncohabitating partner: Females (continued)

Among females aged 15 years and older who reported having sex in the past 12 months, percentage who reported having a nonmarital, noncohabitating partner in the past 12 months; among those who reported having sex with a nonmarital, noncohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner, by selected demographic characteristics, THIS 2016-2017

Characteristic	Among females who reported having sex in the past 12 months		Among females who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner ¹	Number
Education				
No education	22.0	2,335	12.5	430
Pre-Primary	(20.8)	49	*	11
Primary	31.0	7,348	25.9	1,989
Post Primary Training	36.2	107	(27.3)	40
Secondary (O-Level)	51.0	1,847	34.5	787
Post-Secondary (O-Level) Training	49.1	276	38.4	134
Secondary (A-Level)	(64.8)	47	(36.8)	29
Post-Secondary (A-Level) Training	(38.1)	27	*	10
University	40.0	98	(33.7)	34
Wealth quintile				
Lowest	26.0	2,540	16.9	605
Second	26.8	2,484	24.5	589
Middle	32.7	2,688	26.5	759
Fourth	38.9	2,305	32.9	766
Highest	41.9	2,117	30.5	743
Age				
15-19	61.2	1,376	29.2	737
20-24	41.6	2,332	30.6	812
25-29	32.3	2,145	31.2	562
30-34	27.9	1,780	21.4	417
35-39	25.9	1,431	28.4	346
40-44	27.5	1,115	22.6	277
45-49	24.0	771	17.6	170
50-54	14.2	512	18.2	70
55-59	15.0	267	(13.9)	38
60-64	9.8	196	*	20
65-69	7.8	109	*	10
70-74	5.0	56	*	2
75-79	(7.6)	26	*	2
≥80	*	23	*	1
Total 15-24	49.2	3,708	29.9	1,549
Total 15-49	35.7	10,950	27.8	3,321
Total 50+	12.4	1,189	14.6	143
Total 15+	33.5	12,139	27.3	3,464

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

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

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

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

Table 15.4.C Condom use at last sex with a nonmarital, noncohabitating partner: Total

Among persons age 15 years and older who reported having sex in the past 12 months, percentage who reported having a nonmarital, noncohabitating partner in the past 12 months; among those who reported having sex with a nonmarital, noncohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner, by selected demographic characteristics, THIS 2016-2017

Characteristic	Among persons who reported having sex in the past 12 months		Among persons who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner ¹	Number
Residence				
Urban	48.8	7,331	37.8	2,891
Rural	37.6	14,849	27.2	4,660
Tanzania Mainland/Zanzibar				
Mainland	42.3	21,221	31.9	7,411
Urban	49.5	7,047	37.9	2,854
Rural	38.1	14,174	27.4	4,557
Zanzibar	17.7	959	15.7	140
Unguja	19.8	684	17.2	114
Pemba	11.1	275	(7.5)	26
Region				
Dodoma	42.5	344	21.1	128
Arusha	34.5	330	29.9	101
Kilimanjaro	34.5	385	32.4	110
Tanga	44.8	413	41.1	150
Morogoro	46.5	614	28.3	242
Pwani	43.0	1,313	34.8	477
Dar es Salaam	51.1	1,341	35.5	576
Lindi	34.7	249	19.2	72
Mtwara	41.2	322	33.8	108
Ruvuma	46.5	1,409	39.4	543
Iringa	41.0	887	43.5	311
Mbeya	45.7	979	43.9	356
Singida	41.9	229	26.5	82
Tabora	44.3	2,233	32.5	813
Rukwa	32.2	1,521	25.8	413
Kigoma	24.3	496	20.7	105
Shinyanga	46.8	1,525	39.6	581
Kagera	33.4	591	29.3	166
Mwanza	52.3	881	29.0	386
Mara	43.2	548	29.2	211
Manyara	44.6	299	23.2	112
Njombe	43.9	562	47.6	199
Katavi	38.1	1,699	32.8	532
Simiyu	34.8	466	34.2	140
Geita	45.4	611	19.5	231
Songwe	30.7	974	37.8	266
Kaskazini Unguja	14.8	142	*	16
Kusini Unguja	23.5	144	(2.0)	31
Mjini Magharibi	19.9	398	21.9	67
Kaskazini Pemba	9.8	127	*	11
Kusini Pemba	12.2	148	*	15

Table 15.4.C Condom use at last sex with a nonmarital, noncohabitating partner: Total (continued)

Among persons age 15 years and older who reported having sex in the past 12 months, percentage who reported having a nonmarital, noncohabitating partner in the past 12 months; among those who reported having sex with a nonmarital, noncohabitating partner in the past 12 months, percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner, by selected demographic characteristics, THIS 2016-2017

Characteristic	Among persons who reported having sex in the past 12 months		Among persons who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	
	Percentage who reported having sex with a nonmarital, noncohabitating partner in the past 12 months	Number	Percentage who reported using a condom the last time they had sex with a nonmarital, noncohabitating partner ¹	Number
Marital status				
Never married	98.1	3,930	34.1	3,386
Married or living together	17.8	16,056	33.7	2,348
Divorced or separated	93.2	1,800	23.1	1,482
Widowed	89.7	383	25.9	324
Education				
No education	28.7	3,531	16.2	826
Pre-Primary	30.4	86	(18.1)	25
Primary	39.0	13,809	28.4	4,513
Post Primary Training	40.4	258	41.7	95
Secondary (O-Level)	58.7	3,419	40.5	1,601
Post-Secondary (O-Level) Training	56.3	549	45.3	258
Secondary (A-Level)	70.0	122	62.2	69
Post-Secondary (A-Level) Training	40.9	110	(51.6)	42
University	48.3	287	49.7	121
Wealth quintile				
Lowest	35.7	4,778	20.1	1,472
Second	36.8	4,730	27.2	1,478
Middle	41.6	4,870	30.4	1,636
Fourth	45.7	4,061	38.7	1,508
Highest	48.9	3,733	38.7	1,454
Age				
15-19	76.4	2,278	26.5	1,506
20-24	60.3	3,923	36.3	1,857
25-29	43.9	3,615	34.4	1,219
30-34	34.0	3,047	31.0	870
35-39	30.9	2,555	33.9	677
40-44	31.4	2,112	28.8	578
45-49	27.3	1,507	27.0	377
50-54	19.9	1,100	34.0	200
55-59	17.4	707	29.7	120
60-64	11.8	522	11.8	65
65-69	12.2	340	(16.2)	43
70-74	9.1	226	*	19
75-79	6.4	124	*	8
≥80	11.6	124	*	12
Total 15-24	66.2	6,201	32.0	3,363
Total 15-49	45.6	19,037	32.0	7,084
Total 50+	15.7	3,143	26.9	467
Total 15+	41.8	22,180	31.7	7,551

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

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

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

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

15.5 Male Circumcision

Among males aged 15 years and older, 49.7% reported undergoing medical circumcision and 27.9% reported having a non-medical circumcision. The percentage of males who reported being uncircumcised ranged from 34.4% among those aged 75-79 years to 15.1% among those aged 20-24 years. Among those who tested HIV positive in the survey, 42.5% reported having undergone medical circumcision, while 38.0% self-reported being uncircumcised. Of those who tested HIV negative, 20.2% self-reported not having undergone any form of circumcision, while 49.3% reported having undergone medical circumcision. Coverage of male circumcision also varied by regions. In population dense regions, men not circumcised ranged from 3.5% in Dar es Salaam and 24.4% in Mwanza to 32.6% in Mbeya. Zanzibar and Dodoma had less than 2% of men uncircumcised and Songwe region had the greatest proportion of uncircumcised men (58.4%) (Table 15.5.A).

The percentage of males who reported being circumcised varied with age, education, and wealth quintile. The proportion who reported medical circumcision was 83.4% in males with A level secondary education compared to 25.6% of males with no education. The frequency of non-medical circumcision was approximately three times greater in men with no education (35.6%) compared to men with A level secondary education (11.8%). The highest frequency of medical circumcision was reported among those in the highest wealth quintile (69.3%) (Table 15.5.A).

Table 15.5.A Male circumcision

Percent distribution of males aged 15 years and older by self-reported circumcision status, by result of PHIA survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Circumcised ¹				Total	Number
	Medical circumcision	Non-medical circumcision	Uncircumcised	Unknown		
Result of PHIA survey HIV test						
HIV positive	42.5	18.3	38.0	1.2	100.0	564
HIV negative	49.3	28.0	20.2	2.4	100.0	13,186
Not tested	58.8	31.7	5.9	3.5	100.0	682
Residence						
Urban	63.3	25.7	8.0	3.0	100.0	4,446
Rural	42.2	29.2	26.4	2.2	100.0	9,986
Tanzania Mainland/Zanzibar						
Mainland	49.2	28.2	20.5	2.1	100.0	13,721
Urban	63.3	25.9	8.2	2.6	100.0	4,231
Rural	41.6	29.4	27.1	1.9	100.0	9,490
Zanzibar	65.1	19.1	0.1	15.7	100.0	711
Unguja	68.6	15.4	0.2	15.8	100.0	511
Pemba	53.7	31.2	0.0	15.1	100.0	200
Region						
Dodoma	39.1	56.6	1.5	2.7	100.0	247
Arusha	58.6	34.7	4.6	2.1	100.0	195
Kilimanjaro	82.7	14.2	2.6	0.6	100.0	268
Tanga	56.9	37.7	2.1	3.3	100.0	293
Morogoro	46.0	47.6	4.3	2.2	100.0	339
Pwani	32.2	62.1	2.8	2.9	100.0	823
Dar es Salaam	52.6	39.8	3.5	4.1	100.0	826
Lindi	8.5	87.8	2.5	1.2	100.0	161
Mtwara	24.9	68.7	2.0	4.4	100.0	222
Ruvuma	33.1	43.2	23.1	0.6	100.0	895
Iringa	72.7	6.5	20.3	0.5	100.0	584
Mbeya	60.8	5.8	32.6	0.9	100.0	601
Singida	63.3	23.1	5.0	8.7	100.0	153
Tabora	41.9	13.9	42.2	2.0	100.0	1,494

Table 15.5.A Male circumcision (continued)

Percent distribution of males aged 15 years and older by self-reported circumcision status, by result of PHIA survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Circumcised ¹		Uncircumcised	Unknown	Total	Number
	Medical circumcision	Non-medical circumcision				
Rukwa	39.1	4.8	54.7	1.4	100.0	922
Kigoma	53.3	10.4	35.0	1.3	100.0	332
Shinyanga	41.3	4.7	53.1	0.9	100.0	1,030
Kagera	41.2	16.1	41.2	1.4	100.0	421
Mwanza	65.2	9.5	24.4	1.0	100.0	605
Mara	40.0	49.3	10.2	0.6	100.0	360
Manyara	52.9	39.6	2.9	4.5	100.0	201
Njombe	59.9	5.4	33.7	1.1	100.0	364
Katavi	53.2	8.4	36.2	2.1	100.0	1,056
Simiyu	43.9	2.4	53.5	0.3	100.0	311
Geita	55.5	8.2	35.1	1.2	100.0	392
Songwe	38.0	2.6	58.4	0.9	100.0	626
Kaskazini Unguja	68.7	14.0	1.0	16.3	100.0	109
Kusini Unguja	56.6	20.6	0.5	22.3	100.0	109
Mjini Magharibi	70.9	14.6	0.0	14.5	100.0	293
Kaskazini Pemba	53.5	34.8	0.0	11.7	100.0	88
Kusini Pemba	53.9	28.3	0.0	17.8	100.0	112
Marital status						
Never married	59.8	22.2	14.9	3.1	100.0	4,613
Married or living together	43.6	31.2	23.1	2.1	100.0	8,694
Divorced or separated	49.1	30.7	18.0	2.2	100.0	855
Widowed	29.1	39.3	29.1	2.5	100.0	240
Education						
No education	25.6	35.6	36.1	2.7	100.0	1,767
Pre-Primary	35.7	38.5	24.7	1.2	100.0	84
Primary	43.5	31.0	23.5	2.0	100.0	8,878
Post Primary Training	64.7	23.1	11.4	0.8	100.0	221
Secondary (O-Level)	69.4	19.9	6.8	3.9	100.0	2,667
Post-Secondary (O-Level) Training	76.9	16.5	4.3	2.2	100.0	348
Secondary (A-Level)	83.4	11.8	1.0	3.8	100.0	134
Post-Secondary (A-Level) Training	72.9	16.8	7.7	2.6	100.0	95
University	87.6	5.7	3.1	3.6	100.0	230
Wealth quintile						
Lowest	32.1	31.0	34.9	2.0	100.0	3,198
Second	39.6	29.2	29.8	1.4	100.0	3,210
Middle	48.4	28.3	20.6	2.6	100.0	3,195
Fourth	60.3	28.2	9.1	2.4	100.0	2,518
Highest	69.3	22.8	4.0	3.8	100.0	2,307
Age						
15-19	55.6	21.6	19.8	3.0	100.0	2,624
20-24	57.9	24.2	15.1	2.8	100.0	2,082
25-29	56.7	24.8	15.5	3.1	100.0	1,779
30-34	49.8	28.9	18.9	2.4	100.0	1,541
35-39	47.5	29.4	20.4	2.7	100.0	1,373
40-44	46.0	30.1	22.4	1.4	100.0	1,217
45-49	41.0	36.9	21.0	1.2	100.0	915
50-54	40.8	31.6	26.0	1.6	100.0	763
55-59	40.1	32.1	26.4	1.5	100.0	597
60-64	36.1	38.4	24.2	1.2	100.0	482
65-69	26.5	39.6	33.5	0.4	100.0	359
70-74	25.0	39.9	31.8	3.2	100.0	266
75-79	18.1	42.1	34.4	5.4	100.0	199
≥80	18.6	49.0	30.3	2.1	100.0	235
Total 15-49	52.6	26.4	18.5	2.6	100.0	11,531
Total 50+	34.0	36.3	27.9	1.8	100.0	2,901

Table 15.5.A Male circumcision (continued)

Percent distribution of males aged 15 years and older by self-reported circumcision status, by result of PHIA survey HIV test and selected demographic characteristics, THIS 2016-2017

Characteristic	Circumcised ¹		Uncircumcised	Unknown	Total	Number
	Medical circumcision	Non-medical circumcision				
Total 15-64	51.1	27.1	19.3	2.5	100.0	13,373
Total 15+	49.7	27.9	20.0	2.5	100.0	14,432

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

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

15.6 Gaps and Unmet Needs

- There are differences in HIV prevalence by age at sexual debut, with HIV prevalence of 5.6 % among those who had sex before the age of 15 years and HIV prevalence of 3.9 % among those with sexual debut over the age of 25 years.
- Regardless of number of sexual partners in the last 12 months, females had a higher HIV prevalence than males
- HIV prevalence of women who had two or more sexual partners in the last 12 months was nearly three times as high (12.0%) compared to men (4.2%).
- The HIV prevalence among males who did not use condoms at their last paid sexual intercourse was lower compared to females (5.9% and 10.7%, respectively). This suggests additional research is needed to understand the lack of use of condoms amongst HIV-positive men.
- The prevalence of circumcision was higher (77.3%) among HIV-negative males than in the HIV-positive males (60.8%).

16 DISCRIMINATORY ATTITUDES TOWARDS PEOPLE LIVING WITH HIV

16.1 Key Findings

- Among adults aged 15 years and older who had ever heard of HIV, 25.6% reported discriminatory attitudes towards PLHIV.
- More adults in rural areas (30.7%) reported discriminatory attitudes towards PLHIV, compared to those in urban areas (17.3%).
- Variation in discriminatory attitudes occurs across different levels of educational attainment; 41.7% of those with no education reported discriminatory attitudes in contrast to 12.2% among those with A level secondary education and 9.3% among those with university education.

16.2 Background

Tanzania has a strong stand against HIV stigma and discrimination. From the onset of the HIV/AIDS epidemic stakeholders including community groups, researchers, and policy makers have worked to address HIV-related discrimination. Among the government efforts to reduce HIV/AIDS stigma is providing care and free HIV treatment services. These efforts allow Tanzania to position itself to scale up stigma and discrimination control activities as part of HIV/AIDS programming.

The role that stigma plays in increasing the spread of HIV has been identified in the Tanzanian Policy on HIV/AIDS (2001) and the Health Sector HIV/AIDS Strategic Plan IV (HSHSP 2017-2022).^{1,2} Stigma reduction is recognized as a key guiding principle that must be addressed by all sectors at all levels.

Three programmatically actionable drivers of stigma have been previously identified: 1) lack of recognition of stigma, 2) fear of acquiring HIV through casual contact, and 3) values linking people with HIV to assumed immoral behavior. The National Guide on the Integration of Stigma and Discrimination Reduction in HIV Programs (2009) proposed that awareness can be increased through the creation of information, education, and communication materials that provide information related to HIV stigma.³ To address the second fear, it is proposed that consistent and continuous delivery of information on HIV transmission is needed. Lastly, open and guided discussion about sexual values, prejudices, and context, in which risky behaviors take place, must be promoted.

16.3 Discriminatory Attitudes Towards People Living with HIV

One quarter (25.6%) of adults aged 15 years and older who had ever heard of HIV, reported discriminatory attitudes towards people living with HIV (PLHIV) (responded “No” to either of the two questions used to assess discriminatory attitudes). There were slight variations in discriminatory attitudes based on geographic area, marital status, socioeconomic status, and age. About 17.3% of adults aged 15 years and older in urban areas reported discriminatory attitudes towards PLHIV compared to 30.7% of adults in rural areas. Discriminatory attitudes were slightly more prevalent in Zanzibar (30.5%) compared to mainland Tanzania (25.5%). The lowest proportions of persons who reported discriminatory attitudes toward people with HIV were in Njombe (15.0%), Mbeya (15.5%), Dar es Salaam (17.1%), and Iringa (17.5%). Large variation in discriminatory attitudes was observed across different levels of educational attainment;

41.7% of those with no education reported discriminatory attitudes in contrast to 12.2% among those with A level secondary education. Similarly, 39.2% of those in the lowest wealth quintile reported discriminatory attitudes compared to 14.6% among those in the highest wealth quintile. Individuals aged 80 years and older had the highest percentages of persons who reported discriminatory attitudes (52.2%). Among those aged 15-79 years, the proportion of persons who reported discriminatory attitudes ranged from 18.6% to 38.2%. Among those aged 15-49 years, the proportion of persons who reported discriminatory attitudes was lower (24.7%) compared to those aged 50 years and older (30.7%) (Table 16.3.A).

Table 16.3.A Discriminatory attitudes toward people living with HIV

Among persons aged 15 years and older, percentage who report discriminatory attitudes towards people living with HIV, by selected demographic characteristics, THIS 2016-2017

Characteristic	Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV?	Do you think that children living with HIV should be able to attend school with children who are HIV negative?	Both questions	Number
	Percentage who responded "No"	Percentage who responded "No"	Percentage who responded "No" to either of the two questions ¹	
Residence				
Urban	12.5	8.7	17.3	10,478
Rural	24.3	17.0	30.7	20,512
Tanzania Mainland/Zanzibar				
Mainland	19.7	13.8	25.5	29,326
Urban	12.3	8.6	17.1	10,000
Rural	24.2	16.9	30.6	19,326
Zanzibar	23.4	17.9	30.5	1,664
Unguja	18.6	15.4	26.4	1,185
Pemba	38.3	26.0	43.5	479
Region				
Dodoma	27.3	17.2	33.2	515
Arusha	20.9	12.7	23.6	453
Kilimanjaro	16.3	12.7	22.6	606
Tanga	23.3	14.8	28.8	638
Morogoro	17.1	11.7	23.7	798
Pwani	17.0	13.4	23.1	1,849
Dar es Salaam	12.0	8.4	17.1	1,866
Lindi	24.2	13.8	28.7	313
Mtwara	19.2	14.3	25.3	403
Ruvuma	18.7	14.4	25.5	1,859
Iringa	12.1	10.7	17.5	1,362
Mbeya	10.0	9.1	15.5	1,389
Singida	18.9	19.3	27.1	351
Tabora	31.2	21.9	38.3	2,851
Rukwa	19.8	13.2	25.4	2,023
Kigoma	28.9	18.5	34.4	729
Shinyanga	22.8	15.4	28.8	2,050
Kagera	23.5	13.7	28.5	822
Mwanza	16.1	11.8	22.1	1,266
Mara	21.9	15.3	28.2	830
Manyara	22.4	17.6	29.3	407
Njombe	11.2	6.7	15.0	897
Katavi	20.7	12.4	25.9	2,251
Simiyu	30.6	19.0	36.6	661
Geita	22.2	14.9	27.8	789

Table 16.3.A Discriminatory attitudes toward people living with HIV (continued)

Among persons aged 15 years and older, percentage who report discriminatory attitudes towards people living with HIV, by selected demographic characteristics, THIS 2016-2017

	Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV?	Do you think that children living with HIV should be able to attend school with children who are HIV negative?	Both questions	
	Percentage who responded "No"	Percentage who responded "No"	Percentage who responded "No" to either of the two questions ¹	Number
Region (continued)				
Songwe	14.2	11.9	20.9	1,348
Kaskazini Unguja	29.4	18.1	35.5	275
Kusini Unguja	19.3	22.6	29.8	232
Mjini Magharibi	16.6	13.5	24.2	678
Kaskazini Pemba	45.4	30.7	49.2	213
Kusini Pemba	32.4	22.1	38.7	266
Marital status				
Never married	21.4	15.5	28.3	7,990
Married or living together	18.7	12.9	24.0	18,560
Divorced or separated	18.8	12.7	23.8	2,710
Widowed	25.2	17.0	30.9	1,686
Education				
No education	34.7	24.7	41.7	5,011
Pre-Primary	27.2	18.2	35.3	158
Primary	21.1	13.9	26.7	18,388
Post Primary Training	11.3	6.9	14.2	401
Secondary (O-Level)	10.4	9.1	16.8	5,598
Post-Secondary (O-Level) Training	4.3	4.2	7.9	726
Secondary (A-Level)	7.8	4.7	12.2	208
Post-Secondary (A-Level) Training	1.6	4.7	6.4	132
University	3.7	6.1	9.3	352
Wealth quintile				
Lowest	32.0	23.0	39.2	6,347
Second	24.6	15.7	30.6	6,524
Middle	19.8	13.9	25.8	6,986
Fourth	14.3	9.9	19.5	5,725
Highest	9.8	7.7	14.6	5,399
Age				
15-19	28.0	18.9	35.2	5,391
20-24	17.7	13.8	24.9	4,844
25-29	14.8	11.3	20.2	4,256
30-34	14.7	11.3	20.5	3,524
35-39	14.3	10.5	18.6	3,059
40-44	17.2	10.9	22.4	2,535
45-49	18.0	10.5	21.7	1,900
50-54	20.7	14.1	25.7	1,563
55-59	23.1	15.7	27.8	1,095
60-64	24.5	13.2	28.5	953
65-69	27.4	19.1	33.6	663
70-74	31.6	19.9	38.2	506
75-79	30.0	21.1	35.6	342
≥80	45.8	30.3	52.2	359
Total 15-49	18.7	13.3	24.7	25,509
Total 50+	25.6	16.7	30.7	5,481
Total 15+	19.8	13.9	25.6	30,990

¹Relates to Global AIDS Monitoring indicator 4.1: Discriminatory attitudes towards people living with HIV. ²Includes only participants who answered both questions. The sum of the sample sizes for a given classification may be less than the total sample size because of missing responses to the classification variable

16.4 Gaps and Unmet Needs

- Discriminatory attitudes towards PLHIV are higher among persons aged 50 years and older compared to adults aged 15-49 years (30.7% and 24.7% respectively).
- Discriminatory attitudes were also higher among those who lived in rural areas, had lower level of educational attainment, and were in lower wealth quintiles.

16.5 References

1. United Republic of Tanzania Prime Minister's Office. *National Policy on HIV/AIDS*. Dar es Salaam, Tanzania; 2001
2. United Republic of Tanzania Ministry of Health, Community Development, Gender, Elderly and Children. *Health Sector Strategic Plan IV 2015-2020*. Dar es Salaam, Tanzania: MoHCDGEC; 2015.
3. United Republic of Tanzania Prime Minister's Office, Tanzania Commission for AIDS. *National Guide on the Integration of Stigma and Discrimination Reduction in HIV Programs*. Dar es Salaam, Tanzania: TACAIDS; 2009.

17 TUBERCULOSIS, SYPHILIS, HEPATITIS B, HEPATITIS C, SEXUALLY TRANSMITTED INFECTION SYMPTOMS, AND CERVICAL CANCER

17.1 Key Findings

- **Tuberculosis:** Among self-reported HIV-positive persons aged 15 years and older, 27.7% reported ever visiting a TB clinic, of which 54.2% were diagnosed with TB, and, of these, 98.7% received TB treatment.
- **Syphilis:** The prevalence of having ever been infected and active syphilis infection for adults aged 15 years and older was 5.6% and 0.9 %, respectively. Active syphilis infection was higher among HIV-positive (3.7%) than among HIV-negative (0.8 %) persons.
- **Hepatitis B:** Among adults aged 15 years and older, the prevalence of hepatitis B was 3.5%. The highest prevalence of hepatitis B was among those aged 35-39 years (10.2%).
- **Hepatitis C:** Prevalence of past or current hepatitis C among adults aged 15-64 years was 1.0% overall.
- **STI:** Individuals living with HIV had a higher prevalence of abnormal discharge and ulcers than those not living with HIV.
- **Cervical Cancer:** Among HIV-positive women aged 30-49 years, 17.7% reported having ever been screened for cervical cancer.

17.2 Background

PLHIV are at risk for acquiring other diseases, including TB, hepatitis B, hepatitis C, syphilis, and other STIs. TB is one of the leading causes of death for PLHIV. A UNAIDS model estimates that there were 27,000 TB-related deaths among PLHIV in Tanzania in 2016 (UNAIDS 2016).¹ This chapter describes the TB clinical care cascade for HIV-positive individuals: received care at a TB clinic, TB diagnoses among those receiving care, and treatment among those diagnosed with TB.

HBV infection can cause acute or chronic liver infections. It is transmitted through infected blood products, unprotected sex, infected items such as needles, razor blades, dental or medical equipment, unscreened blood transfusion, or from mother to child at birth. Hepatitis C can also cause acute or chronic liver infections. Left untreated, both chronic hepatitis B and chronic hepatitis C can develop into liver cirrhosis or cancer in some patients. These data are the first national estimates of HBV infection and the prevalence of past or present hepatitis C in Tanzania.

Syphilis in both women and men is associated with serious complications. It remains the leading cause of perinatal mortality and morbidity in many parts of the world despite widely available and affordable technology for diagnosing and treating infection in pregnant women.

Females living with HIV are at greater risk of developing cervical cancer because their weakened immune systems are not able to clear human papillomavirus (HPV) infections. WHO recommends HPV screening and treatment for all sexually-active HIV-positive women.² This survey provides population-based rates of screening not available from routine clinic data, which do not capture females not in care. This chapter presents cervical cancer screening rates by age and socio-demographic characteristics.

17.3 Tuberculosis

Among self-reported HIV-positive persons aged 15 years and older, 27.7% reported ever visiting a TB clinic (29.7% of HIV-positive males compared to 26.9% of HIV-positive females). Among those who ever visited a TB clinic, 54.2% were diagnosed with TB. Among those diagnosed with TB, 100.0% of males and 98.1% of females reported receiving TB treatment (Table 17.3.A).

Table 17.3.A Tuberculosis clinic attendance and services among HIV-positive adults

Among self-reported HIV-positive persons aged 15 years and older, percentage who ever visited a TB clinic; among those who had ever visited a TB clinic, percentage who were diagnosed for TB; and among those diagnosed with TB, percentage who were treated for TB, by sex, THIS 2016-2017

Characteristic	Among HIV-positive persons		Among HIV-positive persons who ever visited a TB clinic		Among HIV-positive persons who were diagnosed with TB	
	Percentage who ever visited a TB clinic	Number	Percentage who were diagnosed with TB	Number	Percentage who were treated for TB	Number
Sex						
Male	29.7	299	55.2	81	(100.0)	45
Female	26.9	803	53.7	197	98.1	95
Total 15+	27.7	1,102	54.2	278	98.7	140

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

17.4 Syphilis

Syphilis is one of the STIs routinely screened among pregnant women attending ANC in Tanzania. An individual from the general population is screened if there are suggestive symptoms at presentation. For THIS, individuals aged 15 years and older were tested to obtain prevalence of syphilis antibodies in the general population as well as active infection. In the general population, among individuals aged 15 years and older tested for syphilis, 5.6% (5.6% males and 5.5% females) were ever infected by syphilis, and, among them, 0.9% (1.0% males and 0.9% females) had active infection (Figure 17.4.A).

Active syphilis infection was higher among HIV-positive (3.7%) than among HIV-negative persons (0.8%). Regional variation of infection was also observed ranging from 3.1% in Dodoma to less than 0.1% in Zanzibar. Syphilis infection in rural areas was almost twice as high as urban areas (1.1% versus 0.6%, respectively) (Table 17.4.A).

Table 17.4.A Syphilis prevalence

Prevalence of syphilis (ever infected and active infection) among persons age 15 years and older, by sex, result of THIS HIV test, and selected demographic characteristics, THIS 2016-2017

Characteristic	Males			Females			Total		
	Percentage ever infected	Percentage active infection	Number	Percentage ever infected	Percentage active infection	Number	Percentage ever infected	Percentage active infection	Number
Result of PHIA survey HIV test									
HIV positive	14.1	3.8	564	12.2	3.7	1267	12.8	3.7	1831
HIV negative	5.3	0.9	13186	5.1	0.7	16561	5.2	0.8	29747
Residence									
Urban	3.6	0.5	4106	4.5	0.7	6033	4.0	0.6	10139
Rural	6.7	1.2	9644	6.2	1.1	11795	6.4	1.1	21439
Tanzania Mainland/Zanzibar									
Mainland	5.7	1.0	13079	5.7	0.9	16847	5.7	1.0	29926
Urban	3.7	0.5	3902	4.5	0.7	5771	4.1	0.6	9673
Rural	6.8	1.3	9177	6.4	1.1	11076	6.6	1.2	20253
Zanzibar	1.0	0.0	671	0.8	0.0	981	0.9	0.0	1652
Unguja	0.7	0.0	488	0.7	0.0	693	0.7	0.0	1181
Pemba	1.7	0.0	183	1.1	0.0	288	1.4	0.0	471
Region									
Dodoma	10.5	4.7	226	7.2	1.5	280	8.8	3.1	506
Arusha	6.5	1.3	175	2.2	0.4	255	4.2	0.8	430
Kilimanjaro	1.5	0.0	241	3.0	0.3	341	2.3	0.1	582
Tanga	3.5	0.3	283	2.9	0.6	367	3.2	0.4	650
Morogoro	6.2	0.4	324	4.5	0.6	491	5.2	0.5	815
Pwani	5.4	0.3	764	4.5	0.2	1071	4.9	0.3	1835
Dar es Salaam	1.5	0.1	724	2.0	0.4	1049	1.8	0.2	1773
Lindi	11.0	0.4	156	5.5	0.0	181	8.4	0.2	337
Mtwara	9.2	1.3	206	10.1	1.3	208	9.6	1.3	414
Ruvuma	6.9	0.8	852	6.7	1.0	1062	6.8	0.9	1914
Iringa	6.4	1.0	550	8.9	1.3	792	7.7	1.1	1342
Mbeya	6.4	1.1	559	7.9	1.9	765	7.2	1.5	1324
Singida	5.9	0.4	139	6.6	1.0	193	6.3	0.7	332
Tabora	6.3	1.4	1454	6.9	1.3	1607	6.6	1.4	3061
Rukwa	4.5	0.8	896	5.0	1.2	1183	4.8	1.0	2079
Kigoma	3.6	1.6	329	3.3	0.0	448	3.4	0.8	777
Shinyanga	6.0	0.5	1003	7.3	1.0	1206	6.6	0.7	2209
Kagera	6.1	1.9	410	7.1	1.6	447	6.6	1.7	857
Mwanza	8.0	1.0	584	9.4	1.3	701	8.7	1.1	1285
Mara	4.8	0.6	353	6.1	0.4	511	5.5	0.5	864
Manyara	2.9	0.0	191	2.6	1.3	226	2.7	0.6	417
Njombe	5.2	1.2	349	9.2	2.3	534	7.5	1.8	883
Katavi	4.8	1.0	1024	5.0	0.6	1302	4.9	0.8	2326
Simiyu	5.8	1.0	303	4.9	0.3	424	5.3	0.6	727
Geita	9.1	1.9	384	11.6	3.1	436	10.3	2.5	820
Songwe	6.1	1.3	600	4.3	0.8	767	5.2	1.0	1367
Kaskazini Unguja	1.2	0.0	106	1.0	0.0	177	1.1	0.0	283
Kusini Unguja	0.5	0.0	108	0.0	0.0	126	0.3	0.0	234
Mjini Magharibi	0.7	0.0	274	0.7	0.0	390	0.7	0.0	664
Kaskazini Pemba	2.8	0.0	77	2.4	0.0	129	2.6	0.0	206
Kusini Pemba	0.7	0.0	106	0.0	0.0	159	0.3	0.0	265
Marital status									
Never married	1.8	0.5	4384	1.2	0.4	3587	1.6	0.4	7971
Married or living together	7.4	1.2	8287	5.9	1.0	10571	6.6	1.1	18858
Divorced or separated	9.5	1.9	820	9.0	1.3	1980	9.2	1.5	2800
Widowed	15.1	3.2	232	10.3	1.6	1660	10.8	1.8	1892

Table 17.4.A Syphilis prevalence (continued)

Prevalence of syphilis (ever infected and active infection) among persons age 15 years and older, by sex, result of THIS HIV test, and selected demographic characteristics, THIS 2016-2017

Characteristic	Males			Females			Total		
	Percentage ever infected	Percentage active infection	Number	Percentage ever infected	Percentage active infection	Number	Percentage ever infected	Percentage active infection	Number
Education									
No education	9.7	2.3	1697	9.4	1.4	4001	9.5	1.7	5698
Pre-Primary	3.5	2.7	80	8.4	1.9	88	6.0	2.3	168
Primary	6.6	1.1	8540	5.8	1.0	10105	6.2	1.0	18645
Post Primary Training	9.3	0.1	211	3.9	0.9	185	7.1	0.4	396
Secondary (O-Level)	1.5	0.3	2508	1.2	0.3	2874	1.4	0.3	5382
Post-Secondary (O-Level) Training	2.1	0.2	322	1.1	0.7	351	1.7	0.4	673
Secondary (A-Level)	2.0	0.0	116	1.9	1.9	68	2.0	0.6	184
Post-Secondary (A-Level) Training	0.0	0.0	79	(0.0)	(0.0)	34	0.0	0.0	113
University	1.9	0.0	190	0.3	0.3	110	1.4	0.1	300
Wealth quintile									
Lowest	7.3	1.4	3100	6.9	1.0	3789	7.1	1.2	6889
Second	7.0	1.6	3124	7.0	1.3	3763	7.0	1.4	6887
Middle	7.0	1.1	3075	6.3	1.0	4004	6.6	1.1	7079
Fourth	4.2	0.6	2347	4.9	0.9	3219	4.6	0.7	5566
Highest	2.2	0.1	2101	2.6	0.4	3048	2.4	0.3	5149
Pregnancy status									
Currently pregnant ¹	NA	NA	NA	3.2	1.1	1307	NA	NA	NA
Not currently pregnant	NA	NA	NA	5.7	0.9	16252	NA	NA	NA
Age									
15-19	1.5	0.5	2533	1.1	0.4	2999	1.3	0.4	5532
20-24	1.3	0.6	1987	2.1	0.6	2845	1.7	0.6	4832
25-29	2.6	0.6	1670	2.9	1.0	2521	2.7	0.8	4191
30-34	3.1	0.5	1453	4.6	1.1	2061	3.9	0.8	3514
35-39	5.5	0.9	1307	7.3	0.8	1749	6.4	0.8	3056
40-44	8.5	1.1	1144	8.5	1.4	1405	8.5	1.2	2549
45-49	12.9	1.3	877	11.9	1.2	1048	12.4	1.3	1925
50-54	16.8	1.7	728	13.2	1.5	872	15.0	1.6	1600
55-59	14.9	2.3	572	11.9	1.3	580	13.3	1.8	1152
60-64	12.4	3.2	459	10.0	1.5	558	11.0	2.3	1017
65-69	13.0	1.3	344	10.8	0.3	395	11.8	0.8	739
70-74	19.6	5.2	254	9.7	0.5	322	13.8	2.5	576
75-79	16.9	5.4	193	11.5	1.7	221	13.9	3.4	414
≥80	15.5	2.0	229	12.9	2.9	252	14.1	2.5	481
Total 15-24	1.4	0.5	4520	1.6	0.5	5844	1.5	0.5	10364
Total 15-49	3.8	0.7	10971	4.2	0.8	14628	4.0	0.8	25599
Total 50+	15.4	2.6	2779	11.6	1.3	3200	13.4	1.9	5979
Total 15+	5.6	1.0	13750	5.5	0.9	17828	5.6	0.9	31578

¹Relates to Global AIDS Monitoring indicator 2.4: Syphilis among pregnant women.

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

17.5 Hepatitis B

Hepatitis B is one of the blood borne diseases routinely screened among individuals donating blood at the blood bank in Tanzania. An individual from the general population is tested if they have suggestive symptoms. As the first survey to test for hepatitis B in a household-based population, THIS tested individual aged 15 years and older to get prevalence of hepatitis B surface antigen (HBsAg) in the general population, indicative of active infection (either acute or chronic). Among adults aged 15 years and older, prevalence of HBV infection for HIV-positive individuals (5.2%) was higher than for HIV-negative individuals (3.4%). There was significant regional variation ranging from 10.7% in Manyara and 7.9% in Mwanza and 0.9% in Katavi. The prevalence of hepatitis B was higher among married or living together individuals (4.6%) than those who were never married (2.1%), divorced or separated (2.7%), and widowed

(1.5%). The highest prevalence of hepatitis B was among those aged 35-39 years (10.2%). Among those aged 35-39 years, males had a higher prevalence of hepatitis B than females (13.5% and 7.1%, respectively). Males with no education had higher prevalence of hepatitis B (9.5%) compared to those with secondary (O-level) education (1.6%) (Table 17.5.A).

Table 17.5.A Hepatitis B prevalence

Prevalence of hepatitis B (positive for hepatitis B surface antigen) among persons aged 15 years and older, by sex, result of THIS HIV test, and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage infected	Number	Percentage infected	Number	Percentage infected	Number
Result of PHIA survey HIV test						
HIV positive	*	18	0.0	50	5.2	68
HIV negative	3.4	538	3.5	704	3.4	1,242
Not tested	*	0	*	0	*	0
Tanzania Mainland/Zanzibar						
Mainland	4.2	152	4.1	245	4.2	397
Urban	3.6	404	2.8	509	3.2	913
Rural	*	0	*	0	*	0
Zanzibar	*	0	*	0	*	0
Unguja	3.9	533	3.4	714	3.6	1,247
Pemba	4.4	142	4.2	236	4.3	378
Residence						
Urban	*	20	(0.0)	27	(0.0)	47
Rural	*	3	*	13	*	16
Region						
Dodoma	*	8	*	14	*	22
Arusha	*	9	*	10	*	19
Kilimanjaro	*	11	*	11	*	22
Tanga	*	15	*	17	(2.8)	32
Morogoro	*	13	*	22	(2.2)	35
Pwani	(2.2)	35	(0.0)	45	1.1	80
Dar es Salaam	(0.0)	27	(2.0)	42	1.0	69
Lindi	*	6	*	13	*	19
Mtwara	*	10	*	9	*	19
Ruvuma	(3.9)	43	(11.8)	49	7.7	92
Iringa	(2.1)	27	(0.0)	31	1.1	58
Mbeya	*	18	(0.0)	34	5.5	52
Singida	*	10	*	13	*	23
Tabora	(0.0)	49	3.1	65	1.6	114
Rukwa	*	22	(2.5)	47	1.5	69
Kigoma	*	11	*	17	(5.3)	28
Shinyanga	(3.4)	38	1.5	58	2.4	96
Kagera	*	17	(0.0)	25	(0.0)	42
Mwanza	*	22	*	23	(7.9)	45
Mara	*	17	*	21	(6.0)	38
Manyara	*	9	*	16	(10.7)	25
Njombe	*	15	*	21	(2.4)	36
Katavi	(0.0)	36	1.5	53	0.9	89
Simiyu	*	17	*	17	(2.6)	34
Geita	*	15	*	12	(0.0)	27
Songwe	(2.9)	33	(0.0)	29	1.7	62
Kaskazini Unguja	*	3	*	7	*	10
Kusini Unguja	*	3	*	3	*	6
Mjini Magharibi	*	14	*	17	(0.0)	31
Kaskazini Pemba	*	2	*	10	*	12
Kusini Pemba	*	1	*	3	*	4

Table 17.5.A Hepatitis B prevalence (continued)

Prevalence of hepatitis B (positive for hepatitis B surface antigen) among persons aged 15 years and older, by sex, result of THIS HIV test, and selected demographic characteristics, THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage infected	Number	Percentage infected	Number	Percentage infected	Number
Marital status						
Never married	1.8	185	2.7	142	2.1	327
Married or living together	5.5	326	3.8	447	4.6	773
Divorced or separated	(1.0)	37	3.5	90	2.7	127
Widowed	*	7	1.6	74	1.5	81
Education						
No education	9.5	62	3.4	176	5.0	238
Pre-Primary	*	6	*	4	*	10
Primary	4.2	361	3.0	432	3.6	793
Post Primary Training	*	9	*	3	*	12
Secondary (O-Level)	1.6	85	3.6	116	2.5	201
Post-Secondary (O-Level) Training	*	13	*	12	(5.9)	25
Secondary (A-Level)	*	5	*	4	*	9
Post-Secondary (A-Level) Training	*	7	*	0	*	7
University	*	8	*	6	*	14
Wealth quintile						
Lowest	3.8	137	3.1	168	3.4	305
Second	2.2	110	1.9	159	2.0	269
Middle	7.0	128	2.8	176	4.9	304
Fourth	0.0	103	3.0	131	1.5	234
Highest	5.0	78	5.9	120	5.5	198
Age						
15-19	2.3	112	1.1	127	1.7	239
20-24	0.7	67	7.9	110	4.3	177
25-29	6.4	61	5.3	110	5.8	171
30-34	1.4	66	1.3	86	1.3	152
35-39	(13.5)	45	7.1	71	10.2	116
40-44	6.1	56	0.0	65	3.0	121
45-49	(4.6)	30	(1.2)	46	2.7	76
50-54	(3.5)	29	(1.4)	38	2.5	67
55-59	(0.0)	26	*	20	(0.0)	46
60-64	(0.0)	25	*	20	(0.0)	45
65-69	*	19	(0.0)	25	(0.0)	44
70-74	*	10	*	18	(4.9)	28
75-79	*	4	*	8	*	12
≥80	*	6	*	10	*	16
Total 15-49	4.3	437	3.7	615	4.0	1,052
Total 50+	1.1	119	1.2	139	1.2	258
Total 15+	3.8	556	3.3	754	3.5	1,310

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

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

17.6 Self-Reported Symptoms and Diagnosis of Sexually Transmitted Infection

Among males aged 15 years and older, 5.3% reported having had abnormal discharge from the penis and 7.4% having had an ulcer or sore on or near the penis in the 12 months preceding the survey. Among HIV-positive males aged 15 years and older, 8.3% reported having had abnormal discharge from the penis and 14.3% having had an ulcer, while among HIV-negative males, 5.4% reported having had abnormal discharge from the penis and 7.5% reported having had an ulcer (Table 17.6.A).

Abnormal penile discharge was reported with the highest frequency among males aged 20-24 years and aged 25-29 years (6.3%) and with the lowest frequency among those aged 80 years and older (1.6%).

Ulcerative symptoms were reported with the highest frequency among males aged 15-24 years (8.9%) (Table 17.6.A).

Among females aged 15 and older, 12.0% reported having had abnormal vaginal discharge and 7.5% having had an ulcer or sore on or near the vagina in the 12 months preceding the survey. Among HIV-positive females aged 15 and older, 17.1% reported having had abnormal vaginal discharge and 16.1% having had an ulcer, while among HIV-negative females, 12.0% reported having had abnormal vaginal discharge and 7.1% reported having had an ulcer in the 12 months preceding the survey (Table 17.6.B).

Abnormal vaginal discharge was reported with the highest frequency among females aged 45-49 years (15.2%) and with the lowest frequency among those 80 years and older (0.9%). Ulcerative symptoms were reported with the highest frequency among females aged 20-24 years (9.0%) and with the lowest frequency among those 80 years and older (0.6%) (Table 17.6.B).

Although a higher percentage of females than males reported having had abnormal genital discharge (12.0% versus 5.3%, respectively), similar percentages of females and males reported having had genital ulcers (7.5% and 7.4%, respectively) (Tables 17.6.A and 17.6.B).

Table 17.6.A Other sexually transmitted infections: Males

Among males aged 15 years and older, percentage who self-reported symptoms of a sexually transmitted infection in the 12 months preceding the survey; by HIV status and selected demographic characteristics, THIS 2016-2017

Characteristic	Self-reported symptoms in the past 12 months		Number
	Percentage who had abnormal discharge from the penis ¹	Percentage who had an ulcer or sore on or near the penis	
Result of PHIA survey HIV test			
HIV positive	8.3	14.3	544
HIV negative	5.4	7.5	11,261
Not tested	1.8	2.1	580
Residence			
Urban	4.1	6.4	3,784
Rural	6.0	8.0	8,601
Tanzania Mainland/Zanzibar			
Mainland	5.4	7.5	11,887
Urban	4.1	6.4	3,642
Rural	6.1	8.1	8,245
Zanzibar	3.0	3.5	498
Unguja	2.8	3.7	358
Pemba	3.7	2.9	140
Region			
Dodoma	9.8	10.4	218
Arusha	3.0	4.6	178
Kilimanjaro	2.9	2.8	239
Tanga	4.0	4.7	248
Morogoro	5.7	8.5	298
Pwani	4.0	7.2	708
Dar es Salaam	2.9	4.4	714
Lindi	5.5	4.8	139
Mtwara	5.5	7.9	196
Ruvuma	5.9	8.7	821
Iringa	5.1	8.5	485
Mbeya	6.1	7.6	509
Singida	9.5	13.4	130
Tabora	5.1	8.5	1,348
Rukwa	4.7	8.8	822
Kigoma	2.9	5.8	263

Table 17.6.A Other sexually transmitted infections: Males (continued)

Among males aged 15 years and older, percentage who self-reported symptoms of a sexually transmitted infection in the 12 months preceding the survey; by HIV status and selected demographic characteristics, THIS 2016-2017

Characteristic	Self-reported symptoms in the past 12 months			Number
	Percentage who had abnormal discharge from the penis ¹	Percentage who had an ulcer or sore on or near the penis		
Shinyanga	5.6	7.2		879
Kagera	5.1	8.5		351
Mwanza	8.0	8.6		518
Mara	5.7	7.5		283
Manyara	8.2	9.8		174
Njombe	4.9	6.3		323
Katavi	4.1	9.2		916
Simiyu	3.5	8.8		249
Geita	6.9	8.2		335
Songwe	5.3	9.4		543
Kaskazini Unguja	3.9	5.8		72
Kusini Unguja	4.4	3.0		78
Mjini Magharibi	2.3	3.6		208
Kaskazini Pemba	2.9	2.9		62
Kusini Pemba	4.3	2.9		78
Marital status				
Never married	5.5	8.0		2,827
Married or living together	5.0	7.1		8,484
Divorced or separated	8.0	9.2		837
Widowed	4.4	4.3		228
Education				
No education	5.3	6.1		1,574
Pre-Primary	6.7	7.8		69
Primary	5.6	8.0		7,907
Post Primary Training	5.8	4.1		188
Secondary (O-Level)	4.7	8.1		1,906
Post-Secondary (O-Level) Training	5.3	3.2		323
Secondary (A-Level)	3.8	2.1		99
Post-Secondary (A-Level) Training	2.4	1.5		94
University	3.7	5.6		218
Wealth quintile				
Lowest	6.3	7.9		2,782
Second	5.7	8.0		2,795
Middle	5.6	8.7		2,711
Fourth	5.0	6.9		2,151
Highest	3.9	5.5		1,943
Age				
15-19	5.5	8.9		1,139
20-24	6.3	8.9		1,843
25-29	6.3	7.9		1,700
30-34	5.8	8.8		1,486
35-39	4.9	6.8		1,330
40-44	5.2	8.1		1,182
45-49	3.9	6.6		893
50-54	4.7	6.0		743
55-59	3.6	5.3		584
60-64	3.9	4.5		471
65-69	5.1	2.3		346
70-74	3.1	3.1		255
75-79	5.3	0.9		190
≥80	1.6	0.3		223
Total 15-49	5.6	8.1		9,573
Total 50+	4.1	4.2		2,812
Total 15+	5.3	7.4		12,385

¹Relates to Global AIDS Monitoring indicator 10.4: Men with urethral discharge.

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

Table 17.6.B Other sexually transmitted infections: Females

Among females aged 15 years and older, percentage who self-reported symptoms of a sexually transmitted infection in the 12 months preceding the survey; by HIV status and selected demographic characteristics, THIS 2016-2017

Characteristic	Self-reported symptoms in the past 12 months		
	Percentage who had abnormal discharge from the vagina	Percentage who had an ulcer or sore on or near the vagina	Number
Result of PHIA survey HIV test			
HIV positive	17.1	16.1	1,236
HIV negative	12.0	7.1	14,644
Not tested	5.2	1.8	651
Residence			
Urban	13.0	7.6	5,611
Rural	11.4	7.4	10,920
Tanzania Mainland/Zanzibar			
Mainland	12.2	7.6	15,737
Urban	13.2	7.7	5,403
Rural	11.5	7.5	10,334
Zanzibar	5.5	3.6	794
Unguja	6.4	4.2	558
Pemba	2.9	2.0	236
Region			
Dodoma	10.7	7.3	279
Arusha	14.1	4.6	245
Kilimanjaro	8.8	4.4	322
Tanga	8.1	6.3	326
Morogoro	8.7	6.7	465
Pwani	8.8	5.0	1,022
Dar es Salaam	13.8	7.7	978
Lindi	4.2	4.3	169
Mtwara	9.2	4.5	204
Ruvuma	10.0	8.1	1,039
Iringa	11.0	6.6	727
Mbeya	11.8	10.5	735
Singida	12.6	12.3	204
Tabora	12.3	7.4	1,511
Rukwa	10.8	8.2	1,079
Kigoma	15.5	10.3	392
Shinyanga	11.3	6.6	1,095
Kagera	20.1	8.9	399
Mwanza	14.3	8.6	649
Mara	13.3	8.4	468
Manyara	13.1	3.5	203
Njombe	9.6	5.6	516
Katavi	14.3	10.6	1,222
Simiyu	10.5	6.5	371
Geita	18.7	14.5	398
Songwe	11.7	7.8	719
Kaskazini Unguja	9.1	2.7	142
Kusini Unguja	2.6	3.0	109
Mjini Magharibi	6.6	4.7	307
Kaskazini Pemba	0.0	1.0	112
Kusini Pemba	5.6	3.0	124
Marital status			
Never married	12.6	8.1	2,009
Married or living together	12.3	7.6	10,821
Divorced or separated	14.0	8.6	2,024
Widowed	6.8	4.5	1,664
No education	8.6	5.9	3,896
Pre-Primary	9.3	6.7	81
Primary	13.0	8.0	9,678
Post Primary Training	9.0	6.2	152

Table 17.6.B Other sexually transmitted infections: Females (continued)

Among females aged 15 years and older, percentage who self-reported symptoms of a sexually transmitted infection in the 12 months preceding the survey; by HIV status and selected demographic characteristics, THIS 2016-2017

Characteristic	Self-reported symptoms in the past 12 months		
	Percentage who had abnormal discharge from the vagina	Percentage who had an ulcer or sore on or near the vagina	Number
Secondary (O-Level)	13.0	8.4	2,174
Post-Secondary (O-Level) Training	13.3	5.4	341
Secondary (A-Level)	9.2	6.1	55
Post-Secondary (A-Level) Training	(10.4)	(7.1)	34
University	14.9	3.1	110
Wealth quintile			
Lowest	11.3	7.4	3,577
Second	10.6	7.3	3,490
Middle	11.9	7.9	3,686
Fourth	12.8	7.1	3,024
Highest	13.4	7.9	2,749
Age			
15-19	10.7	8.9	1,602
20-24	13.5	9.0	2,744
25-29	14.0	8.3	2,578
30-34	13.9	7.7	2,120
35-39	14.3	8.0	1,789
40-44	13.6	8.0	1,442
45-49	15.2	5.6	1,070
50-54	7.7	6.9	884
55-59	7.2	7.4	589
60-64	3.6	2.6	553
65-69	2.7	3.2	395
70-74	5.1	3.6	321
75-79	4.0	1.1	207
≥80	0.9	0.6	237
Total 15-49	13.5	8.1	13,345
Total 50+	5.4	4.7	3,186
Total 15+	12.0	7.5	16,531

Weighted figures calculated using intwt0.

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

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

17.7 Cervical Cancer Screening Among HIV-Positive Women

Among HIV-positive women aged 30-49 years, 17.7% reported having ever been screened for cervical cancer. A slightly higher percentage of women in urban areas (20.5%) than in rural areas (15.1%) reported having ever been screened for cervical cancer. The highest proportions of women who reported having ever been screened for cervical cancer were found in Iringa (27.3%), whereas the lowest proportions were found in Songwe (5.1%). Screening for cervical cancer also differed by women's education and wealth quintile. Among women with O level secondary education, 28.4% had ever been screened for cervical cancer, compared to 15.2% of women with no education. Among women in the highest wealth quintile, 23.3% had ever been screened compared to only 11.7% of women in the lowest wealth quintile (Table 17.7.A).

Table 17.7.A Cervical cancer screening among women living with HIV¹

Among HIV-positive women aged 30-49 years, percentage who report being screened for cervical cancer, by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who report ever having had a screening test for cervical cancer	Number
Residence		
Urban	20.5	336
Rural	15.1	403
Tanzania Mainland/Zanzibar		
Mainland	17.8	734
Urban	20.5	334
Rural	15.1	400
Zanzibar	*	5
Unguja	*	4
Pemba	*	1
Region		
Dodoma	*	10
Arusha	*	2
Kilimanjaro	*	7
Tanga	*	16
Morogoro	*	18
Pwani	24.6	56
Dar es Salaam	(14.9)	49
Lindi	*	1
Mtwara	*	5
Ruvuma	(13.1)	38
Iringa	27.3	66
Mbeya	8.8	58
Singida	*	6
Tabora	8.3	60
Rukwa	(11.7)	34
Kigoma	*	7
Shinyanga	(11.0)	45
Kagera	*	16
Mwanza	(21.5)	42
Mara	*	13
Manyara	*	3
Njombe	23.4	50
Katavi	8.8	68
Simiyu	*	9
Geita	*	18
Songwe	(5.1)	37
Kaskazini Unguja	*	1
Kusini Unguja	*	0
Mjini Magharibi	*	3
Kaskazini Pemba	*	0
Kusini Pemba	*	1

Table 17.7.A Cervical cancer screening among women living with HIV¹ (continued)

Among HIV-positive women aged 30-49 years, percentage who report being screened for cervical cancer, by selected demographic characteristics, THIS 2016-2017

Characteristic	Percentage who report ever having had a screening test for cervical cancer	Number
Marital status		
Never married	16.6	57
Married or living together	16.9	379
Divorced or separated	16.9	160
Widowed	21.3	142
Education		
No education	15.2	134
Pre-Primary	*	5
Primary	17.1	540
Post Primary Training	*	6
Secondary (O-Level)	(28.4)	47
Post-Secondary (O-Level) Training	*	7
Secondary (A-Level)	*	0
Post-Secondary (A-Level) Training	*	0
University	*	0
Wealth quintile		
Lowest	11.7	109
Second	18.4	127
Middle	19.7	197
Fourth	14.7	194
Highest	23.3	112
Age		
30-34	12.9	207
35-39	20.1	224
40-44	17.6	175
45-49	21.0	133
Total 30-49	17.7	739

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

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

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

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

17.8 Hepatitis C

Among adults aged 15-64 years, anti-HCV positivity prevalence, indicative of past or current hepatitis C virus infection, was 1.0% overall, and slightly higher among females (1.2%) than males (0.8%). HIV positivity in combination with anti-HCV positivity was low, with 0.0% of HIV-positive males aged 15-64 years testing positive for anti-HCV and 0.7% of HIV-positive females testing positive for anti-HCV. Among the HIV-negative population aged 15-64 years, 0.8% of men and 1.3% of women tested positive for anti-HCV (Table 17.8.A)

Table 17.8.A Prevalence of past or present hepatitis C

Prevalence of past or present hepatitis C (positive for hepatitis C virus antibody) among persons aged 15-64 years, by sex, HIV status, and age THIS 2016-2017

Characteristic	Males		Females		Total	
	Percentage infected	Number	Percentage infected	Number	Percentage infected	Number
HIV Positive						
15-49	(0.0)	48	0.0	133	0.0	181
15-64	0.0	68	0.7	159	0.5	227
HIV Negative						
15-49	0.8	1,749	1.3	2,272	1.1	4,021
15-64	0.8	2,033	1.3	2,614	1.0	4,647
Total						
15-49	0.8	1,797	1.2	2,405	1.0	4,202
15-64	0.8	2,101	1.2	2,773	1.0	4,874

Weighted figures calculated using hepCwt.

17.9 Gaps and Unmet Needs

- Less than one third (27.7%) of PLHIV have visited a TB clinic.
- Percentage of people with active syphilis infection was four times higher among PLHIV (3.7%) as compared to those who were HIV negative (0.8%)
- Among those aged 35-39 years, males had a higher prevalence of HBV than females (13.5% and 7.1%, respectively). Males with no education had higher prevalence of HBV (9.5%) compared to those with secondary (O-level) education (1.6%).
- Among females aged 30-49 years, relatively few had cervical cancer screening (17.7%).

17.10 References

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

CONCLUSION

HIV continues to cause a significant burden of disease in Tanzania with a prevalence of 4.9% among adults aged 15 years and older corresponding to 1.4 million PLHIV. Overall, ARVs were detected in 54.6% of HIV-positive adults aged 15 years and older. Only half (51.9%) of all PLHIV aged 15 years and older in Tanzania had VLS.

There is considerable progress toward achievement of the 2nd and 3rd 90's of the UNAIDS 90-90-90 targets in adults (based on self-reported and/or detectable ARV data), with 93.6% of those diagnosed receiving ART, and 87.0% of those on ART with VLS. However, diagnosis is a persistent challenge, with 60.6% of PLHIV (ages 15 years and older) having awareness of their HIV-positive status. Therefore, identifying those infected with HIV, but unaware of their status, and linking them to care is critical. The achievement of these targets is essential, not only to prevent HIV-related illness and AIDS-related deaths, but also to prevent transmission and the occurrence of new HIV infections.

HIV incidence measured in THIS was 0.24% [95% CI: 0.15%-0.33%] in adults aged 15 years and older, corresponding to approximately 72,000 new cases of HIV infection among adults aged 15 years and older in the country every year. The THIS estimates of national HIV incidence were comparable with previous UNAIDS modeled estimates for the year 2016-17 which provided estimate of 55,000 new cases of HIV infection.¹ Increasing coverage of diagnosis, while sustaining high levels of treatment and VLS is key to reducing HIV incidence. By quantifying national population-level HIV incidence and VLS for the first time in Tanzania, THIS has contributed to the understanding of the epidemic.

The considerable variation in prevalence of HIV infection and VLS across regions and population groups highlights the need to focus interventions, and to rigorously evaluate and map their availability, accessibility, quality, and effectiveness in specific geographical areas and demographic groups. Iringa (11.3%) and Njombe (11.4%) have the highest prevalence of HIV. Only 56.6% (Iringa) and 60.5% (Njombe) of PLHIV aged 15 years or older in these two regions had VLS. HIV prevalence in urban areas was 6.0% among adults aged 15 years or older. Only 56 % of PLHIV aged 15 years and older in urban areas had VLS.

There are disparities by sex in prevalence of HIV infection, as well as coverage of care. The prevalence of HIV infection in the adult population aged 15 years and older is approximately two times higher among females (6.3%) than among males (3.4%). Overall prevalence of VLS is low among PLHIV aged 15 years and older (51.9%). The prevalence of VLS is higher among HIV-positive women (57.2%) aged 15 years and older as compared to HIV-positive men aged 15 years and older (41.5%). These higher rates of VLS among women are consistent with the higher coverage of key interventions such as HIV testing and ART use among women as evidenced by a higher proportion of HIV-positive women aged 15 years and older that were aware of their status and on ART (51.4%) as compared to HIV-positive men aged 15 years and older (38.8%).

The high HIV prevalence among adults aged 40-60 years suggests a need to focus on healthy aging among older PLHIV, including a focus on prevention and treatment of non-communicable diseases.

Among adults aged 15 years and older, previously diagnosed with HIV but not on ART, the median CD4 count was 420 cells/ μ L and 61.1% were immunosuppressed (CD4 count less than 500 cells/ μ L). This finding points to a gap in treatment initiation following diagnosis. Among those adults infected with HIV, but not previously diagnosed, 68.7% were immunosuppressed, and severe immunosuppression with CD4 counts of less than 200 cells/ μ L was observed in 19.8% (21.6% among males and 18.5% among females). These findings provide further support to the appropriateness of the “Test and Treat” policy introduced in Tanzania in 2016.

Current status of the 90-90-90 goals in Tanzania is at 61-94-87 among HIV-positive adults aged 15 years and older, based on self-report and ARV detection data which highlights the need to strengthen programmatic interventions to improve awareness of HIV-positive status. While 70.8% of adult females aged 15 years and older have ever tested for HIV and received their results, only 59.2% of adult males aged 15 years and older have ever tested for HIV. Among adult females aged 15 years and older who are infected with HIV, 64.9% had been diagnosed compared to only 52.2% of their male counterparts. Improving coverage of diagnosis and linkage to care is particularly important among people aged 15-34 years. Only 50.2% of PLHIV aged 15-24 years, and 50.9% of those aged 25-34 years, currently know that they are infected with HIV. Awareness is particularly low among males compared to females.

HIV prevalence among children aged 0-14 years is 0.4%. Only 18.4% of CLHIV have VLS, regardless of awareness of HIV-positive status or ART use, indicating a slow progress toward the achievement of the UNAIDS 90-90-90 targets in this population. Only half (50.1%*) of CLHIV in Tanzania were diagnosed. These results suggest a need to improve diagnosis, linkage to treatment, ART adherence, treatment monitoring, and the availability of optimal ART regimens for the pediatric population.

Among females aged 15-49 years who gave birth within the year preceding the survey, 92.4% knew their HIV status, and among those who were aware of their HIV-positive status, 97.9% self-reported to have received ARVs, which indicates high coverage of ART provision for PMTCT.

In spite of high coverage of key interventions to reduce vertical transmission of HIV, prevalence of HIV infection among infants born to HIV-positive women aged 15-49 years during the 17 months preceding the survey, was high. Among these infants, 6.1%* of those aged 0-11 months and 10.5%* of those aged 0-17 months were identified as infected with HIV based on virological testing conducted during the survey.

Condom use with nonmarital, noncohabitating partners remains low. Approximately one-third (31.7%) of adults aged 15 years and older who reported having sex in the 12 months preceding the survey with a nonmarital, noncohabitating partner used a condom at last sexual intercourse. Risk factors for HIV continue to impact females greater than males. Regardless of the number of sexual partners in the last 12 months, females had a higher HIV prevalence than males, in particular, women who had two or more sexual partners in the last 12 months had an HIV prevalence nearly three times as high (12.0%) compared to men (4.2%).

Although coverage of ART is high among adults who have been diagnosed with HIV, there are deficits in other areas of HIV care. Among HIV-positive women aged 30-49 years, only 17.7% reported that they had ever been screened for cervical cancer: 15.1% in rural areas and 20.5% in the urban areas.

In addition to the prevalence of HIV infection among individuals in a population household-level burden of HIV was estimated in THIS. Having one or more HIV-positive members per household has the potential

to impact, not only the health-status, but also the psycho-social and economic well-being of other household members. In THIS, it was estimated that 11.8% of the urban and 8.7% of the rural households in Tanzania had at least one HIV-positive member and that 7.1% of the households had an HIV-positive head of household.

About one in nine persons (11.7%) aged 15-24 years reported having sexual intercourse before the age of 15 years. Sexual debut before the age of 15 years was especially high among those with no education. Reproductive health and HIV-prevention programs should focus on delaying the age of sexual debut, with a special effort to adapt strategies for sections of the population with low education levels.

Half (52.6%) of men aged 15-49 years reported being medically circumcised; 42.5% and 49.3% of men who tested HIV positive and HIV negative, respectively, reported being medically circumcised.

There is a variation of HBV infection prevalence across age groups, with the highest prevalence in those aged 35-39 years (10.2%). Prevalence of past or current hepatitis C among adults aged 15-64 years is 1.0% overall.

Among persons aged 15 years or older, prevalence of syphilis was higher among HIV-positive (3.7%) than among HIV-negative persons (0.8%).

Approximately one-fourth (27.7%) of PLHIV aged 15 years or older had ever visited a TB clinic, approximately half (54.2%) of whom were diagnosed with TB. Of those diagnosed with TB, nearly all (98.7%) were treated.

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

References

1. Joint United Nations Programme on HIV/AIDS. UNAIDS Data 2017.
http://www.unaids.org/sites/default/files/media_asset/2017_data-book_en.pdf

APPENDIX A SAMPLE DESIGN AND IMPLEMENTATION

Appendix A provides a high-level overview of sampling and weighting procedures for THIS. In-depth details are provided in the Tanzania HIV Impact Survey (THIS) 2016-2017 Technical Report, which may be found online at [<https://phia-data.icap.columbia.edu>]

A.1 Sample Design

Overview

The sample design for THIS was a stratified, multistage, probability sample design, with strata defined by the 31 regions of the country, first-stage sampling units defined by enumeration areas (EAs) within strata, second-stage sampling units defined by households within EAs, and finally eligible persons within households. Within each region, the first-stage sampling units (also referred to as primary sampling units or PSUs) were selected with probabilities proportionate to the number of households in the PSU based on the 2012 Population and Housing Census. The allocation of the sample PSUs to the 31 regions was made in a manner designed to achieve specified precision levels for (1) a national estimate of the HIV incidence rate and (2) regional estimates of viral load suppression (VLS).

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

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

Population of Inference

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

Precision Specifications and Assumptions

The following specifications were used to develop the sample design for THIS.

- The relative standard error of the national estimate of annual HIV incidence among persons aged 15-49 years should be 40% or less.
- For the 10 high-prevalence regions (i.e., regions with HIV prevalence of 5% or higher), 95% confidence bounds should be ± 0.10 or less for estimates of VLS among all HIV-positive adults aged 15-49 years.
- For the five Zanzibar regions, 10 PSUs were selected for the Urban West region, and four PSUs were selected for each of the remaining regions.

- A total overall sample size (including adults aged 15-49 years, adults aged 50 years or older, and children aged 0-14 years) should yield approximately 40,000 analyzable blood draws.

The following assumptions were used to develop the sample design for THIS 2016-2017.

- An overall HIV prevalence rate of 0.051 (5.1%) for adults aged 15-49 years that varies by region (Table A.1.A).¹
- An annual national HIV incidence rate for adults aged 15-49 years of $P_a = 0.0037$ (0.37%).²
- A mean duration of recent infection (MDRI) of 130 days, yielding an annualization rate of $365/130 = 2.8077$. Hence, the estimated incidence rate for MDRI = 130 days is $P_m = 0.0037/2.8077 = 0.0013$ (0.13%).
- VLS among HIV-positive adults aged 15-49 years in each region of $P_{vh} = 0.50$ (50%). This is a conservative assumption because it will overstate the actual variance of VLS.
- An average of 30 occupied sampled households per sampled cluster (PSU).
- An intra-cluster correlation of 0.05 for HIV prevalence and VLS. The intra-cluster correlation provides an average measure of the homogeneity of responses within the first-stage sampling units.
- An occupancy rate of 97.4% for sampled dwellings. Note that this is not included in the calculation of the overall survey response rate, but it does determine the initial numbers of dwelling units to be sampled.³
- An overall household response rate of 98.2% among occupied households.⁴
- The average number of persons aged 15-49 years per household is 2.07.⁵
- The percentage of persons in households who are 0-14 years of age is 43.9%.⁶
- The percentage of persons in households who are 50 years of age or above is 10.0%.⁷
- Among eligible individuals aged 15 years or older in households completing the household roster, a biomarker response rate of 80.0%.⁸
- Among the eligible children aged 0-14 years in households designated for child data collection, a biomarker response rate of 75.0%. This value is the corresponding biomarker response rate for adults minus 5%.

¹ National Bureau of Statistics. Tanzania HIV/AIDS and Malaria Indicator Survey (THMIS) 2011-2012. Dar es Salaam. National Bureau of Statistics; 2012.

² UNAIDS. 2012 UNAIDS estimate. UNAIDS. Geneva; 2012.

³ Tanzania Commission for AIDS (TACAIDS), Zanzibar AIDS Commission (ZAC), National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS), and ICF International 2013. Tanzania HIV/AIDS and Malaria Indicator Survey 2011-12. Dar es Salaam, Tanzania: TACAIDS, ZAC, NBS, OCGS, and ICF International.

⁴ Tanzania Commission for AIDS (TACAIDS), Zanzibar AIDS Commission (ZAC), National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS), and ICF International 2013. Tanzania HIV/AIDS and Malaria Indicator Survey 2011-12. Dar es Salaam, Tanzania: TACAIDS, ZAC, NBS, OCGS, and ICF International.

⁵ National Bureau of Statistics. 2012 Population and Housing Census. Dar es Salaam. National Bureau of Statistics; 2012.

⁶ National Bureau of Statistics. 2012 Population and Housing Census. Dar es Salaam. National Bureau of Statistics; 2012.

⁷ National Bureau of Statistics. 2012 Population and Housing Census. Dar es Salaam. National Bureau of Statistics; 2012.

⁸ Conservative assumption derived from the 2011-12 THMIS.

Selection of the Primary Sampling Units

The PSUs for THIS are defined to be the EAs created for the 2012 Tanzania Population and Housing Census. The sampling frame consisted of approximately 106,000 EAs containing an estimated 9.2 million households and 44.9 million persons.

A stratified sample of 526 EAs was selected from the sampling frame in accordance with the sample allocation given in Table A.1.A. The 31 strata specified for sampling were the 31 regions of Tanzania, including the five regions in Zanzibar. The EA samples were selected systematically and with probabilities proportionate to a measure of size (MOS) equal to the number of households in the EA based on the 2012 Population and Housing Census. Prior to selection, the EAs were sorted by type of EA (i.e., urban/rural status), district within type of EA, ward within district, village within ward, and finally by EA within village. The sorting of the EAs prior to sample selection induces an implicit geographic stratification. To select the sample from a particular stratum, the cumulative MOS was determined for each EA in the ordered list of EAs, and the sample selections were designated using a sampling interval equal to the total MOS of the EAs in the stratum divided by the number of EAs to be selected and a random starting point. The resulting sample has the property that the probability of selecting an EA within a particular stratum is proportional to the MOS of the EA in the stratum.

Details regarding EA substitution and segmentation may be found in the Tanzania HIV Impact Survey (THIS) 2016-2017 Technical Report [<https://phia-data.icap.columbia.edu>]

Selection of Households

For both sampling and analysis purposes, a household is defined to be 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 is referred to as the dwelling unit, which may contain more than one household meeting the above definition. Households are eligible for participation in the study if they are located within the sampled EA.

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

A description of the household listing process as well as a summary of household eligibility may be found in the Tanzania HIV Impact Survey (THIS) 2016-2017 Technical Report [<https://phia-data.icap.columbia.edu>].

Selection of households utilized an equal probability design. In order to achieve equal probability samples of households within each of the 31 regions of Tanzania, including the five regions in Zanzibar, the sampling rates required to select dwelling units/households within an EA will depend on the difference between the MOS used in sampling and the actual number of dwelling units/households found at the time of listing. Thus, application of these within-EA sampling rates can yield more or less than the desired 30 households in EAs where the sampling MOS differs from the actual listing count. The Tanzania HIV Impact Survey (THIS) 2016-2017 Technical Report [<https://phia-data.icap.columbia.edu>] provides an in-depth description of the equal probability sample design, as well as a detailed summary of the results of the household selection.

Selection of Individuals

The selection of individuals for THIS 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 are eligible for data collection; and (3) selecting for the study those individuals meeting the age and residency requirements of the study. However, only those individuals who slept in the household the night before the household interview (i.e., the *de facto* population) were retained for subsequent weighting and analysis.

The Tanzania HIV Impact Survey (THIS) 2016-2017 Technical Report [<https://phia-data.icap.columbia.edu>] provides a brief description of the process for listing and selecting individuals for participation in THIS, and also presents detailed summaries of the distributions of eligible individuals and participants in individual interviews and HIV testing by strata and age.

Table A.1.A. Allocation of sample clusters (EAs) and dwelling units and projected sample sizes (number of respondents) by stratum

Region code	Stratum (Region)	Estimated HIV prevalence ¹	Sample clusters (EAs)	Target dwelling units sampled	Expected households ²	Projected number of respondents ³		
						15-49 years	50+ years	0-14 years ⁴
1	Dodoma	0.0284	11	339	330	537	127	520
2	Arusha	0.0318	9	277	270	439	104	426
3	Kilimanjaro	0.0379	10	308	300	488	115	473
4	Tanga	0.0237	10	308	300	488	115	473
5	Morogoro	0.0375	14	431	420	683	161	662
6	Pwani	0.0587	37	1,139	1,110	1,806	426	1,751
7	Dar es Salaam	0.0683	31	985	960	1,562	368	1,514
8	Lindi	0.0290	6	185	180	293	69	284
9	Mtwara	0.0409	8	246	240	391	92	379
10	Ruvuma	0.0693	32	985	960	1,562	368	1,514
11	Iringa	0.0905	25	770	750	1,220	288	1,183
12	Mbeya ⁵	0.0893	26	801	780	1,269	299	1,230
13	Singida	0.0323	7	216	210	342	81	331
14	Tabora	0.0510	41	1,262	1,230	2,001	472	1,940
15	Rukwa	0.0616	35	1,078	1,050	1,709	403	1,656
16	Kigoma	0.0340	11	339	330	537	127	520
17	Shinyanga	0.0732	30	924	900	1,464	345	1,419
18	Kagera	0.0476	16	493	480	781	184	757
19	Mwanza	0.0418	19	585	570	927	219	899
20	Mara	0.0441	12	370	360	586	138	568
21	Manyara	0.0148	7	216	210	342	81	331
22	Njombe	0.1467	18	554	540	879	207	852
23	Katavi	0.0588	37	1,139	1,110	1,806	426	1,751
24	Simiyu	0.0356	9	277	270	439	104	426
25	Geita	0.0465	12	370	360	586	138	568
26	Songwe ⁵	0.0893	26	801	780	1,269	299	1,230
51	Kaskazini Unguja	0.0030	4	123	120	195	46	189
52	Kusini Unguja	0.0030	4	123	120	195	46	189
53	Mjini Magharibi	0.0140	10	308	300	488	115	473
54	Kaskazini Pemba	0.0030	4	123	120	195	46	189
55	Kusini Pemba	0.0030	4	123	120	195	46	189
	TOTAL	0.0507	525	16,198	15,780	25,674	6,055	24,886

¹Source: 2011-12 Tanzania HIV/AIDS and Malaria Indicator Survey (THMIS).

²Assumes occupancy rate of 96.0%.

³Entries are projected counts based on the assumptions used to develop the sample design.

⁴All children aged 0-14 years in a random one-third sample of households.

⁵Songwe is a recently created region, which was originally part of Mbeya.

A.2 Weighting

Overview

In general, the purpose of weighting survey data from a complex sample design is to (1) compensate for variable probabilities of selection, (2) account for differential nonresponse rates within relevant subsets of the sample, and (3) adjust for possible under-coverage of certain population groups. Weighting is accomplished by assigning an appropriate sampling weight to each responding sampled unit (e.g., a household or person), and using that weight to calculate weighted estimates from the sample. The critical component of the sampling weight is the base weight, which is defined to be 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 THIS, nonresponse can occur 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, the post-stratification procedures are used to calibrate the weighted sample counts to available population projections.

Methods

The overall weighting approach for THIS includes several steps. Methods and results for each of the steps below are detailed in the Tanzania HIV Impact Survey (THIS) 2016-2017 Technical Report [<https://phia-data.icap.columbia.edu>].

- **Initial checks:** Checks of the data files are carried out as part of the survey and data quality control, and the probabilities of selection for PSUs and households are calculated and checked.
- **Creation of jackknife replicates:** The variables needed to create the jackknife replicates for variance estimation are established at this point. This step can be implemented immediately after the PSU sample has been selected. All of the subsequent weighting steps described below are applied to the full sample, and to each of the jackknife replicates.
- **Calculation of PSU base weights:** The weighting process begins with the calculation and checking of the sample PSU (EA) base weights as the reciprocals of the overall PSU probabilities of selection.
- **Calculation of household weights:** The next step is to calculate household weights. The household base weights are calculated as the PSU weights times the reciprocal of the within-PSU household selection probabilities. The household base weights are adjusted first to account for dwelling units, for which it could not be determined whether the dwelling unit contained an eligible household, and then the responding households have their weights adjusted to account for nonresponding eligible

households. This adjustment is made based on the EA the households are in, and the resulting weight is the final household weight.

- **Calculation of person-level interview weights:** Once the household weights are determined, they are used to calculate the individual base weights. The individual base weights are then adjusted for nonresponse among the eligible individuals, with a final adjustment for the individual weights to compensate for under-coverage in the sampling process by post-stratifying (i.e., weighting up) to 2017 population projections.
- **Calculation of person-level HIV testing weights:** The individual weights adjusted for nonresponse are in turn the initial weights for the HIV testing data sample, with a further adjustment for nonresponse to HIV testing, and a final post-stratification adjustment to compensate for under-coverage.
- **Application of weighting adjustments to jackknife replicates:** All of the adjustment processes are applied to the full sample and the replicate samples so that the final set of full sample and replicate weights can be used for variance estimation that takes into account the complex sample design and every step of the weighting process.

APPENDIX B HIV TESTING METHODOLOGY

B.1 Specimen Collection and Handling

Blood was collected by qualified survey staff from consenting participants. Fourteen milliliters (mL) of venous blood were collected from persons aged 15 years and older, while six mL was collected from persons aged 2-14 years. One mL of capillary blood was collected from children aged 0-2 years using finger-stick for children aged 6-24 months and heel-stick for children aged six months and younger.

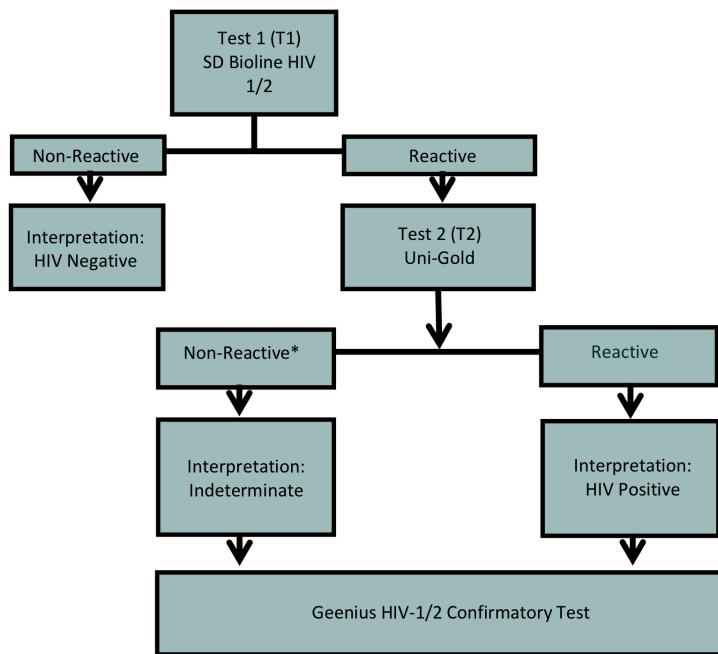
Blood samples were labeled with a unique barcoded participant identification number and stored in temperature-controlled cooler boxes. At the end of each day, samples were transported to a satellite laboratory for registration in a laboratory information management system, processing into plasma, and dried blood spots (DBS), and storage at -20°C within 24 hours of blood collection. Approximately weekly, samples were transported to National Health Laboratory Quality Assurance and Training Center (NHL-QATC) for additional testing and long-term storage at -80°C.

B.2 Household-Based Procedures

HIV Rapid Testing

HIV rapid testing was conducted in each household in accordance with Tanzania's national guidelines (Figure B.2.A). HIV-positive and HIV-indeterminate samples underwent additional testing at a satellite laboratory, as described in Section B.3. For participants who self-reported an HIV-positive status, but tested HIV negative during the survey, additional testing was conducted at NHL-QATC, as described in Section B.3. For children aged 18 months and younger, only the initial rapid test was performed. If the test was reactive, the sample underwent additional testing at NHL-QATC, as described in Section B.3.

Figure B.2.A Household-based HIV testing algorithm, THIS 2016-2017*



*This algorithm applies to participants ≥ 18 months of age. Appendix B, figure B.3.B shows algorithm for classification of HIV status for infants <18 months. Note: Participants who tested reactive on the first test and non-reactive on the second test were referred to a local facility for a re-test after 14 days.

CD4 Testing

All participants who tested HIV positive and a random sample of five percent of participants who tested HIV negative received a CD4 measurement in the field by qualified survey staff. The measurement was performed using a Pima™ Analyzer and Pima™ CD4 Cartridge (Abbott Molecular Inc., Chicago, Illinois, United States, formerly Alere).

Counseling, Referral to Care, and Active Linkage to Care

Pre- and post-test counseling were conducted in each household in accordance with Tanzania's national guidelines. For participants aged 18 years or older, results were communicated directly to the participant. For participants aged 15-17 years, results were communicated to the participant and the parent/guardian together, while for participants less than the age of 15 years, results were communicated directly to the parent or guardian. All participants who consented to HIV testing were asked to share contact information and to select a referral health facility prior to testing. Participants with an HIV-positive test result were referred to HIV care and treatment at the health facility of their choice, while participants with an HIV-indeterminate test result were advised to seek repeated testing at the health facility of their choice in two weeks. Further, HIV-positive participants were asked to consent to be contacted by qualified healthcare personnel, in order to facilitate active linkage to HIV care and treatment in Tanzania's healthcare system.

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

Quality Assurance and Control

To assure the quality of the performance of field staff conducting HIV testing, proficiency testing, using a panel of blinded HIV-positive and HIV-negative DTS, was evaluated twice during the course of fieldwork. Additionally, sample re-testing was conducted at a satellite lab for (1) the first 50 samples tested by each field staff member, (2) a random sample of five percent of HIV-negative specimens, and (3) all HIV-indeterminate specimens.

A limitation of the survey is the potential limitation of rapid tests to detect HIV antibodies among people in 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. The inability of rapid tests to reliably establish HIV-exposure status of an infant by detecting maternal HIV antibodies among infants aged > 4 months born to HIV positive women, is another inherent limitation of the study. WHO currently recommends rapid tests to be used to establish exposure status only in infants aged less than 4 months. Further analysis will identify how many infants born to HIV-positive women were not identified by a rapid test.

B.3 Laboratory-Based Procedures

Twenty-eight survey satellite laboratories were established in existing health facility laboratories across the country, and two mobile labs moved with the teams in particularly remote areas. One central laboratory was established at NHL-QATC in Dar es Salaam.

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.3.A). Testing was conducted at NHL-QATC in accordance with the manufacturer's protocol.

HIV TNA Polymerase Chain Reaction

HIV deoxyribonucleic acid (DNA) polymerase chain reaction (TNA PCR) was conducted for children aged 18 months and younger who had a reactive HIV test result during household-based testing (Figure B.3.A). Additionally, HIV TNA PCR was evaluated for participants who self-reported an HIV-positive status, but tested HIV negative during the survey, as well as for samples that were HIV positive by the rapid testing algorithm, but were HIV negative or indeterminate by Geenius testing (Figure B.3.B). HIV TNA PCR was conducted using the Abbott Real Time HIV-1 Qualitative Assay (Abbott Molecular, Wiesbaden, Germany) on the Abbott m2000 system at NHL-QATC in accordance with the manufacturer's protocol.

Classification of Final HIV Status

For participants aged 18 months or older, the algorithm for classification of final HIV status included results from HIV rapid testing, Geenius testing, and HIV TNA PCR (Figure B.3.A). For participants 18 months of age or younger, the algorithm for classification of final HIV status included results from HIV rapid testing and HIV TNA PCR (Figure B.3.B). Classification of final HIV status was used to determine estimates for HIV prevalence and to inform estimates for HIV incidence.

Figure B.3.A Final HIV Status Classification Algorithm (≥ 18 months), THIS 2016-2017

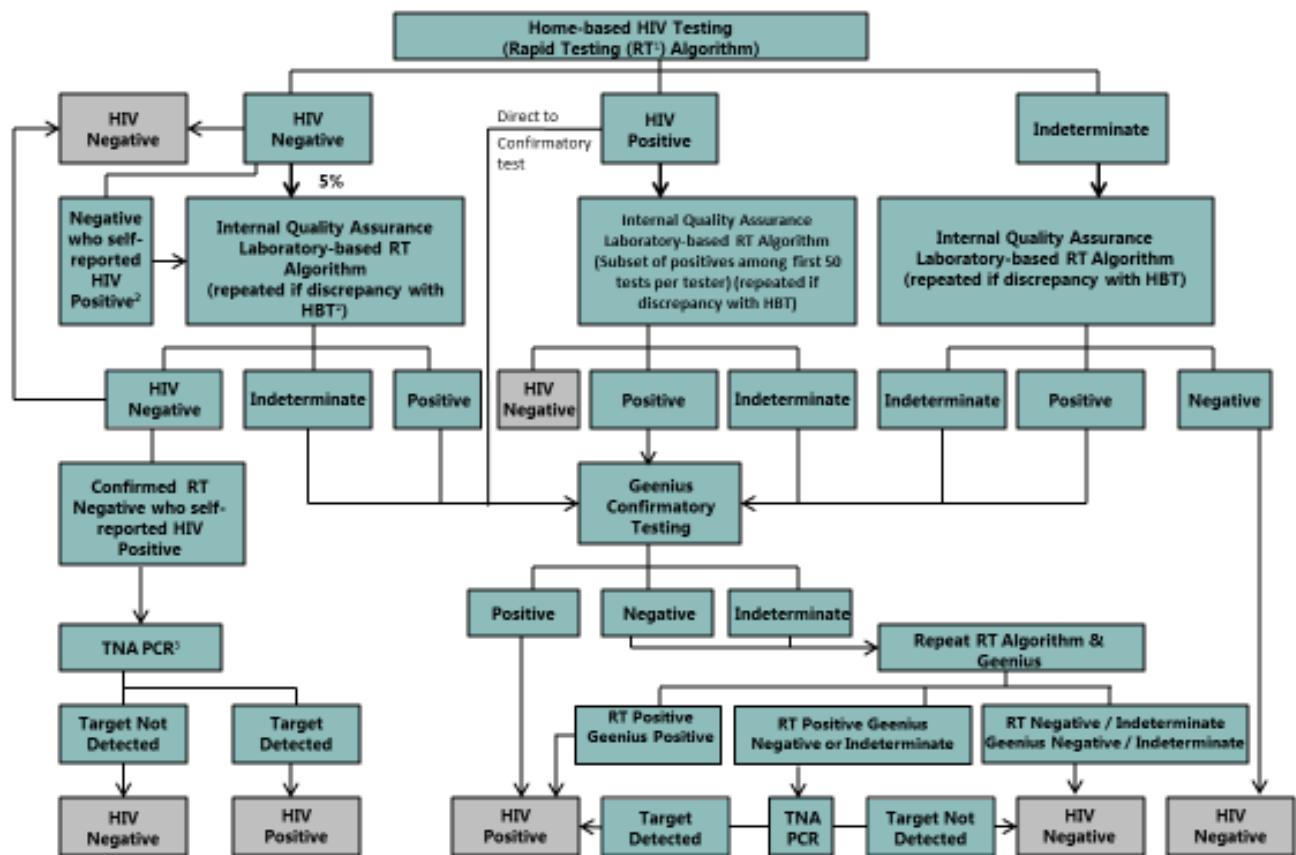
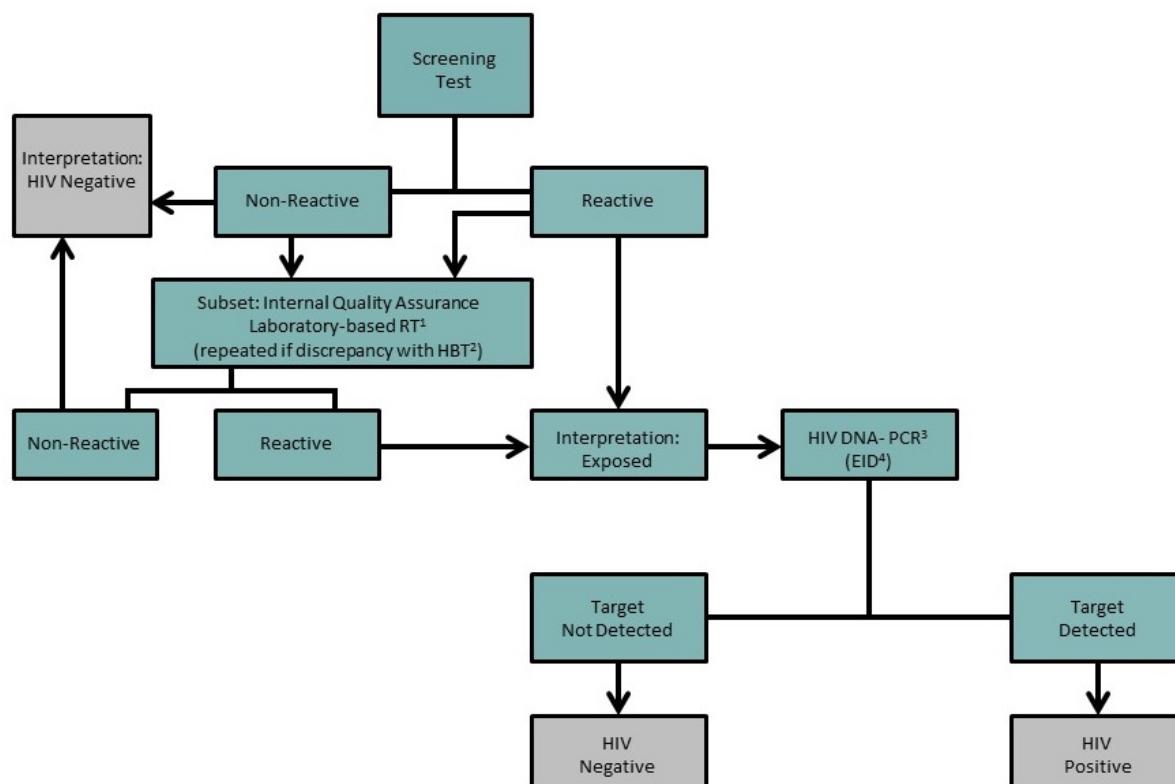


Figure B.3.B Final HIV Status Classification Algorithm (<18 months), THIS 2016-2017



Viral Load Testing

The Abbott m2000sp was used to prepare plasma samples from confirmed HIV-positive participants for reverse transcription polymerase chain reaction (RT-PCR), using the Abbott m2000 System (Abbott Molecular Inc., Chicago, Illinois, United States). HIV-1 VL (HIV ribonucleic acid (RNA) copies per mL) was then measured using the Abbott m2000rt. The open-mode protocol for the Abbott RealTime HIV-1 assay was used to measure VL from DBS samples from children and from adults with insufficient volume of plasma.

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

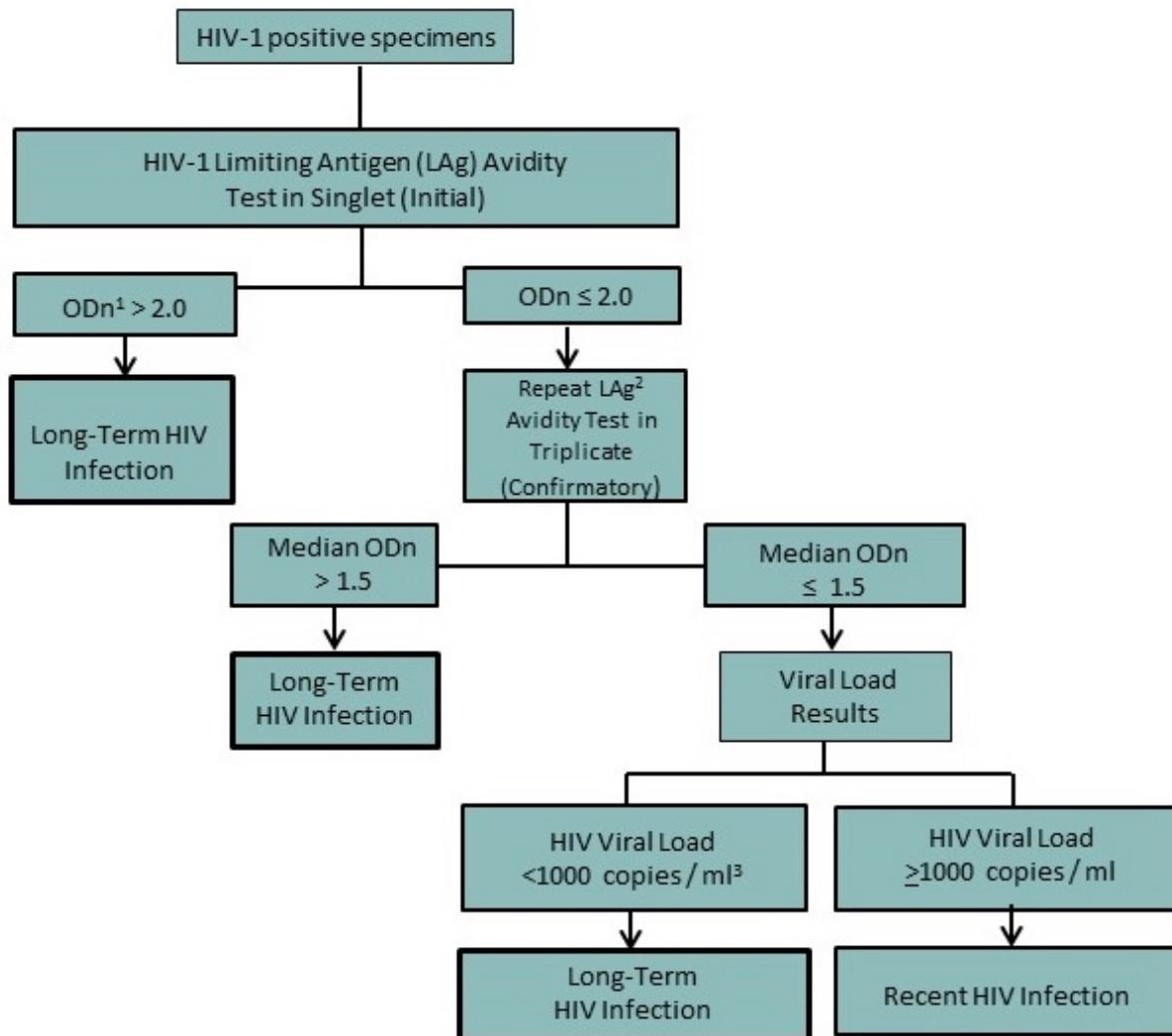
HIV Recency Testing

Estimation of HIV incidence was based on the classification of confirmed HIV-positive cases as recent or long-term HIV infections. The survey used two laboratory-based testing algorithms to estimate incidence. The first estimate used an algorithm that employed a combination of the HIV-1 Limiting Antigen (LAg) Avidity enzyme immunoassay (Sedia Biosciences Corporation, Portland, Oregon, United States) and VL results (Figure B.3.C). Antiretroviral (ARV) detection results were added to that algorithm for the second estimate (Figure B.3.D). The HIV recent infection testing algorithms were applied to repository specimens from all confirmed HIV-positive participants aged 18 months and older.

LAg testing was performed twice, with an initial screening test followed by a confirmatory process: specimens with a normalized optical density (OD_n) > 2.0 during initial testing were classified as long-term infections, while those with $OD_n \leq 2.0$ underwent further testing of the specimen in triplicate. Specimens with median $OD_n > 1.5$ in confirmatory testing were classified as long-term infections. Specimens with median $OD_n < 0.4$ were retested using the HIV diagnostic testing algorithm to confirm HIV-1 seropositivity, and samples identified as HIV-1 seronegative were excluded from the total number of HIV positives and incorporated into the total number of negative specimens for incidence estimation.

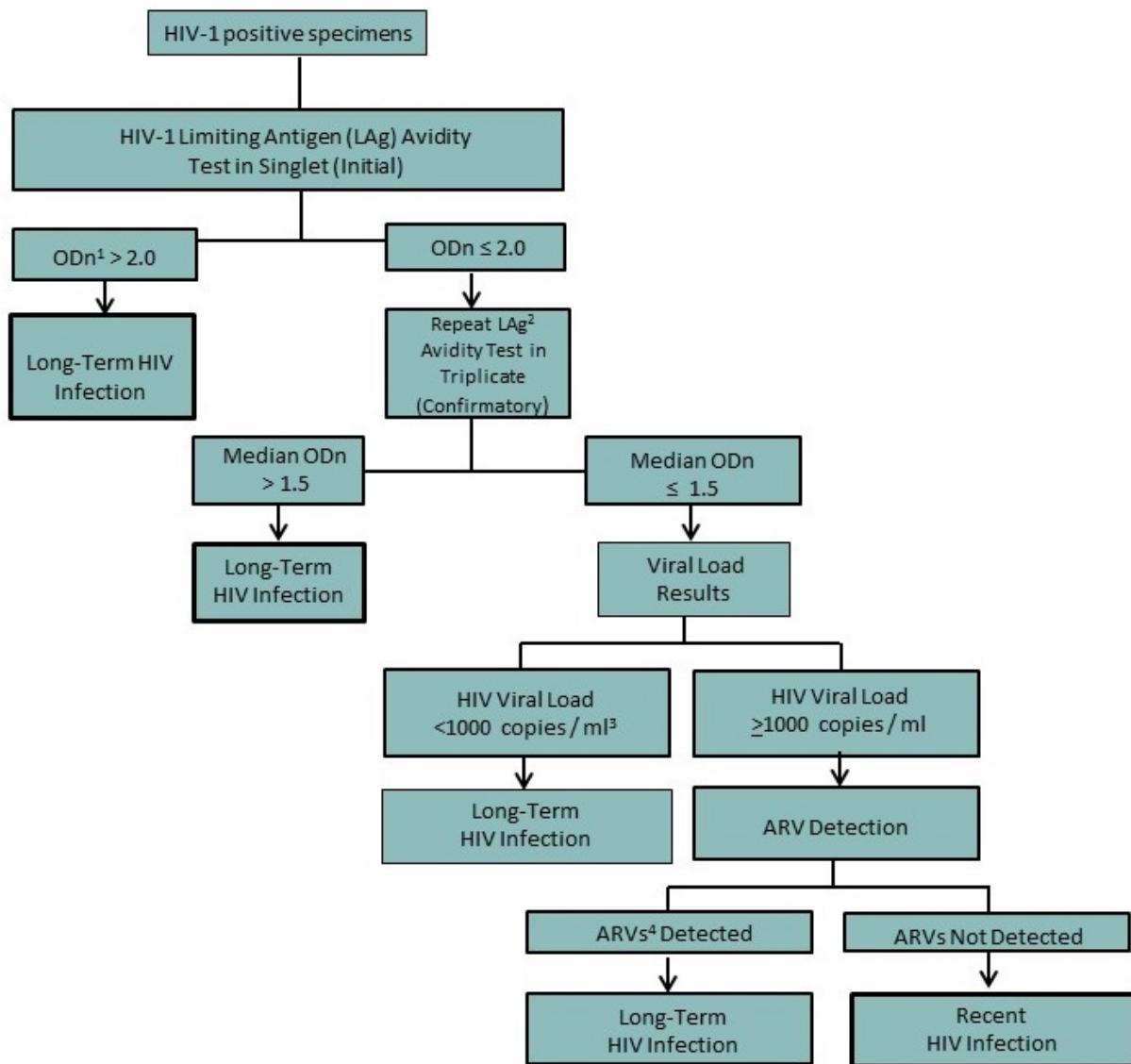
Specimens with median $OD_n \leq 1.5$ were classified as infections that were potentially recent, and their VL results were assessed. For the first incidence testing algorithm, specimens with $VL < 1,000$ copies/mL were classified as long-term infections, while those with $VL \geq 1,000$ copies/mL were classified as recent infections. For the updated incidence algorithm, those classified as recent infections by the first algorithm were reclassified using ARV detection data. Those specimens in which efavirenz (EFV), lopinavir (LPV), and nevirapine (NVP) were detected were classified as long-term infections and those in which no ARVs were detected remained classified as recent infections.

Figure B.3.C HIV-1 Recent Infection Testing Algorithm (LAg/VL algorithm), THIS 2016-2017



¹ODn: normalized optical density; ²LAg: Limiting Antigen; ³ml: milliliter

Figure B.3.D HIV-1 recent infection testing algorithm (LA_g/VL/ARV algorithm), THIS 2016-2017



¹ODn: normalized optical density; ²LA_g: Limiting Antigen; ³ml: milliliter; ⁴ARV: antiretroviral

HIV Incidence Estimation

Incidence estimates were obtained using the formula recommended by the WHO Incidence Working Group and Consortium for Evaluation and Performance of Incidence Assays. Weighted counts for HIV-negative persons (N); HIV-positive persons (P); numbers tested on the LAg assay (Q); and numbers HIV recent (R) are provided for use in incidence calculations or Joint United Nations Programme on HIV/AIDS Spectrum models (Tables B.3.A, B.3.B). Incidence estimates were calculated using the following parameters: mean duration recent infection (MDRI) = 130 days (95% CI: 118-142 days); proportion false recent (PFR) = 0.00; time cutoff (T) = 1 year. In-depth details are provided in the THIS Technical Report, which may be found online at [<https://phia-data.icap.columbia.edu>].

Table B.3.A Annual HIV incidence auxiliary data: N, P, Q, R, (LAG/VL¹ algorithm)

Annual incidence of HIV among persons aged 15-49 and 15+ years, by sex and age, THIS 2016-2017

Age	Males				Females				Total			
	Number HIV negative ² (N)	Number HIV positive ² (P)	Number tested on LAG assay ² (Q)	Number HIV recent ² (R)	Number HIV negative ² (N)	Number HIV positive ² (P)	Number tested on LAG assay ² (Q)	Number HIV recent ² (R)	Number HIV negative ² (N)	Number HIV positive ² (P)	Number tested on LAG assay ² (Q)	Number HIV recent ² (R)
15-24	4491.59	28.41	28.41	0.00	5719.96	124.04	124.04	2.95	10221.15	142.85	142.85	2.63
25-34	3027.61	95.39	95.39	1.62	4262.46	320.54	320.54	10.74	7314.26	391.74	391.74	11.24
35-49	3100.94	227.06	227.06	4.06	3719.33	482.67	482.67	6.30	6837.40	692.60	692.60	10.26
15-49	10635.42	335.58	335.58	5.38	13720.72	908.28	908.28	19.61	24407.40	1192.60	1192.60	23.61
15-64	12289.10	440.90	440.90	7.39	15555.98	1083.02	1083.02	22.34	27895.61	1473.39	1473.39	28.47
15+	13286.64	463.36	463.36	7.57	16711.93	1117.07	1117.07	22.48	30046.19	1532.81	1532.81	28.88

¹ LAg/VL: limiting antigen/viral load² Weighted number

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

Table B.3.B Annual HIV incidence auxiliary data: N, P, Q, R (LAG/VL/ARV¹ algorithm)

Annual incidence of HIV among persons aged 15-49 and 15-64 years, by sex and age, using LAg/VL/ARVs algorithm, by sex and age, THIS 2016-2017

Age	Males				Females				Total			
	Number HIV negative ² (N)	Number HIV positive ² (P)	Number tested on LAG assay ² (Q)	Number HIV recent ² (R)	Number HIV negative ² (N)	Number HIV positive ² (P)	Number tested on LAG assay ² (Q)	Number HIV recent ² (R)	Number HIV negative ² (N)	Number HIV positive ² (P)	Number tested on LAG assay ² (Q)	Number HIV recent ² (R)
15-24	4491.59	28.41	28.41	0.00	5719.96	124.04	124.04	2.95	10221.15	142.85	142.85	2.63
25-34	3027.61	95.39	95.39	1.62	4262.46	320.54	320.54	10.74	7314.26	391.74	391.74	11.24
35-49	3100.94	227.06	227.06	4.06	3719.33	482.67	482.67	3.22	6837.40	692.60	692.60	7.44
15-49	10635.42	335.58	335.58	5.38	13720.72	908.28	908.28	16.63	24407.40	1192.60	1192.60	20.96
15-64	12289.10	440.90	440.90	7.39	15555.98	1083.02	1083.02	18.89	27895.61	1473.39	1473.39	25.36
15+	13286.64	463.36	463.36	7.57	16711.93	1117.07	1117.07	19.00	30046.19	1532.81	1532.81	25.73

¹ LAg/VL/ARV: Limiting antigen/viral load/antiretroviral² Weighted number

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

Detection of Antiretrovirals

To understand recent exposure to ARVs and hence level of antiretroviral therapy coverage, samples from all confirmed HIV-positive participants were evaluated for the presence of selected ARV, using high-resolution liquid chromatography coupled with tandem mass spectrometry to detect ARVs from DBS specimens.² Three ARVs, two non-nucleoside reverse transcriptase inhibitors, EFV and NVP, and one protease inhibitor, LPV, were used as markers for both first- and second-line regimens, based on the Tanzania's national treatment guidelines. The ARVs were selected based on their long half-lives, allowing for longer window period from drug exposure to detection.

To qualitatively detect ARVs, a single DBS was eluted, and chromatographic separation carried out on a Luna 5 µm column (110 Å, 50 x 2 mm) (Phenomenex, 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 quality control cut-off samples, including negative controls, were utilized in each run. This qualitative method used a limit of detection of 0.02 µg/mL for each ARV, with a signal-to-noise ratio of at least 5:1 for all ARVs. Samples with concentrations above 0.02 µg/mL were considered positive for each ARV. Testing was conducted at NHLQATC in Dar es Salaam, Tanzania

Genotyping for Detection of Antiretroviral Drug Resistance and HIV Subtyping

To determine the extent of transmitted HIV-1 drug resistance mutations among participants in THIS, samples from confirmed HIV-positive participants aged 18 months and younger and HIV-positive participants aged 18 months or older, who were classified as recent infections, as well as an equal or greater number of who were classified as long-term infections, were evaluated using a TaqMan® Single Nucleotide Polymorphisms Genotyping Assay (Applied Biosystems) to identify mutations within the HIV-1 polymerase (*pol*) gene region, which encodes amino acid substitutions known to be responsible for resistance to specific ARVs.

Viral RNA or total nucleic acid from plasma or DBS was extracted using the NucliSENS® easyMAG® (bioMérieux, Marcy-L'Etoile, France) platform. The HIV *pol* gene was amplified by one-step RT-PCR, which was followed by nested PCR. Sequencing of the approximately one-kilobase amplicons was performed on the ABI 3730 DNA Analyzer (Applied Biosystems).^{3,4,5}

The customized ReCALL software program was used to edit raw sequences and generate consensus sequences.⁶ Mutations in the protease and reverse transcriptase genes were classified as potentially associated with drug resistance, according to the Stanford University HIV Drug Resistance Database.⁷ Sequences with >98% homology were flagged for potential cross-contamination or possible epidemiological links. Internal quality assurance measures and in-house quality control standards were included in each run to validate results. The assay's sensitivity was established at 1000 copies/mL for plasma and DBS.⁷ Sequences were also analyzed for potential cross-contamination by phylogenetic analysis from code 6 of the protease gene to code 251 of the reverse transcriptase gene.

Subtyping of each sample was performed using the REGA HIV-1 & 2 Automated Subtyping Tool.^{9,10} This BioAfrica viral subtyping tool is designed to use phylogenetic methods in order to identify the HIV-1 subtype of a specific sequence. The sequence is analyzed for recombination using boot-scanning methods.

B.4 References

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APPENDIX C ESTIMATES OF SAMPLING ERRORS

Estimates from sample surveys are affected by two types of errors: non-sampling errors and sampling errors. Non-sampling errors result from mistakes made during data collection (e.g., misinterpretation of an HIV test result) and data management (e.g., transcription errors in data entry). While THIS implemented numerous quality assurance and control measures minimize non-sampling errors, these errors are impossible to avoid and difficult to evaluate statistically.

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

The standard error, which is the square root of the variance, is the usual measurement of sampling error for a particular statistic (e.g., proportion, 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 plus or minus two times the standard error of that statistic in 95 percent of all possible samples of identical size and design.

THIS utilized a multistage stratified sample design, which requires complex calculations to obtain sampling errors. Specifically, a variant of the Jackknife repeated replication method was implemented in SAS to estimate variance for proportions (e.g., HIV prevalence), rates (e.g., annual HIV incidence), and counts (e.g., numbers of PLHIV). Each replication considers all but one cluster in the calculation of the estimates. Pseudo-independent replications are thus created. In THIS, a Jackknife replicate is created by randomly deleting one cluster from each variance-estimation stratum and retaining all of the clusters in the remaining strata. A total of 257 variance-estimation strata were created by pairing (or occasionally tripling) the sample clusters in the systematic order in which they had been selected. Hence, 257 replications were created. The variance of a sample-based statistic, y , is 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 ($k = 1, 2, \dots, K$).

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

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

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

Sampling errors for selected variables from THIS are presented in tables C.1 through C.8, and sampling errors for all survey estimates may be found online at [<https://phia-data.icap.columbia.edu>]. For each variable, sampling error tables include the weighted estimate, unweighted denominator, standard error, design effect, and lower and upper 95 percent confidence limits.

Table C.1 Sampling errors: Annual HIV incidence by age, THIS 2016-2017

Age (years)	Weighted estimate (%)	Design effect	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL				
15-24	0.07	0.87	0.00	0.16
25-34	0.43	0.91	0.18	0.68
35-49	0.31	1.30	0.09	0.52
15-49	0.24	0.87	0.14	0.35
15-64	0.25	0.96	0.15	0.36
15+	0.24	0.98	0.15	0.33
MALES				
15-24	0.00	0.00	0.00	0.00
25-34	0.15	0.45	0.00	0.38
35-49	0.37	1.18	0.01	0.72
15-49	0.14	0.88	0.02	0.26
15-64	0.17	0.97	0.05	0.29
15+	0.16	1.00	0.05	0.27
FEMALES				
15-24	0.14	0.98	0.00	0.31
25-34	0.70	1.14	0.29	1.12
35-49	0.24	1.41	0.00	0.51
15-49	0.34	0.91	0.18	0.50
15-64	0.34	1.00	0.19	0.50
15+	0.32	1.00	0.17	0.46

Table C.2 Sampling errors: HIV prevalence by age, THIS 2016-2017

Age	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL					
0-17 months	0.3	1063	0.1	0.0	0.6
18-59 months	0.4	2563	0.2	0.1	0.8
5-9	0.5	3268	0.1	0.2	0.8
10-14	0.3	2722	0.1	0.2	0.5
			0.0	0.0	0.0
Total 0-4	0.4	3626	0.1	0.1	0.7
Total 0-14	0.4	9616	0.1	0.2	0.6
			0.0	0.0	0.0
15-19	0.7	5532	0.1	0.4	1.0
20-24	2.2	4832	0.2	1.7	2.7
25-29	4.0	4191	0.4	3.3	4.7
30-34	6.4	3515	0.5	5.3	7.5
35-39	8.6	3056	0.6	7.3	9.9
40-44	9.7	2549	0.7	8.3	11.1
45-49	9.4	1925	0.8	7.7	11.1
50-54	8.4	1600	0.8	6.7	10.1
55-59	8.9	1152	1.1	6.6	11.2
60-64	5.2	1017	0.7	3.7	6.7
Total 15-24	1.4	10364	0.1	1.1	1.6
Total 15-49	4.7	25600	0.2	4.3	5.0
Total 15-64	5.0	29369	0.2	4.7	5.4
Total 15+	4.9	31579	0.2	4.5	5.2
MALES					
0-17 months	0.1	538	0.1	0.0	0.3
18-59 months	0.2	1312	0.1	0.0	0.5
5-9	0.5	1661	0.2	0.0	0.9
10-14	0.3	1345	0.1	0.1	0.6
			0.0	0.0	0.0
Total 0-4	0.2	1850	0.1	0.0	0.4
Total 0-14	0.3	4856	0.1	0.1	0.5
			0.0	0.0	0.0
15-19	0.4	2533	0.2	0.0	0.7
20-24	0.9	1987	0.3	0.4	1.5
25-29	2.3	1670	0.5	1.2	3.4
30-34	3.9	1453	0.7	2.6	5.3
35-39	5.6	1307	0.7	4.1	7.1
40-44	8.4	1144	1.0	6.3	10.5
45-49	6.8	877	0.9	4.9	8.7
50-54	7.4	728	1.2	4.9	9.9
55-59	8.0	572	1.7	4.6	11.4
60-64	3.6	459	0.9	1.7	5.5

Table C.2 Sampling errors: HIV prevalence by age, THIS 2016-2017

Age	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
Total 15-24	0.6	4520	0.1	0.3	0.9
Total 15-49	3.1	10971	0.2	2.7	3.5
Total 15-64	3.5	12730	0.2	3.1	3.9
Total 15+	3.4	13750	0.2	3.0	3.7
FEMALES					
0-17 months	0.4	525	0.3	0.0	1.0
18-59 months	0.7	1251	0.3	0.0	1.3
5-9	0.5	1607	0.2	0.1	0.8
10-14	0.3	1377	0.1	0.1	0.6
			0.0	0.0	0.0
Total 0-4	0.6	1776	0.3	0.1	1.1
Total 0-14	0.5	4760	0.1	0.2	0.7
			0.0	0.0	0.0
15-19	1.0	2999	0.2	0.6	1.5
20-24	3.4	2845	0.4	2.6	4.2
25-29	5.6	2521	0.5	4.6	6.6
30-34	8.6	2062	0.8	7.0	10.2
35-39	11.6	1749	1.0	9.4	13.7
40-44	11.0	1405	1.0	8.9	13.0
45-49	12.0	1048	1.4	9.2	14.8
50-54	9.4	872	1.2	7.0	11.8
55-59	9.7	580	1.4	6.8	12.6
60-64	6.5	558	1.0	4.4	8.6
Total 15-24	2.1	5844	0.2	1.7	2.6
Total 15-49	6.2	14629	0.3	5.7	6.7
Total 15-64	6.5	16639	0.3	6.0	7.0
Total 15+	6.3	17829	0.2	5.8	6.8

Table C.3 Sampling errors: HIV prevalence by residence and region, ages 15+ years, THIS 2016-2017

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL					
RESIDENCE					
Urban	6.0	10140	0.3	5.5	6.6
Rural	4.2	21439	0.2	3.7	4.6
MAINLAND/ZANZIBAR					
Tanzania Mainland	5.0	29927	0.2	4.6	5.3
Zanzibar	0.4	1652	0.2	0.1	0.8
REGION					
Dodoma	5.0	506	1.2	2.6	7.5
Arusha	1.9	430	0.7	0.6	3.3
Kilimanjaro	2.6	582	0.4	1.7	3.4
Tanga	5.0	650	0.9	3.2	6.7
Morogoro	4.2	815	0.6	3.0	5.3
Pwani	5.5	1835	0.6	4.3	6.8
Dar es Salaam	4.7	1773	0.5	3.7	5.6
Lindi	0.3	337	0.3	0.0	0.8
Mtwara	2.0	414	1.1	0.0	4.2
Ruvuma	5.6	1914	0.6	4.4	6.7
Iringa	11.3	1342	1.1	9.0	13.6
Mbeya	9.3	1324	0.9	7.4	11.2
Singida	3.6	332	1.4	0.6	6.5
Tabora	5.1	3061	0.5	4.2	6.0
Rukwa	4.4	2079	0.5	3.4	5.4
Kigoma	2.9	777	0.7	1.6	4.3
Shinyanga	5.9	2209	0.3	5.3	6.5
Kagera	6.5	857	1.1	4.1	8.8
Mwanza	7.2	1285	1.1	4.9	9.4
Mara	3.6	864	0.5	2.5	4.7
Manyara	2.3	418	0.6	1.1	3.5
Njombe	11.4	883	1.9	7.5	15.3
Katavi	5.9	2326	0.8	4.3	7.5
Simiyu	3.9	727	0.8	2.3	5.6
Geita	5.0	820	1.0	3.0	7.0
Songwe	5.8	1367	1.1	3.5	8.1
Kaskazini Unguja	0.6	283	0.5	0.0	1.8
Kusini Unguja	0.0	234	0.0	0.0	0.0
Mjini Magharibi	0.6	664	0.3	0.1	1.1
Kaskazini Pemba	0.0	206	0.0	0.0	0.0
Kusini Pemba	0.3	265	0.3	0.0	0.9

Table C.3 Sampling errors: HIV prevalence by residence and region, ages 15+ years, THIS 2016-2017 (continued)

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
MALES					
RESIDENCE					
Urban	3.4	4106	0.3	2.8	4.0
Rural	3.4	9644	0.0	2.9	3.8
MAINLAND/ZANZIBAR					
Tanzania Mainland	3.5	13079	0.2	3.1	3.8
Zanzibar	0.0	671	0.3	0.0	0.0
REGION					
Dodoma	3.8	226	0.8	2.1	5.5
Arusha	1.7	175	1.3	0.0	4.4
Kilimanjaro	2.0	241	0.5	0.9	3.0
Tanga	3.7	283	1.1	1.4	6.0
Morogoro	2.2	324	0.8	0.4	3.9
Pwani	3.0	764	0.7	1.6	4.4
Dar es Salaam	2.3	724	0.5	1.2	3.4
Lindi	0.0	156	0.0	0.0	0.0
MtWARA	1.4	206	0.9	0.0	3.2
Ruvuma	4.6	852	0.6	3.4	5.8
Iringa	6.6	550	1.2	4.1	9.2
Mbeya	5.4	559	1.1	3.1	7.8
Singida	1.8	139	1.3	0.0	4.6
Tabora	4.6	1454	0.6	3.3	5.8
Rukwa	3.3	896	0.6	2.0	4.5
Kigoma	2.8	329	0.7	1.3	4.2
Shinyanga	4.3	1003	0.4	3.4	5.2
Kagera	5.8	410	0.8	4.0	7.5
Mwanza	5.0	584	0.6	3.8	6.3
Mara	2.5	353	0.9	0.6	4.4
Manyara	1.9	191	0.9	0.1	3.7
Njombe	6.5	349	1.5	3.4	9.7
Katavi	3.5	1024	0.7	2.1	5.0
Simiyu	3.3	303	1.2	0.8	5.7
Geita	3.7	384	1.2	1.3	6.1
Songwe	5.2	600	0.8	3.5	6.8
Kaskazini Unguja	0.0	106	0.0	0.0	0.0
Kusini Unguja	0.0	108	0.0	0.0	0.0
Mjini Magharibi	0.0	274	0.0	0.0	0.0
Kaskazini Pemba	0.0	77	0.0	0.0	0.0
Kusini Pemba	0.0	106	0.0	0.0	0.0

Table C.3 Sampling errors: HIV prevalence by residence and region, ages 15+ years, THIS 2016-2017 (continued)

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
FEMALES					
RESIDENCE					
Urban	8.3	6034	0.4	7.4	9.2
Rural	5.0	11795	0.3	4.4	5.6
MAINLAND/ZANZIBAR					
Tanzania Mainland	6.4	16848	0.2	5.9	6.9
Zanzibar	0.8	981	0.2	0.2	1.5
REGION					
Dodoma	6.2	280	1.7	2.8	9.6
Arusha	2.2	255	0.8	0.6	3.8
Kilimanjaro	3.1	341	0.9	1.3	4.9
Tanga	6.2	367	1.2	3.6	8.7
Morogoro	5.8	491	0.5	4.7	6.8
Pwani	7.7	1071	0.8	6.0	9.5
Dar es Salaam	6.8	1049	0.6	5.5	8.2
Lindi	0.6	181	0.6	0.0	1.7
MtWARA	2.8	208	1.4	0.0	5.6
Ruvuma	6.6	1062	0.9	4.6	8.5
Iringa	15.3	792	2.2	10.8	19.9
Mbeya	12.8	765	1.3	10.1	15.5
Singida	5.1	193	2.0	1.1	9.1
Tabora	5.7	1607	0.6	4.5	6.9
Rukwa	5.5	1183	0.6	4.2	6.8
Kigoma	3.1	448	0.8	1.6	4.7
Shinyanga	7.5	1206	0.6	6.3	8.8
Kagera	7.2	447	1.6	3.9	10.6
Mwanza	9.4	701	1.8	5.6	13.2
Mara	4.5	511	0.9	2.8	6.3
Manyara	2.7	227	0.8	1.0	4.5
Njombe	15.1	534	2.3	10.3	20.0
Katavi	8.2	1302	1.0	6.1	10.4
Simiyu	4.5	424	0.8	2.8	6.3
Geita	6.4	436	1.2	4.0	8.8
Songwe	6.5	767	1.6	3.2	9.8
Kaskazini Unguja	1.1	177	1.0	0.0	3.1
Kusini Unguja	0.0	126	0.0	0.0	0.0
Mjini Magharibi	1.2	390	0.5	0.2	2.2
Kaskazini Pemba	0.0	129	0.0	0.0	0.0
Kusini Pemba	0.6	159	0.5	0.0	1.7

Table C.4 Sampling errors: Viral load suppression by age, THIS 2016-2017

Age (years)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL					
0-14	18.4	44	5.9	4.6	32.3
15-24	41.5	171	4.8	31.8	51.1
25-34	43.3	480	3.5	37.8	48.8
35-44	53.9	601	2.9	48.6	59.1
45-54	60.5	349	4.1	53.2	67.7
55-64	63.3	176	6.0	52.0	74.6
65+	46.6	53	11.9	28.4	64.7
Total 15-24	41.5	171	4.7	31.8	51.1
Total 15-49	49.6	1454	1.8	45.8	53.3
Total 15-64	52.0	1777	1.6	48.6	55.4
Total 15+	51.9	1830	1.6	48.6	55.1
MALES					
0-14	*	19	14.4	0.0	57.6
15-24	22.2	28	9.6	2.5	41.9
25-34	25.7	115	5.2	15.1	36.4
35-44	38.9	202	4.0	30.6	47.2
45-54	56.0	129	4.8	46.1	65.9
55-64	61.5	68	8.5	44.0	79.0
65+	*	21	12.2	28.4	78.6
Total 15-24	22.2	28	9.6	2.5	41.9
Total 15-49	36.1	414	2.8	30.4	41.9
Total 15-64	41.2	542	2.7	35.7	46.7
Total 15+	41.5	563	2.6	36.1	46.9
FEMALES					
0-14	11.7	25	6.7	0.0	23.8
15-24	47.1	143	4.7	37.3	56.9
25-34	50.5	365	2.7	43.3	57.6
35-44	62.5	399	2.5	56.4	68.6
45-54	63.2	220	3.5	54.8	71.7
55-64	64.4	108	5.5	52.1	76.8
65+	42.9	32	8.8	18.3	67.4
Total 15-24	47.1	143	4.8	37.3	56.9
Total 15-49	56.0	1040	1.9	52.0	60.0
Total 15-64	57.5	1235	1.7	54.0	61.1
Total 15+	57.2	1267	1.7	53.7	60.7

Table C.5 Sampling errors: Viral load suppression by residence and region, ages 15+ years, THIS 2016-2017

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL					
RESIDENCE					
Urban	56.0	747	2.1	51.6	60.4
Rural	48.4	1,083	2.3	43.7	53.1
MAINLAND/ZANZIBAR					
Tanzania Mainland	51.9	1,822	1.6	48.7	55.2
Zanzibar	*	8	16.3	0.0	55.9
REGION					
Dodoma	60.6	27	12.1	35.7	85.5
Arusha	*	9	12.1	4.1	54.0
Kilimanjaro	*	16	9.7	46.8	86.8
Tanga	47.2	34	4.7	37.4	57.0
Morogoro	45.3	37	10.4	23.9	66.6
Pwani	63.5	111	4.6	53.9	73.0
Dar es Salaam	44.7	95	3.9	36.7	52.7
Lindi	*	1	0.0	100.0	100.0
Mtvara	*	9	4.6	43.8	62.8
Ruvuma	56.7	111	5.3	45.8	67.5
Iringa	56.6	155	3.7	49.0	64.2
Mbeya	57.4	135	4.7	47.6	67.1
Singida	*	13	20.7	0.0	83.1
Tabora	41.2	168	5.1	30.6	51.7
Rukwa	42.9	98	5.5	31.5	54.2
Kigoma	*	23	10.8	36.1	80.6
Shinyanga	40.1	143	4.9	30.1	50.1
Kagera	66.0	57	6.1	53.4	78.5
Mwanza	49.6	99	5.0	39.2	60.0
Mara	63.4	34	5.8	51.4	75.4
Manyara	*	10	13.1	9.7	63.5
Njombe	60.5	106	6.8	46.6	74.4
Katavi	47.3	162	4.4	38.3	56.4
Simiyu	54.3	31	12.7	28.2	80.4
Geita	32.4	45	5.4	21.3	43.6
Songwe	64.6	93	5.9	52.6	76.7
Kaskazini Unguja	*	2	1.1	42.3	46.7
Kusini Unguja	*	0	0.0	0.0	0.0
Mjini Magharibi	*	5	21.8	0.0	65.9
Kaskazini Pemba	*	0	0.0	0.0	0.0
Kusini Pemba	*	1	0.0	0.0	0.0

Table C.5 Sampling errors: Viral load suppression by residence and region, ages 15+ years, THIS 2016-2017

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
MALES					
RESIDENCE					
Urban	42.6	171	4.1	34.2	51.1
Rural	40.9	392	3.3	34.1	47.7
MAINLAND/ZANZIBA					
R					
Tanzania Mainland	41.5	563	2.6	36.1	46.9
Zanzibar	*	0	0.0	0.0	0.0
REGION					
Dodoma	*	9	23.0	0.0	88.9
Arusha	*	3	0.0	0.0	0.0
Kilimanjaro	*	5	22.5	0.0	68.4
Tanga	*	11	1.8	41.4	48.9
Morogoro	*	8	10.7	1.0	45.0
Pwani	57.1	26	10.0	36.5	77.6
Dar es Salaam	*	18	9.8	13.5	53.9
Lindi	*	0	0.0	0.0	0.0
Mtwara	*	3	0.0	0.0	0.0
Ruvuma	44.9	41	6.8	30.8	58.9
Iringa	51.1	39	7.4	35.8	66.4
Mbeya	44.3	36	7.2	29.5	59.0
Singida	*	3	69.4	0.0	100.0
Tabora	33.0	71	7.6	17.4	48.7
Rukwa	33.1	31	11.8	8.8	57.4
Kigoma	*	9	13.0	15.5	69.0
Shinyanga	32.3	48	5.3	21.4	43.2
Kagera	*	24	7.1	48.1	77.3
Mwanza	32.3	32	5.9	20.2	44.5
Mara	*	10	12.4	43.7	94.8
Manyara	*	4	32.9	0.0	100.0
Njombe	40.5	25	9.7	20.4	60.5
Katavi	29.3	45	6.8	15.3	43.4
Simiyu	*	11	11.0	53.8	99.2
Geita	*	16	9.4	3.5	42.4
Songwe	60.3	35	9.5	40.8	79.8
Kaskazini Unguja	*	0	0.0	0.0	0.0
Kusini Unguja	*	0	0.0	0.0	0.0
Mjini Magharibi	*	0	0.0	0.0	0.0
Kaskazini Pemba	*	0	0.0	0.0	0.0
Kusini Pemba	*	0	0.0	0.0	0.0

Table C.5 Sampling errors: Viral load suppression by residence and region, ages 15+ years, THIS 2016-2017

Characteristic	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
FEMALES					
RESIDENCE					
Urban	60.8	576	2.2	56.3	65.4
Rural	53.4	691	2.6	48.1	58.7
MAINLAND/ZANZIBAR					
Tanzania Mainland	57.3	1,259	1.7	53.8	60.8
Zanzibar	*	8	16.3	0.0	55.9
REGION					
Dodoma	*	18	6.6	58.5	85.7
Arusha	*	6	14.2	18.6	77.2
Kilimanjaro	*	11	9.6	70.9	100.0
Tanga	*	23	8.1	31.6	65.1
Morogoro	51.9	29	12.3	26.7	77.2
Pwani	65.6	85	4.8	55.7	75.5
Dar es Salaam	48.1	77	4.2	39.4	56.8
Lindi	*	1	0.0	100.0	100.0
Mtwara	*	6	9.8	64.4	100.0
Ruvuma	64.9	70	6.9	50.8	79.1
Iringa	58.7	116	4.5	49.4	67.9
Mbeya	62.4	99	5.2	51.7	73.1
Singida	*	10	18.9	4.2	81.9
Tabora	48.5	97	5.7	36.8	60.3
Rukwa	48.4	67	4.7	38.6	58.1
Kigoma	*	14	9.8	51.1	91.4
Shinyanga	44.9	95	6.1	32.4	57.4
Kagera	68.9	33	7.8	52.8	85.0
Mwanza	59.3	67	7.4	44.1	74.5
Mara	*	24	12.7	34.4	86.9
Manyara	*	6	8.0	13.6	46.4
Njombe	67.2	81	5.8	55.2	79.2
Katavi	55.0	117	3.6	47.6	62.5
Simiyu	*	20	11.1	16.7	62.5
Geita	38.4	29	5.7	26.6	50.2
Songwe	68.0	58	6.7	54.1	81.8
Kaskazini Unguja	*	2	1.1	42.3	46.7
Kusini Unguja	*	0	0.0	0.0	0.0
Mjini Magharibi	*	5	21.8	0.0	65.9
Kaskazini Pemba	*	0	0.0	0.0	0.0
Kusini Pemba	*	1	0.0	0.0	0.0

Table C.6 Sampling errors: ARV-adjusted 90-90-90 by age (conditional percentages), THIS 2016-2017

Age (years)	Diagnosed				On Treatment				Viral Load Suppression						
	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL															
15-24	50.2	167	4.9	40.0	60.4	92.6	77	3.3	85.7	99.4	83.5	70	5.2	72.8	94.1
25-34	50.9	462	3.1	44.6	57.2	88.3	248	4.8	83.1	93.5	88.3	218	2.7	82.7	93.9
35-49	66.7	779	2.4	61.8	71.6	94.4	519	2.5	92.0	96.8	85.4	490	2.1	81.1	89.7
15-49	59.5	1,408	1.8	55.7	63.3	92.5	844	1.2	90.3	94.8	86.0	778	1.7	82.5	89.5
15-64	60.9	1,730	1.7	57.4	64.5	93.7	1,071	1.1	91.9	95.4	87.0	999	1.3	84.3	89.7
15+	60.6	1,782	1.7	57.2	64.0	93.6	1,101	0.8	91.9	95.4	87.0	1,026	1.3	84.4	89.7
MALES															
15-24	35.7	27	11.5	12.1	59.2	*	8	11.9	61.6	100.0	*	7	24.2	2.9	100.0
25-34	32.0	112	8.7	19.1	44.9	76.0	38	18.1	58.0	93.9	84.1	26	7.2	69.2	98.9
35-49	58.7	264	3.2	50.6	66.8	90.6	148	8.7	83.9	97.2	79.8	137	3.7	72.2	87.3
15-49	48.8	403	2.9	41.9	55.6	87.4	194	3.2	81.4	93.5	78.8	170	3.6	71.4	86.2
15-64	52.4	531	2.0	46.3	58.6	89.9	285	2.7	85.8	94.0	83.0	257	2.8	77.3	88.7
15+	52.2	552	2.0	46.2	58.3	89.6	297	2.0	85.5	93.7	83.2	267	2.7	77.6	88.8
FEMALES															
15-24	54.4	140	4.9	44.4	64.5	93.8	69	3.1	87.5	100.0	88.9	63	3.5	81.8	96.0
25-34	59.0	350	3.3	52.1	65.8	91.1	210	4.3	86.0	96.3	89.1	192	2.8	83.3	94.9
35-49	71.3	515	2.7	65.7	76.9	96.3	371	2.5	94.7	97.8	87.9	353	2.5	82.8	93.0
15-49	64.7	1,005	1.9	60.7	68.7	94.4	650	0.7	92.5	96.3	88.4	608	1.8	84.7	92.1
15-64	65.3	1,199	1.8	61.7	69.0	95.2	786	0.5	93.6	96.9	88.5	742	1.5	85.6	91.5
15+	64.9	1,230	1.7	61.4	68.5	95.3	804	0.8	93.7	96.9	88.6	759	1.4	85.6	91.5

Table C.7 Sampling errors: ARV-adjusted 90-90-90 by age (unconditional percentages), 2016-2017

Age (years)	Diagnosed					On Treatment					Suppressed Viral Load				
	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)	Weighted estimate (%)	Unweighted number	Standard error (%)	Lower confidence limit (%)	Upper confidence limit (%)
TOTAL															
15-24	50.2	167	4.9	40.0	60.4	46.5	167	5.0	36.3	56.7	38.8	167	4.78	28.9	48.6
25-34	50.9	462	3.1	44.6	57.2	44.9	462	2.8	39.1	50.8	39.7	462	2.9	33.6	45.7
35-49	66.7	779	2.4	61.8	71.6	63.0	779	2.5	57.8	68.1	53.8	779	2.3	49.1	58.5
15-49	59.5	1408	1.8	55.7	63.3	55.1	1408	1.9	51.1	59.0	47.3	1408	1.8	43.6	51.1
15-64	60.9	1730	1.7	57.4	64.5	57.1	1730	1.8	53.4	60.7	49.6	1730	1.6	46.3	53.0
15+	60.6	1,782	1.7	57.2	64.0	56.7	1,782	1.7	53.2	60.2	49.4	1,782	1.6	46.2	52.6
MALES															
15-24	35.7	27	11.5	12.1	59.2	30.7	27	11.2	7.6	53.9	16.2	27	9.4	0.0	35.6
25-34	32.0	112	6.3	19.1	44.9	24.3	112	6.1	11.8	36.8	20.4	112	5.8	8.6	32.3
35-49	58.7	264	3.9	50.6	66.8	53.2	264	4.1	44.6	61.7	42.4	264	3.6	35.1	49.7
15-49	48.8	403	3.3	41.9	55.6	42.6	403	3.4	35.6	49.6	33.6	403	3.0	27.5	39.7
15-64	52.4	531	3.0	46.3	58.6	47.1	531	3.0	40.9	53.3	39.1	531	2.8	33.4	44.8
15+	52.2	552	2.9	46.2	58.3	46.8	552	3.0	40.7	52.9	38.9	552	2.7	33.3	44.5
FEMALES															
15-24	54.4	140	4.9	44.4	64.5	51.1	140	4.9	41.0	61.2	45.4	140	4.8	35.5	55.4
25-34	59.0	350	3.3	52.1	65.8	53.7	350	3.2	47.1	60.4	47.9	350	3.6	40.5	55.2
35-49	71.3	515	2.7	65.7	76.9	68.6	515	2.7	63.1	74.1	60.3	515	2.7	54.8	65.8
15-49	64.7	1005	1.9	60.7	68.7	61.1	1005	1.9	57.2	64.9	54.0	1005	1.9	50.1	57.9
15-64	65.3	1199	1.8	61.7	69.0	62.2	1199	1.7	58.7	65.7	55.1	1199	1.7	51.7	58.5
15+	64.9	1,230	1.7	61.4	68.5	61.9	1,230	1.7	58.4	65.3	54.8	1,230	1.6	51.4	58.2

Table C.8 Sampling errors: Number of new infections annually (ages 15-64 years) and number of PLHIV (ages 15 years or older), THIS 2016-2017

	Weighted estimate	Standard error	Lower confidence limit	Upper confidence limit
Number of new infections annually	72123.6	14074.2	43081.5	101165.8
Number of PLHIV*	1532482.9	51495.0	1426426.9	1638539.0

*Persons Living with HIV

APPENDIX D SURVEY PERSONNEL

Tanzania HIV Impact Survey (THIS) 2016-2017 Survey Personnel

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LISTING DRIVERS

Peter Msofe David Mwaisenye Twaha Bendera Michael Madembwe Zuberi Mkawa Maloba Kisanga Benedict Liwoya Hiari Juma Khamis Omar Salim	Benjamin Makasi Ahmed Ngao Geofrey. Nyabukika Ally Mohamed Evarist Msisi Joseph Waya Baraka Nyambelwa Derick Dominick Rajab Mzee Rajab
---	--

COMMUNITY MOBILIZERS

Mihayo Bupamba Veronica Kazimoto Idd A. Muruke Albert W. Kapala Goodluck Lyimo Tony Mwanjota Kalisto Lugome Evarist Tairo Israel Mwakapalala Gideon Mokiwa Eric B. Luaula Nestory Mazinza Juma Shaban	Theresia A. Lyimo Moses Kahero Mwantumu Athuman Alfred G. Gewe Khalid Msabaha Lathma Iddy Naing'oya Kipuyo Albert Kulwa Ramadhani Mbega Simon J. Keraryo Wilfred Mwingira Andrew Punjila Tamali William Adamson Ramadhani	Morris Lekule Editha Mwanyika Peter Millinga Badru Abdunuru Nuru Ramsa Mbarouk Ahmed Hani Mohamed Margareth Martin Moses Sagala Safia A. Ali Jokha Bakar Emmanuel Ghula Salama Njani Janeth Busanya
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DATA COLLECTION FIELD COORDINATORS

Aulea Kokulamka Noah Kamasho Johannes Makwandi Khadija Lema	Khadija Lema Hussein Mtiro Khamis Msham Raya Said Salum
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TEAM SUPERVISORS

Andrew Gondwe Salama R. Makame Dickson Peter	Samwel Kawa Monica Masawe Hamida Mvunta
--	---

Saumu Said	Hassanaali Mohamed
Ritha Kileo	Omar Hussein Khatib
Ressy Mashullano	Frank Lyimo
Kulwa Namkaa	Thomas Ndimbo
Esther Solomon	Joyce Msoka
Respicius Gasper	Edwina Lyimo
David Edward	Elias Bugumba
Tatu Fundi Salum	Eusebius Mwinuka
Ludovick Materu	Jacob Lufingo
Tamasha Ngalomba	Boniface Simpoli Yohana
Hemed Nkunya	Lilian Chovenye
Ahmad H. Mohamed	Bakary K. Makame
Suleiman S. Omary	Mahamoud R. Juma
Aisha A. Haji	

INTERVIEWERS

Farida Mbura	Jacquline Tibenda	Yusuf Nyoni
Johnmark Obura	Gerald Kabyemela	Deograsia Sanga
Gravina David	Mwanahamis Issa Haji	Dorah Mchomvu
Thomas Lutamla	Restituta Msoka	Elimboto Duma
Fatma Ussi Yahya	Renata Komba	Esther Kungu
Hawa Namanga	Suleiman Pandu Ali	Fat-Hu Mohamed Saleh
Paul Njau	Elias Katole	Innocent Kihongo
Ruzuna Abdulrahim	Yasin Mkombe	Halima Msengi
Elizaberth Lema	Trudbertha Rutakinikwa	Khadija Ali Juma
Fillo P. Hyera	Halima Ahmed Mohamed	Kamero Mogesi
Nyachiro Mujaya	Thereza Mwita	Rosta Lyimo
Hellen Gasper	Grace Semenda	Zainabu Mdimi
Philibert Ndagala	Felix Mtaki	Herman Gondo
Shinuna Hemed Said	Dorcus Nkwao	Anastella Stephen
Renifrida Dule	Hilda Ndyamukama	Lameck Magori
Joseph Kilumba	Mwajuma Fadhil Juma	Amina Sleyum Addi
Mariam Mkoma	Kwezi Malale	Marietha Ng'oge
Elizabeth Mhando	Josiah Samwel	Sarah Sikimaya
Jane Naleo	Majenje Massi	Mwasi Masondore
Henry Mosabi	Khuzaymat Rashid Abdalla	Bakar Omar Abass
Joab Mazengo	Margreth Luhindila	Robert Mwiza
Dorphina Komba	Advella Patrick	Jokha Mahmoud Iddi
Khadija Suleiman Omar	Salutary Munishy	Praxeda Modest
Selina Hilary	Proscovia Laurean	Christina Nyagali
Pricilla Ng'umbi	Baseki Thomas	Magdalena Mmuni
Sharifa Rashidi	Remija Ng'ingo	Said Kai Haji
Rose Kidando	Devotha Mhagama	Happiness Liya
Peter Odongo	Josephine Boniphace	Samaria Mwanangwa
Gabriel Nyunja	Saleh Mohamed Saleh	Tatu Simba
Tausi Mghenyi	Manyangu Magembe	Mashaka Shilinde
Subira Kassim Kheri	James Miruye	Raymond Simon Malashi

Mayunga Mahona Mohammed Siri Mary Massika Nora Sanga Muna Sumry Sylvana Kajanga Nkuyumba Gwanda Johannes Mwitambote Agness Sanga Rahma Awadh Salmin Lucia Shipande Rose Meagie Rose Nyaruri Martin Chamani Hassan Mbega Edith May Omary Rehema Abdalla Abeid Cecilia Muganda Mwanahawa Jafari Neema Sanga Grace Ng'wandu Shabani Mbelwa Simon Staphord Judith Kiyaya Lucia George Martha Mnjenje Gaudencia Ndumbaro	Mevaji Antony Zawadi Andembwisyé Mwaka Pandu Makame Sibia Mutani Fatuma Mchome Shamte Fussi Josephina Milwano Mmanga Seif Massoud Pili Ng'wadi Mkina Sahani Siwa Myuki Swibe Monchena Alice J. Mlindoko Patrick Ngelangela Mwanaidi Shange Editha Buhha Nunu Ismail Kanduru Christina Kopwe Ritha Mrope Gloria Kagaruki Mary Warioba Said Malando Jerome Mchia Iddi Yahya Mkongoa Hassan M. Mcha Laamud A. Juma Mohamed Ali Salim	Elizabeth Sokoi Lazaro Munuka Ipyana Masebo Eva Vicent Raya Ismail Salum Clemencia Assenga Gloria Akyoo Hawa Khamis Juma Hawa Lyuu Revocatus Muswaga Stephen Sabiano Aristariki Mushi Tellence Aloys Anna Ombay Joseph Malimi Bikombo Abdall Mastur Dominica Mfaume Brigitha Temba Rhobi Kenyunko Elizabeth Msaki Marcella Francis Robert Hezekia Nnko Gidion Kinyina Issa Khamis Ali Ali Juma Mohamed Ramla Abdalla Juma Fredrick Kasase
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DATA COLLECTION DRIVERS

John Fundisha Benedict Liwoya Godfrey Mtoni Derick Dominic Zuberi Mkawa Ally Kiduara Abdulrahim Hamad Adam Said Nyingo Jacob Swai Leonard Mwakajinga Maloba Kisanga Rajab Shenii Nikata Mohamed Hemed S. Hemed	Godfrey Nyabukika Charles Fallu Baraka Nyamberwa Yohana Kipangula Ali Ussi Ali Hiari Juma Juma Gwao Paulo Mkuwa Andrew Simkonda Carmel Lema Peter Msofe Vitalis Simon Serafin Matei Hamdan R. Kiserengo	Twaha Bendera Benjamin Makasi Shomari Matewele Michael Madembwe Temu Msula Evarist Msisi Jailos Tinda Viannel Hyera Leonard Peter Kadawi Lucas Mgane Ally Kibope Flavian Rugemalila Laurence Msuya Thadeus Bhura
---	--	---

RECRUITMENT, LOGISTICS AND DATA ADMINISTRATORS

RECRUITMENT	LOGISTICS	DATA ADMINISTRATOR
<p>Gabriel Madembwe Stambuli Mapunda Raya Hassan Jamal Mbuguyu Baraka Mahamood Mwanaisha A. Khamis Said Omar Mohammed Sakina Salim Abdulmajid J. Ramadhan Abdallah M. Denge Sabina Raphael</p>	<p>Juliet Mmary Daudi Nyolobi Hilda Maliti Ahidi Kisra Sylvia Remmy Abel Torofino Kazija Said</p>	<p>Eliezer Taluka Munir Mdee Gidion Mipawa Abdullah O. Makame Alice Chopeta</p> <p>PROJECT ACCOUNTANT</p> <p>Lwitico Lufingo Joel Mwendamaka Ali Mwadini Ame</p>

TECHNICAL WORKING GROUP MEMBERS

<p>Veronicah Mugisha (ICAP) Emilian Karugendo(NBS) Julius Zelothe (ICAP) Elisaphane Munyazesza (ICAP) Esther Solomon (POPC) Kayla Lavilla (CDC) Mary Kibona (CDC) Michael Mwasekaga (CDC) Ali S. Ali (MoH Zanzibar) Farhat J. Khalid (MOH-ZHHITLP) Salma Haji (MoH Zanzibar) Kathryn Rosecrans(CDC) Subiraga Kaganda(TACAIDS) Erasmo Malekela (USAID Tanzania) Fahima M. Issa(OCGS) Jocelyn Rwehumbiza(NBS) Hellen Mtove(NBS) Elizabeth Gummerson (ICAP) Sasi Jonnalagadda (CDC) George Mgomella (CDC) Emmanuel Kasheeka (UNAIDS)</p>	<p>Ramadhani Mwiru (CDC) Aleya Khalifa (CDC) Amos Kahwa (NIMR) Mtebe Majigo (MUHAS) Charles Massambu (MoHCDGEC) Aroldia Mulokozi(TACAIDS) Sylvia Meku (NBS) Neema Makya (NACP) Athuman Msuya (NBS) Optatus Malewo (CDC) Sylvester Mattunda(CDC) Alison Jenkins (UNICEF) Mariam Kitembe (NBS) Victor Muchunguzi (NHL-QATC) Geoffrey R. Somi (NACP) Phausta Ntigiti(NBS) Rennatus Mdodo (CDC) Khadija Khamis (OCGS) Kathy Hageman (CDC) Heather Menzies (CDC) Ulrike Gilbert (UNICEF)</p>
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STEERING COMMITTEE MEMBERS

<p>Leonard L. Maboko (TACAIDS)- Chairperson David Lowrance (CDC) Ahmed Khatib (ZAC) Jerome Kamwela (TACAIDS) Richard Ngirwa (TACAIDS) Aroldia Mulokozi (TACAIDS)</p>	<p>Optatus Malewo (CDC) Machaele Mwasekaga (CDC) Asanterabi Sangano (PMO) Steven Motambi (PORALG) Charles Masambu(MOHCDGEC) Fausta Mosha (NHL-QATC) Geofrey Somi (NACP)</p>	<p>Veronicah Mugisha(ICAP) Julius Zelothe(ICAP) Mihayo Bupamba(ICAP) Elisaphane Munyazesza (ICAP) Emilian Karugendo (NBS) Mariam Kitembe (NBS) Phausta Ntigiti (NBS)</p>
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Irene Charles (TACAIDS) Mary Kibona (CDC) Rennatus Mdodo (CDC) Kayla Lavilla (CDC) Mayasa Mwinyi (OCGS) George Mgomella (CDC)	Warren Naamara (UNAIDS) Ibrahim D. Kalengo (POPC) Laurent Karindima (NHL-QATC) Karen Hymbaugh (CDC) Kathy Hageman (CDC) Heather Menzies (CDC)	Halima A. Mohamed (ZAC) Erasmo Malekela (USAID) Vicky Chuwa (UNICEF) Mainen Moshi (MUHAS) Khadija Khamis (OCGS) Emmanuel Kasheeka (UNAIDS)
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DATA ANALYSIS ADVISORY COMMITTEE MEMBERS

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REPORT WRITERS

Veronica Mugisha Emilian Karugendo Mariam Kitembe Fahima Issa Aroldia Mulokozi Juma James Elizabeth Gummerson Sasi Jonnalagadda Lilian Chovenye Delfinius Kivenule George Mgomella Takura Kupamupindi Rita Sondengam Kristin Brown Andrea Low	Cecilia Makafu Kayla Lavilla Julius Zelothe Phausta Ntigiti Halima A. Mohamed Yuster L. Manyenga Diana Faini Joyce Peter Chonjo Rennatus Mdodo Nahima Ahmad Julius Zelothe Hellen Mtobe Boniface Simpoli Daniel Williams Stephen Delgado	Hellen Mtobe Ahmad Hamza Mohamed Jonathan M. Mshana Aulea Kokulamuka Ahmed Hani Mohamed Ebiezal Samson Candida Moshiro Adventina Kato Renicha McCree Sasi Jonnalagadda Lusajo Kajula Eric Luaula Ulrike Gilbert Nikhil Kotheagal Elizabeth Radin
---	--	--

TECHNICAL ADVISERS-ICAP at Columbia University

Andrea Low Allison George David Hoos Elizabeth Gummerson Elizabeth Radin Oren Mayer Rachel Bray Suzue Saito Hazel Dube (Zimbabwe) Takura Kupamupindi (SA) Sungani Zidana-Ndovi (SA)	Giles Reid Jessica Justman Joseph Elias Josh Kreiger Hannah Chung Rita Sondengam Sally Findley Yen Pottinger Blanche Pitt (SA) Bright Phiri (SA) Charles Wentz (SA)	Kiwon Lee Katie Johnson Larkin Callaghan Melissa Metz Nahima Ahmed Stephen Delgado Steven Wynn Eliezer Takula Herbert Longwe (SA) Oliver Murangandi (SA) Pule Mphole (SA)
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WESTAT

Adam Chu Amanda Fournier Baifan Li Bhumika Pakai Brandyn Fauble Katherine Aronson Emmanuel Aluko Lisa Bowser Lori Andrews Rick Mitchell Roberto Miglietti Sean Byrne Vivian Wu	Charisse McBride Emily J. Hudak Graham Kalton Harold Bobbitt Jackie Varenne Kenneth Marshall Kiersten Johnson Malinda Karunaratne Mamadou Diallo Marie Alexander Sarah Woodruff Thuzar Myo Myint	Jason Ives Joy Curvan Julia Shpigenur Jyothi Pabbaraju Karin Wilson Karla Richie Laura Alvarez Rojas Lesa Houser Monica Tolentino Ratha Soumphonphakdy Ron Klinger Weijia Ren
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APPENDIX E HOUSEHOLD QUESTIONNAIRE

ENGLISH

MINISTRY OF HEALTH TANZANIA MAINLAND AND ZANZIBAR

HIV IMPACT ASSESSMENT

HOUSEHOLD QUESTIONNAIRE

CONFIDENTIAL

TICK IF HOUSEHOLD SELECTED FOR CHILDREN'S SURVEY

HOUSEHOLD IDENTIFICATION

REGION NAME: _____

DISTRICT NAME: _____

WARD/SHEHIA NAME: _____

VILLAGE/STREET NAME: _____

EA NAME: _____

NAME OF HOUSEHOLD HEAD: _____

REGION CODE

DISTRICT CODE

--	--	--

WARD/SHEHIA CODE

--	--

VILLAGE/ST. CODE

--	--

EA CODE

--	--	--

HH NUMBER

--	--	--

INTERVIEWER VISITS

	1	2	3	FINAL VISIT											
VISIT DATE:	_____	_____	_____	DAY: <table border="1"><tr><td></td><td></td></tr></table> MONTH: <table border="1"><tr><td></td><td></td></tr></table> YEAR: <table border="1"><tr><td></td><td></td><td></td><td></td></tr></table> INT. CODE: <table border="1"><tr><td></td><td></td></tr></table> RESULT: <table border="1"><tr><td></td></tr></table>											
INTERVIEWER NAME:	_____	_____	_____												
RESULT*	_____	_____	_____												

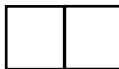
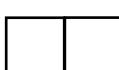
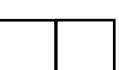
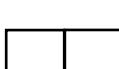
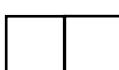
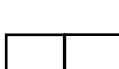
NEXT VISIT: DATE	<input type="text"/>	<input type="text"/>		TOTAL NUMBER OF VISITS:	<input type="text"/>	
TIME	<input type="text"/>	<input type="text"/>				
TOTAL PERSONS IN HOUSEHOLD			TOTAL ELIGIBLE WOMEN:	TOTAL ELIGIBLE MEN:	TOTAL ELIGIBLE CHILDREN:	LINE NO. OF RESPONDENT TO HOUSEHOLD QUESTIONNAIRE
				<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
LANGUAGE OF INTERVIEW:		LANGUAGE CODES: (01) ENGLISH (02) KISWAHILI				
SUPERVISOR: _____ DATE: _____		SUPERVISOR CODE: <input type="text"/> <input type="text"/>		OFFICE EDITOR: <input type="text"/> <input type="text"/>		
* RESULTS CODES: (1) COMPLETED (2) NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT AT HOME AT TIME OF VISIT (3) ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD OF TIME (4) POSTPONED						

START TIME					
START	Record the start time. USE 24 HOUR TIME. IF START TIME IS 3:12 PM, RECORD 15 HOURS, 12 MINUTES, NOT 03 HOURS, 12 MINUTES.	HOUR:	<input type="text"/> <input type="text"/>	MINUTES:	<input type="text"/> <input type="text"/>

HOUSEHOLD SCHEDULE											
LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE					
	<p>Please give me the names of the persons who usually lives in your household or guests of the household who stayed here last night, starting with the head of the household.</p> <p>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.</p>	What is the relationship of (NAME) to the head of the household? SEE CODES BELOW		Does (NAME) usually live here?	Did (NAME) sleep here last night?	IF LESS THAN 5 YEARS, RECORD IN MONTHS.					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)				
1		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>
2		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>
3		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>
4		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>
5		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>
6		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>
7		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>
8		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>
9		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>
10		<table border="1"><tr><td></td><td></td></tr></table>			M F	Y N	Y N	<table border="1"><tr><td></td><td></td></tr></table>			MONTHS <input type="checkbox"/> YEARS <input type="checkbox"/>

<input type="checkbox"/> TICK HERE IF CONTINUATION SHEET USED	YES <input type="checkbox"/>	NO <input type="checkbox"/>	<u>CODES FOR COLUMN 3: RELATIONSHIP TO HOUSEHOLD HEAD</u>		
<p>2A) Just to make sure I have a complete listing, are there any other persons such as small children or infants that we have not listed?</p> <p>2B) Are there any other people who may not be members of your household such as domestic servants, lodgers, or friends who usually live here?</p> <p>2C) Are there any guests or temporary visitors staying here, or anyone else who stayed here last night who we have not seen?</p>	YES <input type="checkbox"/>	NO <input type="checkbox"/>	01 = HEAD 02 = WIFE/HUSBAND/PARTNER 03 = SON OR DAUGHTER 04 = SON-IN-LAW/ DAUGHTER-IN-LAW 05 = GRANDCHILD 06 = PARENT 07 = PARENT-IN-LAW 08 = BROTHER/SISTER		
	YES <input type="checkbox"/>	NO <input type="checkbox"/>	09 = CO-WIFE 10 = OTHER RELATIVE 11 = ADOPTED/ FOSTER/STEPCHILD 12 = NOT RELATED 98 = DON'T KNOW		
	YES <input type="checkbox"/>	NO <input type="checkbox"/>			
ADD TO SCHEDULE					

LINE NO.	IF (NAME) IS 0-17 YEARS				
	EMANCIPATION STATUS	ORPHAN STATUS/PARENT OR GUARDIAN			
	<p>Is (NAME) emancipated? [Emancipated minor: Is a person who is not age 18 or over but who, because she or he is married, or is no longer dependent on the parents, does not require parental permission to participate].</p>	<p>Is (NAME)'s natural mother alive?</p>	<p>Does (NAME)'s natural mother usually live in this household or was a guest last night?</p> <p>IF YES: RECORD MOTHER'S LINE NUMBER.</p> <p>IF NO: RECORD FEMALE GUARDIAN'S LINE NUMBER OR '00' IF PARENT OR GUARDIAN NOT PRESENT IN HH.</p>	<p>Is (NAME)'s natural father alive?</p>	<p>Does (NAME)'s natural father usually live in this household or was a guest last night?</p> <p>IF YES: RECORD FATHER'S LINE NUMBER.</p> <p>IF NO: RECORD MALE GUARDIAN'S LINE NUMBER OR '00' IF PARENT OR GUARDIAN NOT PRESENT IN HH.</p>
(1)	(9)	(10)	(11)	(12)	(13)

1	Y N	Y N DK L→ 12		Y N DK L→ 14	
2	Y N	Y N DK L→ 12		Y N DK L→ 14	
3	Y N	Y N DK L→ 12		Y N DK L→ 14	
4	Y N	Y N DK L→ 12		Y N DK L→ 14	
5	Y N	Y N DK L→ 12		Y N DK L→ 14	
6	Y N	Y N DK L→ 12		Y N DK L→ 14	
7	Y N	Y N DK L→ 12		Y N DK L→ 14	
8	Y N	Y N DK L→ 12		Y N DK L→ 14	
9	Y N	Y N DK L→ 12		Y N DK L→ 14	
10	Y N	Y N DK L→ 12		Y N DK L→ 14	

LINE NO.	IF (NAME) is 18+ years						
	SICK PERSON	MOTHER DEAD OR SICK		FATHER DEAD OR SICK			
	CHECK COLUMNS 7 AND 8, IF UNDER 18 ⑨ 19 IF 18 YEARS OR MORE: Has (NAME) been very sick for at least 3 months during the past 12 months, that is (NAME) was too sick to work or do normal activities?	CHECK COLUMN 10, IF COLUMN 10 'N' ⑩ 22 IF COLUMN 10 'Y': Has (NAME)'s natural mother been very sick for at least 3 months during the past 12 months, that is she was too sick to work or do normal activities?	IF MOTHER SICK: Does (NAME)'s natural mother have HIV/AIDS?	CHECK COLUMN 12, IF COLUMN 12 'N' ⑩ 25 IF COLUMN 11 'Y': Has (NAME)'s natural father been very sick for at least 3 months during the past 12 months, that is he was too sick to work or do normal activities?	IF FATHER SICK: Does (NAME)'s natural father have HIV/AIDS?	IF CHILD'S NATURAL MOTHER HAS DIED (COLUMN 10 'N') OR BEEN SICK (COLUMN 19 'Y'), SELECT Y.	IF CHILD'S NATURAL FATHER HAS DIED (COLUMN 12 'N') OR BEEN SICK (COLUMN 22 'Y'), SELECT Y.
(1)	(18)	(19)	(20)	(22)	(23)	(25)	(26)
1	Y N	Y N 21	Y N DK	Y N 24	Y N DK	Y N	Y N

2	Y N	Y N 21	Y N DK	Y N 24	Y N DK	Y N	Y N
3	Y N	Y N 21	Y N DK	Y N 24	Y N DK	Y N	Y N
4	Y N	Y N 21	Y N DK	Y N 24	Y N DK	Y N	Y N
5	Y N	Y N 21	Y N DK	Y N 24	Y N DK	Y N	Y N
6	Y N	Y N 21	Y N DK	Y N 24	Y N DK	Y N	Y N
7	Y N	Y N 21	Y N DK	Y N 24	Y N DK	Y N	Y N
8	Y N	Y N 21	Y N DK	Y N 24	Y N DK	Y N	Y N
9	Y N	Y N 21	Y N DK	Y N 24	Y N	Y N	Y N

		21		24			
10	Y N	Y N → 21	Y N DK	Y N → 24	Y N	Y N	Y N

HOUSEHOLD SCHEDULE				HEALTH INSURANCE	
LINE NO.	SPOUSES AND CO-HABITATING PARTNERS				
	RECORD THE LINE NUMBER (NAME)'S OF SPOUSE OR PARTNER. IF NO SPOUSE OR PARTNER LEAVE BLANK.	RECORD THE LINE NUMBER (NAME)'S OF SPOUSE OR PARTNER. IF NO SPOUSE OR PARTNER LEAVE BLANK.	RECORD THE LINE NUMBER (NAME)'S OF SPOUSE OR PARTNER. IF NO SPOUSE OR PARTNER LEAVE BLANK.	Is (NAME) covered by any health Insurance?	What is (NAME)'s main type of health insurance NHIF=01 NSSF=02 CHF=03 OTHER EMPLOYER BASED=04 OTHER COMMUNITY BASED MUTUAL =05 PRIVATELY PURCHASED = 07 OTHER (SPECIFY)___= 96 DON'T KNOW=98
(1)	(27a)	(27b)	(27c)	28	29
1	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Y N DK → GO TO101	<input type="checkbox"/>

2	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> DK ↓ GO TO101	<input type="checkbox"/>
3	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> DK ↓ GO TO101	<input type="checkbox"/>
4	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> DK ↓ GO TO101	<input type="checkbox"/>
5	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> DK ↓ GO TO101	<input type="checkbox"/>
6	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> DK ↓ GO TO101	<input type="checkbox"/>
7	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> DK ↓ GO TO101	<input type="checkbox"/>
8	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> DK ↓ GO TO101	<input type="checkbox"/>
9	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> DK ↓ GO TO101	<input type="checkbox"/>
10	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> DK ↓ GO TO101	<input type="checkbox"/>

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP
SUPPORT FOR ORPHANS AND VULNERABLE CHILDREN			
101	<p>DO NOT READ: CHECK COLUMN 7 IN THE HOUSEHOLD SCHEDULE.</p> <p>ANY CHILD AGE 0-17 YEARS?</p>	<p>NUMBER OF CHILDREN 0-17 YRS:</p> <pre> graph TD A[NUMBER OF CHILDREN 0-17 YRS: [] []] -- "IF '00' NONE" --> B[HH CHARACT.] A -- "IF AT LEAST ONE CHILD" --> C[CONTINUE TO 102] </pre>	
102	<p>DO NOT READ: CHECK COLUMN 18 IN THE HOUSEHOLD SCHEDULE.</p> <p>ANY SICK ADULT AGE 18-64 YEARS?</p>	<p>YES.....1</p> <p>NO.....2</p>	<p>→ 105</p>
103	<p>DO NOT READ: CHECK COLUMN 25 IN THE HOUSEHOLD SCHEDULE.</p> <p>ANY CHILD WHOSE MOTHER HAS DIED OR IS VERY SICK?</p>	<p>YES.....1</p> <p>NO.....2</p>	<p>→ 105</p>
104	<p>DO NOT READ: CHECK COLUMN 26 IN THE HOUSEHOLD SCHEDULE.</p> <p>ANY CHILD WHOSE FATHER HAS DIED OR IS VERY SICK?</p>	<p>YES.....1</p> <p>NO.....2</p>	<p>→ 105</p> <p>→ HH CHARACT.</p>

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP	
105	RECORD NAMES, LINE NUMBERS, AND AGES OF ALL CHILDREN 0-17 WHO ARE IDENTIFIED IN COLUMNS 18, 25, AND 26 AS HAVING A SICK ADULT IN THEIR HOUSEHOLD OR HAVING A MOTHER AND/OR FATHER WHO HAS DIED OR HAS BEEN VERY SICK.			
	NAME LINE NUMER (FROM COLUMN 1) AGE (FROM COLUMN 7)	CHILD (1) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	CHILD (2) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	CHILD (3) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
	<p>➤ INTERVIEWER SAY: "I would like to ask you about any formal, organized help or support for children that your household may have received for which you did not have to pay. By formal, organized support, I mean help provided by someone working for a program. This program could be government, private, religious, charity, or community-based."</p>			
106	Now I would like to ask you about the support your household received for (NAME). In the last 12 months, has your household received any medical support for (NAME), such as medical care, supplies, or medicine, for which you did not have to pay?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8

107	In the last 12 months, has your household received any emotional or psychological support for (NAME), such as companionship, counseling from a trained counselor, or spiritual support, which you received at home and for which you did not have to pay?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
108	Did your household receive any of this emotional or psychological support for (NAME) in the past 3 months?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
109	In the last 12 months, has your household received any material support for (NAME), such as clothing, food, or financial support, for which you did not have to pay?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
110	Did your household receive any of this material support for (NAME) in the past 3 months?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8
111	In the last 12 months, has your household received any social support for (NAME) such as help in household work, training for a caregiver, or legal services, for which you did not have to pay?	YES.....1 NO.....2 DON'T KNOW.....8 CHECK BEFORE 113	YES.....1 NO.....2 DON'T KNOW.....8 CHECK BEFORE 113	YES.....1 NO.....2 DON'T KNOW.....8 CHECK BEFORE 113
112	Did your household receive any of this social support for (NAME) in the past 3 months?	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8	YES.....1 NO.....2 DON'T KNOW.....8

113	In the last 12 months, has your household received any support for (NAME)'s schooling, such as allowance, free admission, books, or supplies, for which you did not have to pay?	YES.....1 NO, DID NOT RECEIVE SUPPORT.....2 NO, CHILD DOES NOT ATTEND SCHOOL.....3 DON'T KNOW.....8 SKIP IF CHILD<5 YEARS	YES.....1 NO, DID NOT RECEIVE SUPPORT.....2 NO, CHILD DOES NOT ATTEND SCHOOL.....3 DON'T KNOW.....8 SKIP IF CHILD<5 YEARS	YES.....1 NO, DID NOT RECEIVE SUPPORT.....2 NO, CHILD DOES NOT ATTEND SCHOOL.....3 DON'T KNOW.....8 SKIP IF CHILD<5 YEARS
-----	--	---	---	---

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

MATRIX END

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

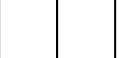
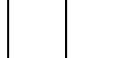
IF THERE IS ANOTHER CHILD 0-17 YEARS IN THE HOUSEHOLD WHO HAS BEEN IDENTIFIED IN COLUMN 17 AS HAVING A MOTHER/FATHER WHO HAS DIED OR IS VERY SICK BESIDES (NAME) → CONTINUE TO 106 AND ASK ABOUT THE NEXT CHILD.

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

TICK IF CONTINUATION SHEET REQUIRED.

IF NO OTHER CHILDREN, CONTINUE HOUSEHOLD INTERVIEW.

NO.	QUESTIONS AND INSTRUCTIONS	CODING CATEGORIES	SKIP																																					
HOUSEHOLD DEATHS																																								
114	Now I would like to ask you more questions about your household. Has any usual resident of your household died since January 1, 2014?	YES.....1 NO.....2	→ 201																																					
115	How many usual household residents died since January 1, 2014?	NUMBER OF DEATHS.....	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr></table>																																					
ASK 116-120 AS APPROPRIATE FOR EACH PERSON WHO DIED. IF THERE WERE MORE THAN 3 DEATHS USE ADDITIONAL QUESTIONNAIRES.																																								
116	What was the name of the person who died (most recently/before him/her)?	NAME 1 ST DEATH _____	NAME 2 ND DEATH _____																																					
117	When did (NAME) die? Please give your best guess.	DAY <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr></table> MONTH <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> YEAR <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> DON'T KNOW DAY = -8 DON'T KNOW MONTH = -8 DON'T KNOW YEAR = -8													DAY <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr></table> MONTH <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> YEAR <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> DON'T KNOW DAY = -8 DON'T KNOW MONTH = -8 DON'T KNOW YEAR = -8													DAY <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr></table> MONTH <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> YEAR <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> DON'T KNOW DAY = -8 DON'T KNOW MONTH = -8 DON'T KNOW YEAR = -8												
118	Was (NAME) male or female?	MALE1 FEMALE.....2 DON'T KNOW8	MALE1 FEMALE.....2 DON'T KNOW8																																					

119	<p>How old was (NAME) when (he/she) died?</p> <p>RECORD DAYS IF LESS THAN 1 MONTH, MONTHS IF LESS THAN 1 YEAR, AND COMPLETED YEARS IF 1 YEAR OR MORE.</p>	<p>DAYS</p>  <p>MONTHS</p>  <p>YEARS</p> 	<p>DAYS</p>  <p>MONTHS</p>  <p>YEARS</p> 	<p>DAYS</p>  <p>MONTHS</p>  <p>YEARS</p> 
	<p>CONTINUE TO NEXT DEATH ACCORDING UP TO THE NUMBER REPORTED FROM 115.</p> <p><input type="checkbox"/> TICK IF CONTINUATION SHEET REQUIRED.</p>			

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 WATER PIPED INTO DWELLING.....11 PIPED TO YARD/PLOT.....12 PUBLIC TAP/STANDPIPE.....13 TUBE WELL OR BOREHOLE.....21 DUG WELL PROTECTED WELL.....31 UNPROTECTED WELL.....32 WATER FROM SPRING PROTECTED SPRING.....41 UNPROTECTED SPRING.....42 RAINWATER.....51 TANKER TRUCK.....61 CART WITH SMALL TANK.....71 SURFACE WATER (RIVER/DAM/LAKE/ POND/STREAM/CANAL).....81 BOTTLED WATER.....91 OTHER.....96 <hr/> (SPECIFY)	
202	Did you do anything to the water to make it safer to drink?	YES.....1 NO.....2 DON'T KNOW.....8	 204

203	What do you do to make your water safe for drinking?	BOILING.....1 FILTRATION (CHARCOAL FILTER).....2 SEDIMENTATION.....3 DISINFECTION (WATERGUARD, CHLORINE).....4 USE BOTTLED WATER.....5 OTHER.....96 <hr/> (SPECIFY)	
-----	--	--	--

204	<p>What kind of toilet facility do members of your household usually use?</p>	<p>FLUSH TO PIPED SEWER SYSTEM11 FLUSH TO SEPTIC TANK12 FLUSH TO PIT LATRINE13 FLUSH TO SOMEWHERE ELSE14 FLUSH, DON'T KNOW WHERE15</p> <p>VENTILATED IMPROVED PIT LATRINE.....21</p> <p>PIT LATRINE WITH SLAB (WASHABLE).....22</p> <p>PIT LATRINE WITH SLAB (NOT WASHABLE).....23</p> <p>PIT LATRINE WITHOUT SLAB/OPEN PIT.....24</p> <p>COMPOSTING TOILET.....31</p> <p>BUCKET TOILET41</p> <p>HANGING TOILET/HANGING LATRINE.....51</p> <p>NO TOILET/BUSH/FIELD61</p> <p>OTHER.....96</p> <hr/> <p>(SPECIFY)</p> <p>T</p>	205
205	<p>Do you share this toilet facility with other households?</p>	<p>YES.....1</p> <p>NO.....2</p>	

206	How many households use this toilet facility?	NO. OF HOUSEHOLD IF LESS THAN 10 _____ 10 OR MORE HOUSEHOLDS96 DON'T KNOW98	
-----	---	--	--

PREFACE BEFORE QUESTIONS 207-211:

Does your household have:

207	Electricity?	YES.....1 NO.....2	
208	A radio	YES.....1 NO.....2	
209	A television?	YES.....1 NO.....2	
210	A telephone/mobile telephone	YES.....1 NO.....2	
211	A refrigerator	YES.....1 NO.....2	
212	What type of fuel does your household mainly use for cooking?	ELECTRICITY.....1 LPG / NATURAL GAS.....2 BIOGAS.....3 PARAFFIN / KEROSENE.....4 COAL, LIGNITE.....5 CHARCOAL FROM WOOD.....6 FIREWOOD / STRAW.....7 DUNG.....8 NO FOOD COOKED IN HOUSEHOLD....95 OTHER.....96 _____ (SPECIFY)	

212A	What is the main source of energy for lighting in the Household?	ELECTRICITY.....01 SOLAR.....02 GAS.....03 PARAFFIN-HURRICANE LAMP.....04 PARAFFIN-PRESSURE LAMP.....05 PARAFFIN-WICK LAMP.....06 FIREWOOD.....07 CANDLES.....08 OTHER _____ 96 SPECIFY	
213	MAIN MATERIAL OF FLOOR RECORD OBSERVATION.	NATURAL FLOOR EARTH / SAND.....11 DUNG.....12 RUDIMENTARY FLOOR WOOD PLANKS.....21 PALM / BAMBOO.....22 FINISHED FLOOR PARQUET OR POLISHED WOOD.....31 VINYL OR ASPHALT STRIP.....32 CERAMIC TILES.....33 CEMENT/TERAZO.....34 CARPET.....35 OTHER.....96 <hr/> (SPECIFY)	

214	<p>MAIN MATERIAL OF THE ROOF</p> <p>RECORD OBSERVATION.</p>	<p>NATURAL ROOFING</p> <p>NO ROOF.....11 THATCH/PALM LEAF (MAKUTI).....12 DUNG / MUD.....13</p> <p>RUDIMENTARY ROOFING</p> <p>CORRUGATED IRON (MABATI).....21 TIN CANS.....22</p> <p>FINISHED ROOFING</p> <p>ASBESTOS SHEET.....31 CONCRETE.....32 TILES.....33 OTHER.....96</p> <hr/> <p>(SPECIFY)</p>			
215	<p>MAIN MATERIAL OF THE EXTERIOR WALLS</p> <p>RECORD OBSERVATION.</p>	<p>NATURAL WALLS</p> <p>NO WALLS.....11 CANES/PALM/TRUNKS.....12 DUNG / MUD.....13</p> <p>RUDIMENTARY WALLS</p> <p>BAMBOO WITH MUD.....21 STONE WITH MUD.....22 PLYWOOD/CARDBOARD.....23 CARTON.....24 REUSED WOOD.....25</p> <p>FINISHED WALLS</p> <p>CEMENT.....31 STONE WITH LIME/CEMENT.....32 BRICKS.....33 CEMENT BLOCKS.....34 WOOD PLANKS/SHINGLES.....35 OTHER.....96</p> <hr/> <p>(SPECIFY)</p>			
216	How many rooms are used for sleeping?	NUMBER OF ROOMS: <table border="1" data-bbox="1122 1558 1253 1622"><tr><td></td><td></td></tr></table>			
<p>PREFACE BEFORE QUESTIONS 215-218:</p> <p>Does any member of your household own:</p>					
217	A bicycle?	YES.....1 NO.....2			

218	A motorcycle or motor scooter?	YES.....1 NO.....2	
219	A car or truck?	YES.....1 NO.....2	
220	A boat with a motor?	YES.....1 NO.....2	
220A	An animal-drawn cart?	YES.....1 NO.....2	

PREFACE BEFORE QUESTIONS 219-223:

Does any member of your household own:

221	Cows?	YES.....1 NO.....2	
222	Goats/Sheep?	YES.....1 NO.....2	
223	Poultry (e.g., ducks, chickens)?	YES.....1 NO.....2	
224	Dogs?	YES.....1 NO.....2	
225	Other animals (camels, horses, donkeys)?	YES.....1 NO.....2	

MALARIA & FOOD SECURITY

226*	Does your household have any mosquito nets that can be used while sleeping?	YES.....1 NO.....2	
------	---	-----------------------	--

227*	In the past 4 weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	YES.....1 NO.....2 DON'T KNOW.....8	<input type="checkbox"/> → 227
228*	How often did this happen in the past 4 weeks?	RARELY (1-2 TIMES).....1 SOMETIMES (3-10 TIMES).....2 OFTEN (MORE THAN 10 TIMES).....3	
229*	In the past 4 weeks, did you or any household member go to sleep at night hungry because there was not enough food?	YES.....1 NO.....2 DON'T KNOW.....8	<input type="checkbox"/> → 229
230*	How often did this happen in the past 4 weeks?	RARELY (1-2 TIMES).....1 SOMETIMES (3-10 TIMES).....2 OFTEN (MORE THAN 10 TIMES).....3	
231*	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	YES.....1 NO.....2 DON'T KNOW.....8	<input type="checkbox"/> → 301
232*	How often did this happen in the past 4 weeks?	RARELY (1-2 TIMES).....1 SOMETIMES (3-10 TIMES).....2 OFTEN (MORE THAN 10 TIMES).....3	

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

302	<p>Has your household received any of the following forms of external economic support in the last 3 months?</p> <p>SELECT ALL THAT APPLY.</p>	<p>NOTHINGA</p> <p>CASH TRANSFER (E.G. PENSIONS, DISABILITY GRANTS, CHILD GRANT).....B</p> <p>ASSISTANCE FOR SCHOOL FEES.....C</p> <p>MATERIAL SUPPORT FOR EDUCATION (E.G. UNIFORMS, SCHOOL BOOKS, EDUCATION, TUITION SUPPORT, BURSARIES).....D</p> <p>INCOME GENERATION SUPPORT IN CASH OR KIND (E.G. AGRICULTURAL INPUTS).....E</p> <p>FOOD ASSISTANCE PROVIDED AT THE HOUSEHOLD OR EXTERNAL INSTITUTION.....F</p> <p>MATERIAL OR FINANCIAL SUPPORT FOR SHELTER.....G</p> <p>SOCIAL PENSION.....H</p> <p>OTHER.....X</p> <hr/> <p>(SPECIFY)</p> <p>DON'T KNOWZ</p>	
-----	---	--	--

<u>END OF HOUSEHOLD INTERVIEW</u>							
<p>➤ INTERVIEWER SAY: "This is the end of the household survey. Thank you very much for your time and for your responses."</p>							
END TIME							
END	<p>Record the end time.</p> <p>USE 24 HOUR TIME.</p> <p>IF START TIME IS 3:12 PM, RECORD 15 HOURS, 12 MINUTES, NOT 03 HOURS, 12 MINUTES.</p>	<p>HOUR:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> </tr> </table> <p>MINUTES:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> </tr> </table>					

INTERVIEWER OBSERVATIONS:

TO BE COMPLETED AFTER THE INTERVIEW:

COMMENTS ABOUT RESPONDENT:

COMMENTS ABOUT SPECIFIC QUESTIONS:

GENERAL QUESTIONS:

APPENDIX F: ADULT QUESTIONNAIRE

ENGLISH	2016 TANZANIA POPULATION BASED HIV IMPACT ASSESSMENT INDIVIDUAL QUESTIONNAIRE UNITED REPUBLIC OF TANZANIA			
CONFIDENTIAL	<input type="checkbox"/>			
IDENTIFICATION				
REGION NAME:			REGION CODE	<input type="checkbox"/> <input type="checkbox"/>
DISTRICT NAME:			DISTRICT CODE	<input type="checkbox"/> <input type="checkbox"/>
WARD NAME:			WARD/SHEHIA	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
CLUSTER NAME:			CLUSTER NUMBER	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
NAME AND LINE NUMBER OF INDIVIDUAL: _____				
INTERVIEWER VISITS				
	1	2	3	FINAL VISIT
VISIT DATE:	_____	_____	_____	DAY: <input type="checkbox"/> <input type="checkbox"/>
INTERVIEWER NAME:	_____	_____	_____	MONTH: <input type="checkbox"/> <input type="checkbox"/>
RESULT*	_____	_____	_____	YEAR: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
INT. CODE:	_____	_____	_____	RESULT: <input type="checkbox"/>
NEXT VISIT: DATE	_____	_____		TOTAL NUMBER OF VISITS: <input type="checkbox"/>
TIME	_____	_____		
SUPERVISOR: _____	SUPERVISOR CODE: _____	OFFICE EDITOR: <input type="checkbox"/> <input type="checkbox"/>	KEYED BY: <input type="checkbox"/> <input type="checkbox"/>	

DATE: _____		
* RESULTS CODES:		
(1) COMPLETED	(4) REFUSED	
(2) NOT AT HOME	(5) PARTLY COMPLETED	
(3) POSTPONED	(6) INCAPACITATED	
	(7) OTHER (SPECIFY)	

MODULE 1: RESPONDENT BACKGROUND

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS COMMENTS	INDICATOR	DHS/AIS	CORE
L1	LNGVQX_LN G	LANGUAGE OF QUESTIONNAIRE	ENGLISH = 1 SWAHILI = 2				C
L2	LNGVINT_LN G	LANGUAGE OF INTERVIEW	ENGLISH = 1 SWAHILI = 2				C
		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.			N/A	N/A	N/A
101	GENDR	IS THE RESPONDENT MALE OR FEMALE?	MALE = 1 FEMALE = 2			Y; 110 in THMIS	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS COMMENTS	INDICATOR	DHS/AIS	CORE
102	SCHLAT	Have you ever attended school?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → 12MONTAWAYNIG HT		Y	C
103	SCHLCUR	Are you enrolled in school?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	DK, REFUSED → 12MONTAWAYNIG HT		N	C
104	SCHLHI	What is the highest level of school you attended?: IF RESPONDENT MENTIONS SECONDARY OR POST SECONDARY TRAINING PROBE TO IDENTIFY IF IT IS SECONDARY O-LEVEL OR A-LEVEL	PRE-PRIMARY = 0 PRIMARY=1 POST- PRIMARY TRAINING=2 SECONDARY (O-LEVEL)= 3 POST SECONDARY (O-LEVEL) TRAINING= 4 SECONDARY (A-LEVEL) =5 POST SECONDARY (A LEVEL) TRAINING =6 UNIVERSITY =7 DON'T KNOW = -8 REFUSED = -9			N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS COMMENTS	INDICATOR	DHS/AIS	CORE
105	SCHCOM	What is the highest grade you completed at that level? IF COMPLETED LESS THAN ONE YEAR AT THAT LEVEL RECORD '00'	GRADE ____ DON'T KNOW = -8 REFUSED = -9			N Y 106 THMIS	C
106	12MONTAW AYNIGHT	In the last 12 months, how many times have you been away from home for one or more nights? CODE '00' IF NONE.	NUMBER OF TIMES __ DON'T KNOW = -8 REFUSED = -9	NONE , DK, REFUSED→109		Y 118 THMIS	S
107	12MOAWAY MONTH	In the last 12 months, have you been away from home for more than one month at a time?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			Y 119 THMIS	S
108	WORK12MO	Have you done any work in the last 12 months for which you received cash or goods as payment?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →NEXT MODULE		Y 115 THMIS	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS COMMENTS	INDICATOR	DHS/AIS	CORE
109	WORK7DAYS	Have you done any work in the last seven days for which you received cash or goods as payment?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			Y (modified) 113 THMIS	C

MODULE 2: MARRIAGE

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
Now I would like to ask you about your current and previous relationships and/or marriages.							
201	EVERMAR	Have you ever been married or lived together with a [man/woman] as if married?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → SKIP TO NEXT MODULE		Y 502 THMIS	C
202	AGEMAR	How old were you the first time you married or started living with a [man/woman] as if married?	AGE IN YEARS ____ DON'T KNOW = 98 REFUSED = 99			N Y 512 THMIS	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
203	CURMAR	What is your current marital status?: are you married, living together with someone as if married, widowed, divorced, or separated?	MARRIED = 1 LIVING TOGETHER = 2 WIDOWED = 3 DIVORCED = 4 SEPARATED = 5 DON'T KNOW = -8 REFUSED = -9	WIDOWED, DIVORCED, SEPARATED, DK, REFUSED → NEXT MODULE		N Y 503 THMIS	C
The next several questions are about your current spouse or partner(s).							
204	NUMWIF	Altogether, how many wives or live-in partners do you have?	NUMBER OF WIVES OR PARTNERS ____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED → SKIP TO NEXT MODULE IF FEMALE → HUSLIVEW		Y 506 THMIS	C
205	QXA1205_LIST/QXA1205	The Household Schedule listed [count] household members as your wives/partners. PLEASE REVIEW THE LIST BELOW. Are all of the listed household members your wives/partners who live in the household?	YES = 1 NO = 2	IF NO → NPYN		N	C
206	REVVIFENM	Is [NAME] your wife/partner?	YES = 1 NO = 2			Y	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
207	REVVIFEHH	Does [NAME] live in the household?	YES = 1 NO = 2			Y	C
208	NPYN	Do you have additional spouse(s)/partner(s) that live with you?	YES = 1 NO = 2			Y	C
209	NPNUM	How many additional spouse(s)/partners(s) live with you?	NUMBER OF WIVES OR LIVE-IN PARTNERS __ DON'T KNOW = -8 REFUSE TO ANSWER = -9			Y 506 THMIS	C
210	NEWWNAME	PLEASE ENTER THE NAME OF THE SPOUSE/PARTNER THAT LIVES WITH THE RESPONDENT.	NAME _____				C
211	WIFLIVEEW	How many wives or live-in partners do you have who live elsewhere? CODE '00' IF NONE.	NUMBER OF ADDITIONAL SPOUSE(S)/PARTNERS ____ DON'T KNOW = -8 REFUSED = -9			Y	C
212	HUSLIVEW	Is your husband or partner living with you now or is he staying elsewhere?	LIVING TOGETHER = 1 STAYING ELSEWHERE = 2 DON'T KNOW = -8 REFUSE TO ANSWER = -9	STAYING ELSEWHERE, DK, REFUSED → HUSOTWIF STAYING ELSEWHERE & LISTED PARTNER		Y 504 THMIS	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
				IN HH ROSTER→ HHQXHUS2 IF MALE SKIP →NEXT MODULE			
213	HHQXHUS2	The household schedule listed [NAME OF HUSBAND/PARTNER] as your husband/partner who is living here. Is that correct?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			Y	C
214	NEWHSELEC T	Please select the spouse/partner that lives with you.	NAME			Y	C
215	NEWHNAM E	PLEASE ENTER THE NAME OF THE SPOUSE/PARTNER THAT LIVES WITH YOU	NAME OF SPOUSE/PARTNER ____ DON'T KNOW = -8 REFUSED = -9			Y	C
216	HUSOTWIF	Does your husband or partner have other wives or does he live with other women as if married?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSE TO ANSWER = -9	NO, DK, REFUSED→ SKIP TO NEXT MODULE		Y(modifi ed) 506 THMIS	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
217	HUSNWIF	Including yourself, in total, how many wives or live-in partners does your husband or partner have?	NUMBER OF WIVES OR LIVE-IN PARTNERS __ DON'T KNOW = -8 REFUSE TO ANSWER = -9			Y 506 THMIS	C

MODULE 3: REPRODUCTION

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		Now I would like to ask you questions about your pregnancies and your children.		IF MALE SKIP TO 336.			
301	PREGNUM	How many times have you been pregnant including a current pregnancy? CODE '00' IF NONE.	NUMBER OF TIME(S) ____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED → AVOIDPREG		NOT AVAILABL E IN THMIS; THMIS (201) TALKS ABOUT BIRTHS	C
302	LIVEB	Have you ever had a pregnancy that resulted in a live birth? A live birth is when the baby shows signs of life, such as breathing, beating of the heart or movement.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → PREGNANT		N	C
303	CHILDA2012	How many live births have you had since the first of January 2013 ? CODE '00' IF NONE .	NUMBER OF CHILDREN ____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED → PREGNANT		N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		Now I would like to ask you some questions about the last pregnancy that resulted in a live birth since the first of January, 2013 .					
304	PRGTWIN	Did your last pregnancy result in birth to twins or more?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			N NOT AVAILABLE IN THMIS APPROXIMATES TO 214 (01)	C
305	PRGTWINNA ME*	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 (CHILDREN) WAS NOT NAMED BEFORE DEATH, INPUT BIRTH 1.	NAME _____	WILL BE REPEATED FOR EACH MULTIPLE BIRTH		PRGTWIN NAME*	
306	CHILDLAST	What is the name of the child from your last pregnancy that resulted in a live birth? A live birth is when the baby shows signs of life, such as breathing, beating of the heart or movement. IF THE CHILD (CHILDREN) WAS NOT NAMED BEFORE DEATH, INPUT BIRTH 1.	NAME _____			N	C
307	PRGCARE	When you were pregnant with (NAME), did you visit a health facility for antenatal care?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → HIVTSBP DK, REFUSED → HIVTSBP		Y NOT AVAILABLE IN THMIS, available	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
						in DHS/MIS 2015	
308	PREGNCR	What is the <u>main</u> reason you did not visit a clinic for antenatal care when you were pregnant with (NAME)?	CLINIC WAS TOO FAR AWAY = 1 COULD NOT TAKE TIME OFF WORK/TOO BUSY = 2 COULD NOT AFFORD TO PAY FOR THE VISIT = 3 DID NOT TRUST THE CLINIC STAFF = 4 RECEIVED CARE AT HOME = 5 DID NOT WANT AN HIV TEST DONE = 6 HUSBAND/FAMILY WOULD NOT LET ME GO = 7 USED TRADITIONAL BIRTH ATTENDANT/HEALER = 8 COST OF TRANSPORT = 9 RELIGIOUS REASONS = 10 OTHER = -96 SPECIFY: _____ DON'T KNOW = -98 REFUSED = -99		NOT AVAILABLE IN THMIS, available in DHS/MIS 2015	N	C
		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.					
309	HIVTSBP	Have you ever tested for HIV before your pregnancy with (NAME)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → HIVTOPG		N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
310	HIVPSBP	Did you test positive for HIV before your pregnancy with (NAME)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED HIVTOPG		N	C
311	ARVFVST	At the time of your first antenatal care visit when you were pregnant with (NAME), were you taking ARVs, that is, antiretroviral medications to treat HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → BIRTHWHR NO, DK, REFUSED → ARVTPKG ELECTRONIC AID IF DON'T KNOW		N	C
312	HIVTOPG	During any of your visits to the antenatal care clinic when you were pregnant with (NAME), were you <u>offered</u> an HIV test?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			N	C
313	HIVTRPRG	Were you <u>tested</u> for HIV during any of your antenatal care clinic visits when you were pregnant with (NAME)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → HIVRTPG DK, REFUSED → BIRTHWHR	NOT AVAILABLE IN THMIS	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
314	HIVTSNR	What is the main reason you were not tested for HIV during antenatal care with (NAME)?	DID NOT WANT AN HIV TEST DONE / DID NOT WANT TO KNOW MY STATUS = 1 DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY = 2 AFRAID OTHERS WOULD KNOW ABOUT TEST RESULTS = 3 DID NOT NEED TEST/LOW RISK = 4 OTHER, (SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9	ALL → SKIP TO BIRTHWHR .		N	C
315	HIVRTPG	What was the result of your last HIV test during your pregnancy with (NAME)?	POSITIVE = 1 NEGATIVE = 2 UNKNOWN/ = 3 DID NOT RECEIVE RESULTS = 4 DON'T KNOW = -8 REFUSED = -9	NEGATIVE, UNK, NO RESULTS, DK, REF → BIRTHWHR		N	C
316	ARVTKPG	Did you take ARVs during your pregnancy with (NAME)	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES, SYPHTTKDK, REFUSED → BIRTHWHR		N	C
317	ARVNRPG	What was the main reason you did not take ARVs while you were pregnant with (NAME)?	WAS NOT PRESCRIBED = 1 I FELT HEALTHY/NOT SICK = 2 COST OF MEDICATIONS = 3 COST OF TRANSPORT = 4 RELIGIOUS REASONS = 5			N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
			WAS TAKING TRADITIONAL MEDICATIONS = 6 MEDICATIONS OUT OF STOCK = 7 DID NOT WANT PEOPLE TO KNOW HIV STATUS = 8 DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY = 9 OTHER (SPECIFY)= 96 DON'T KNOW = -8 REFUSED = -9				
318	SYPHTTK	When you were pregnant were you tested for syphilis?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → BRTHWHR		N	C→S
319	SYPHPOS	Did you test positive for syphilis during your pregnancy with (NAME)?	YES = 1 NO = 2 DID NOT GET RESULT = 3 DON'T KNOW = -8 REFUSED = -9	NO, NOT GET RESULT, DK, REFUSED → BRTHWHR		N	C→S
320	SYPHTRT	Did you get treatment for syphilis during your pregnancy with (NAME)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			N	C→S
321	BRTHWHR	Where did you give birth to (NAME)?	HER HOME =11 OTHER HOME=12 TRAINED BIRTH ATTENDANT PREMISES=13	HOME, OTHER IN TRANSIT, OTHER (SPECIFY), DK,		N Y 314 THMIS	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
			GOVERNMENT NATIONAL REFERAL HOSPITAL =21 GOVERNMENT REGIONAL HOSPITAL =22 GOVERNMENT DISTRICT HOSPITAL =23 GOVERNMENT HEALTH CENTRE =24 GOVERNMENT DISPENSARY =25 GOVERNMENT CLINIC =26 RELIGIOUS/VOLUNTARY DISTRICT DESIGNATED HOSPITAL =31 RELIGIOUS/VOLUNTARY HOSPITAL =32 RELIGIOUS/VOLUNTARY HEALTH CENTRE =33 RELIGIOUS/VOLUNTARY DISPENSARY =34 RELIGIOUS/VOLUNTARY CLINIC =35 PRIVATE HOSPITAL =41 PRIVATE HEALTH CENTRE =42 PRIVATE DISPENSARY =43 PRIVATE CLINIC =44 OTHER IN TRANSIT = 51 OTHER (SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9	REFUSED → CHILDBDATE			
322	HIVTOBR	Were you offered an HIV test during labor?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9		N Y, 621 THMIS	C	

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
323	HIVTTLB	Did you test for HIV during labor?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → CHILDBDATE SKIP IF HIV POSITIVE BEFORE LABOUR		N Y 622 THMIS	C
324	HIVRSLR	What was the result of that test?	POSITIVE = 1 NEGATIVE = 2 UNKNOWN/INDETERMINATE = 3 DID NOT RECEIVE RESULTS = 4 DON'T KNOW = -8 REFUSED = -9	NEG, UNK/INDET,NO RESULTS, DK, REFUSED → CHILDBDATE SKIP IF HIV POSITIVE BEFORE LABOUR	NOT AVAILABLE IN THMIS	N	C
325	ARVOFLB	During labor, were you offered ARVs to protect [NAME] against HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF ALREADY ON ARVS.	N	N	C
326	ARVTKLB	During labor, did you take ARVs to protect (NAME) against HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED→ CHILDBDATE SKIP IF ALREADY ON ARVS/TREATME NT/PROPHYLAXI S.		N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
327	ARVCNTN	Did you continue to take the ARVs after delivery?	YES = 1 NO= 2 DON'T KNOW =8 REFUSED = -9	SKIP IF ALREADY ON ARVS.	NOT AVAILABLE IN THMIS	N	C
328	CHILDBDATE	When did you give birth to (NAME) ? Please give your best guess.	DAY ____ DON'T KNOW DAY= -8 REFUSED DAY=-9 MONTH ____ DON'T KNOW MONTH= -8 REFUSED MONTH= -9 YEAR ____ DON'T KNOW YEAR=-8 REFUSED YEAR= -9			N Y 215 THMIS	C
329	CHILDALIVE	Is (NAME) still alive?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES, DK, REFUSED → CHILDLIVE IF MULTIPLE BIRTH ASK CHILDALIVE- CHILDMORE FOR EACH CHILD.		N Y 216 THMIS	C
330	CHILDDAGEY	How old was [NAME] when he/she died? KEY 0 IF CHILD WAS LESS THAN ONE YEAR OLD.	YEARS____ DON'T KNOW = -8 REFUSED= -9	IF >0, DK, REF → CHILDBF		N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
331	CHILDDAGE MO	How old was [Name] in months when he/she died? KEY '0' IF LESS THAN ONE MONTH OLD.	MONTHS_____ DON'T KNOW = -8 REFUSED= -9	ALL→CHILDBF			C
332	CHIDLIVE	Is (NAME) living with you?	YES = 1 NO = 2	NO → CHILDBF		N Y 218 THMIS	C
333	CHILDHHNU M	Please select [NAME] that lives with you. SELECT 'NOT LISTED IN HOUSEHOLD' IF CHILD IS NOT LISTED HERE.	HOUSEHOLD LINE NUMBER ____ NOT LISTED IN HOUSEHOLD = 96			N	C
334	CHILDBF	Did you ever breastfeed (NAME)?	YES = 1 NO, NEVER BREASTFED = 2 NO, CHILD NOT ALIVE = 3 DON'T KNOW = -8 REFUSED = -9	NO, NOT ALIVE, DK, REFUSED → PREGNANT		N Y 315 THMIS	C
335	CHILDBFLON G	For how long did you breastfeed (NAME)? ONLY ONE OPTION MAY BE SELECTED. FOR EXAMPLE, ANSWER ONLY IN WEEKS OR IN MONTHS. CODE '0' IF LESS THAN 1 WEEK.	WEEKS ____ MONTHS ____ STILL BREASTFEEDING = 96 DON'T KNOW = -8 REFUSED = -9			N Y 316 THMIS	C
336	CHILDMORE	Thank you for the information regarding (NAME).	YES = 1 NO = 2	YES →RETURN TO CHIDLIVE FOR MULTIPLES			C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		DID THE RESPONDENT HAVE MORE THAN ONE CHILD (I.E. TWINS, TRIPLETS)?					

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		I will now ask you about current pregnancies.		SKIP IF MALE			
337	PREGNANT	Are you currently pregnant?	YES = 1 NO = 2 DON'T KNOW/UNSURE = -8 REFUSED = -9			Y 225 THMIS	C
		I will now ask you about family planning.					
338	AVOIDPREG	Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO DK, REFUSED →NEXT MODULE	NOT AVAILABLE IN THMIS	Y	C
339	CMETHOD	Which method are you or your partner using? SELECT ALL THAT APPLY.	FEMALE STERILIZATION = A MALE STERILIZATION = B PILL = C IUD/"COIL" = D INJECTIONS = E IMPLANT = F		GF/HIV-P11 NOT AVAILABLE IN THMIS	Y	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
			CONDOM = G FEMALE CONDOM = H RHYTHM/NATURAL METHODS = I WITHDRAWAL = J NOT HAVING SEX = K OTHER (SPECIFY)= X DON'T KNOW = Y REFUSED = Z				

MODULE 4 CHILDREN

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

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

LIST OF HOUSEHOLD MEMBERS FOR DISPLAY ONLY, DO NOT SELECT

[LIST OF CHILDREN]

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
			I am going to ask you a number of questions about your child/children regarding their health and where they get their health services. We will begin with your youngest child.				

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
401	KIDINS1	Now I am going to ask you questions for [NAME]. THE CHILD NAMED [NAME] WAS LISTED WITH LINE NUMBER [INSERT HH LINE NUMBER] IN THE HOUSEHOLD LISTING.			N	N	C
3001	KIDAGEY	How old is (NAME) in years? IF [CHILD*] IS LESS THAN 1 YEAR OLD, KEY 0 HERE AND KEY AGE IN MONTHS ON NEXT SCREEN.	AGE IN YEARS ____ DON'T KNOW =-8 REFUSED = -9	AGE CANNOT BE GREATER THAN 14 YRS IF > 5 → KIDGENDER IF >0 AND <5 → KIDAGEF	N	N	C
3002	KIDAGEM	How old is [NAME] in months?	AGE IN MONTHS ____	ALL → KIDGENDER			
3003	KIDAGEF	You said that [NAME] was [KIDAGEY]. How many months over [KIDAGEY*] is [NAME]?	MONTHS OVER ____ DON'T KNOW =-8 REFUSED = -9				
3004	KIDGENDER	Is (NAME) a boy or girl?	BOY = 1 GIRL = 2 DON'T KNOW = -8 REFUSED = -9			N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
3005	KIDENROLL	Is (NAME) currently enrolled in school?	YES = 1 NO, CURRENTLY NOT IN SCHOOL = 2 NO, TOO YOUNG TO BE IN SCHOOL = 3 DON'T KNOW = -8 REFUSED = -9	NO, TOO YOUNG, DK, REFUSED → KIDCRM NOT AVAILABLE IN THMIS	N	N	C
3006A	KIDHIGHLVL	What is the highest level of school (NAME) has attended?	PRE-PRIMARY = 0 PRIMARY=1 POST- PRIMARY TRAINING=2 SECONDARY (O-LEVEL)= 3 POST SECONDARY SECONDARY (O-LEVEL) TRAINING= 4 DON'T KNOW = -8 REFUSED = -9	IF KIDENROLL = 2 →KIDENRLSTYR			
3006	KIDCLASS	What grade is (NAME) in now?	GRADE _____ DON'T KNOW = -8 REFUSED = -9		N	N	C
3007	KIDENRLSTYR	Was (NAME) enrolled in school during the previous school year?	YES = 1 NO = 2		N	N	C
3008	KIDCLASSLSTYR	What grade was (NAME) during the previous school year?	GRADE _____ DON'T KNOW = -8 REFUSED = -9		N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
3009	KIDCRCM	<p>Is (NAME) circumcised?</p> <p>Circumcision is the complete removal of the foreskin from the penis. I have a picture to show you what a completely circumcised penis looks like.</p>	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → KIDHIVTESTEVR SKIP IF FEMALE CHILD.	N NOT AVAILABLE IN THMIS	N	C
3010	KIDCRCMPRT	Who circumcised (NAME)?	DOCTOR, CLINICAL OFFICER, OR NURSE = 1 TRADITIONAL CIRCUMCISER =2 TRADITIONAL BIRTH ATTENDANT=3 OTHER (SPECIFY) = 6 DON'T KNOW = -8		N NOT AVAILABLE IN THMIS	N	C
3011	KIDHIVTESTEV R	Has (NAME) ever been tested for HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → KIDHIVTESTLASTM/ KIDHIVTESTLASTY DK, REFUSED → KIDVISTTBCLIN	N NOT AVAILABLE IN THMIS	N	C
3012	KIDHIVTESTNE VERRSN	<p>Why has (NAME) never been tested for HIV?</p> <p>SELECT ALL THAT APPLY.</p>	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	ALL-> KIDVISTTBCLIN	NOT AVAILABLE IN THMIS		

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
			DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY = G AFRAID SPOUSE/PARTNER/FAMILY WILL KNOW RESULTS = H DON'T WANT TO KNOW (NAME) HAS HIV = I CANNOT GET TREATMENT FOR HIV = J TEST KITS NOT AVAILABLE = K RELIGIOUS REASONS = L OTHER (SPECIFY) = X DON'T KNOW = Y REFUSED = Z				
3013	KIDHIVTESTLA STM/KIDHIVTE STLASTY	What month and year was (NAME)'s last HIV test done?	MONTH ____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	DATE RESTRAINTS	N	N	C
3014	KIDHIVLASTRE SULT	What was (NAME)'s <u>last</u> HIV test result?	POSITIVE = 1 NEGATIVE = 2 UNKNOWN/INDETERMINATE = 3 DID NOT RECEIVE RESULTS = 4 DON'T KNOW = -8 REFUSED = -9	IF NEG, UNK/INDET, DID NOT RECEIVE, DK, REFUSED → KIDVISTTBCLIN	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
3015	KIDLPOSM/KI DLPOSY	<p>What was the month and year of [NAME]'s first HIV-positive test result? Please give your best guess.</p> <p>This will be the very first HIV-positive test result that you have received.</p> <p>PROBE TO VERIFY DATE.</p>	MONTH ____ DON'T KNOW MONTH = -98 REFUSED MONTH = -99 YEAR ____ ____ DON'T KNOW YEAR = -9998 REFUSED YEAR = -9999		N	N	C
3016	KIDHIVCARE	Has (NAME) ever received HIV medical care from a health care provider (doctor, clinical officer or nurse)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → KIDHIVCAREFIRSTM /KIDHIVCAREFIRSTY DK, REFUSED → KIDCD4	N	N	C
3017	KIDHIVCAREN VR	What is the main reason why (NAME) has never seen a doctor, clinical officer, or nurse for HIV medical care?	FACILITY IS TOO FAR AWAY = 1 I DON'T KNOW WHERE TO GET HIV MEDICAL CARE FOR CHILD = 2 COST OF CARE = 3 COST OF TRANSPORT = 4 I DON'T THINK CHILD NEEDS IT, HE/SHE IS NOT SICK = 5 I FEAR PEOPLE WILL KNOW THAT CHILD HAS HIV IF I TAKE HIM/HER TO A CLINIC = 6 RELIGIOUS REASONS = 7 CHILD IS TAKING TRADITIONAL MEDICINE = 8	KIDCD\$	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
			OTHER = 96 SPECIFY: _____ DON'T KNOW = -8 REFUSED = -9				
3018		What month and year did (NAME) <u>first</u> see a doctor, clinical officer or nurse for HIV medical care? PROBE TO VERIFY DATE.	MONTH _____ DON'T KNOW MONTH = -8 REFUSED MONTH= -9 YEAR _____ DON'T KNOW YEAR =-8 REFUSED YEAR = -9		N	N	C
3019		What month and year did (NAME) <u>last</u> see a doctor, clinical officer or nurse for HIV medical care?	MONTH _____ DON'T KNOW MONTH = -8 REFUSED MONTH= -9 YEAR _____ DON'T KNOW YEAR =-8 REFUSED YEAR = -9	IF <7 MONTHS, DK, REFUSED, MISSING DATE → KIDCD4	N	N	C
3020		What is the <u>main</u> reason for (NAME) not seeing a doctor, clinical officer or nurse for HIV medical care for more than 6 months?	FACILITY IS TOO FAR AWAY = 1 I DON'T KNOW WHERE TO GET HIV MEDICAL CARE FOR CHILD =2 COST OF CARE = 3 COST OF TRANSPORT = 4 I DON'T THINK CHILD NEEDS IT, HE/SHE IS NOT SICK = 5 I FEAR PEOPLE WILL KNOW THAT CHILD HAS HIV IF I TAKE		N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
			HIM/HER TO A CLINIC =6 RELIGIOUS REASONS = 7 CHILD IS TAKING TRADITIONAL MEDICINE =8 NO APPOINTMENT SCHEDULED/DID NOT MISS MOST RECENT APPOINTMENT= 9 OTHER(SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9				
3021	KIDCD4	Has (NAME) ever had a CD4 count test? The CD4 count tells you how sick you are with HIV and if you need to take ARVs or other HIV medications.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → KIDARVS NO, DK, REFUSED & NEVER IN HIV CARE → KIDVISTTBCLIN	N	N	C
3022	KIDCD4LASTM /KIDCD4LASTY	What month and year was (NAME) last tested for his/her CD4 count?	MONTH ____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	SKIP TO KIDVISTTBCLIN IF NEVER IN HIV CARE.	N	N	C
3023	KIDARVS	Has (NAME) ever taken ARVs, that is, medications to treat his/her HIV infection?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → KIDARVSFIRST7/KID ARVSFIRSTM DK, REFUSED → KIDSEPTRIN	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
				ELECTRONIC AID IF DON'T KNOW			
3024	KIDARVSNR SN	What is the main reason (NAME) has never taken ARVs?	CHILD IS NOT ELIGIBLE FOR TREATMENT=1 HEALTH CARE PROVIDER DID NOT PRESCRIBE =2 HIV MEDICINES NOT AVAILABLE = 3 DO NOT THINK CHILD NEEDS IT, HE/SHE IS NOT SICK = 4 COST OF MEDICATIONS =5 COST OF TRANSPORT = 6 RELIGIOUS REASONS = 7 CHILD IS TAKING TRADITIONAL MEDICATIONS = 8 OTHER(SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9	ALL→SKIP TO KIDSEPTRIN	N	N	C
3025	KIDARVSFIRST 7/KIDARVSFIR STM	What month and year did (NAME) first start taking ARVs? PROBE TO VERIFY DATE.	MONTH = ____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR = ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9		MER/TX_RET GARPR/4.1 GF/HIV-I6	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
3026	KIDARVSNOW	<p>Is (NAME) currently taking ARVs, that is, antiretroviral medications?</p> <p>By currently, I mean that (NAME) may have missed some doses but (NAME) is still taking ARVs.</p>	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → KIDARVMISS30 DK, REFUSED → KIDSEPTRIN	N	N	C
3027	KIDARVSNOTR SN	Can you tell me the main reason why (NAME) is not currently taking ARVs?	I HAVE TROUBLE GIVING CHILD A TABLET EVERYDAY =1 CHILD HAD SIDE EFFECTS/RASH = 2 FACILITY/PHARMACY TOO FAR AWAY TO GET MEDICATION REGULARLY = 3 COST OF MEDICATIONS =4 COST OF TRANSPORT =5 CHILD IS HEALTHY/, HE/SHE IS NOT SICK = 6 FACILITY WAS OUT OF STOCK = 7 RELIGIOUS REASONS= 8 CHILD IS TAKING TRADITIONAL MEDICATIONS = 9 OTHER =96 DON'T KNOW = -8 REFUSED = -9	ALL → KIDSEPTRIN	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
3028	KIDARVMISS30	People sometimes forget to take all their ARVs everyday. In the last 30 days, how many days has (NAME) missed taking any ARV pills? CODE '0' IF NONE.	DAYS ____ DON'T KNOW = -8 REFUSED = -9		N	N	C
3029	KIDSEPTRIN	Is (NAME) currently taking Septrin or cotrimoxazole? Septrin or cotrimoxazole is a medicine recommended for people with HIV, even if they have not started treatment for HIV. It helps prevent certain infections but it is not treatment for HIV. By currently, I mean that (NAME) may have missed some doses but is still taking Septrin or cotrimoxazole.	YES = 1 NO = 2 I DON'T KNOW WHAT IT IS = 3 REFUSED = -9		N	N	C
3030	KIDVISTTBCLI N	Has (NAME) ever visited a clinic for tuberculosis for TB diagnosis or treatment?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → SKIP TO END OF MODULE	N	N	C
3031	KIDTESTHIVTB	Was (NAME) tested for HIV at the TB clinic?	YES = 1 NO, WAS NOT TESTED FOR HIV = 2 NO, WAS ALREADY HIV POSITIVE = 3 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → SKIP TO END OF MODULE	N	N	C→S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
3032	KIDDIAGTB	Have you ever been told by a health care provider (doctor, clinical officer or nurse) that (NAME) had TB?	YES = 1 NO=2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → SKIP TO END OF MODULE	N	C	
3033	KIDTRTTB	Was (NAME) ever treated for TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → SKIP TO END OF MODULE	N	N	C
3034	KIDTRTTCURR	Is [NAME] currently on treatment for TB	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → KIDMORE			C
3035	KIDTRTTB6MOTRT	The last time (NAME) was treated for TB, did (NAME) complete at least 6 months of treatment?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9		N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
3036	KIDMORE	<p>Thank you for the information about (NAME).</p> <p>DOES THE RESPONDENT HAVE ANOTHER CHILD AGED 0-14 YEARS?</p>	<p>YES = 1 NO = 2</p>	YES → RETURN TO KIDINS1			C

MODULE 5: MALE CIRCUMCISION - ONLY FOR MALE RESPONDENTS AGE 15 AND OLDER

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		I will be asking a few questions about circumcision. Circumcision is the complete removal of the foreskin from the penis. I have a picture to show you what a completely circumcised penis looks like.		ELECTRONIC AID IF REQUESTED			
501	MCSTATUS	Some men are uncomfortable talking about circumcision but it is important for us to have this information. Some men are circumcised. Are you circumcised?	<p>YES = 1 NO = 2 DON'T KNOW = -8 REFUSED=9</p>	<p>YES → MCAGE DK, REFUSED → SKIP TO NEXT MODULE</p>	MER/VMMC_CIRC	Y	C
502	MCPLANS	Are you planning to get circumcised?	<p>YES = 1 NO = 2 DON'T KNOW = -8 REFUSED= -9</p>	ALL → SKIP TO NEXT MODULE.		N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
503	MCAGE	How old were you when you were circumcised? Please give your best guess. IF LESS THAN ONE YEAR, CODE '0'.	AGE IN YEARS ____ DON'T KNOW = -8 REFUSED= -9			Y	C
504	MCWHO	Who did the circumcision?	DOCTOR, CLINICAL OFFICER, OR NURSE = 1 TRADITIONAL / CIRCUMCISER =2 MIDWIFE = 3 OTHER = 96 SPECIFY: _____ DON'T KNOW = -8 REFUSED= -9			Y	C

MODULE 6: SEXUAL ACTIVITY

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		In this part of the interview, I will be asking questions about your sexual relationships and practices. These questions will help us have a better understanding of how they may affect your life and risk for HIV. Let me assure you again that your answers are completely confidential and will not be shared with anyone. If there are questions that you do not want to answer, we can go to the next question.					

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
601A	CONDOMWH AT	Do you use condoms?	YES=1 NO=2 DON'T KNOW=8 REFUSED= 9	NO, DON'T KNOW, REFUSED → CONDOMGET			COUNTRY ADDED
601	CONDOMWH RPREF	Where do you prefer to get condoms? SELECT ALL THAT APPLY.	DON'T KNOW = A CLINIC/HOSPITAL = A KIOSK/SHOP = B PHARMACY = C LOCAL FREE DISPENSER = D FRIENDS/PEERS = E SEXUAL PARTNER(S) = F HEALTH FACILITY=G BAR=H GUEST HOUSE=I OTHER, (SPECIFY) = X DON'T KNOW = Y	DON'T KNOW, REFUSED → CONDOMBRAND		Y	COUNTRY ADDED
501A	CONDOMBRA ND	What is the brand name of the condoms you are using? IF DON'T KNOW THE BRAND, ASK TO SEE THE PACKAGE.	SALAMA=01 MSD=02 DUME=03 ROUGH RIDER=04 FAMILIA=05 OTHER (SPECIFY)=X DON'T KNOW=Y				COUNTRY ADDED

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
602	CONDOMGET	If you wanted a condom, would it be easy for you to get one?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES ,DK, REFUSED→ FIRSTSXAGE		Y	S
603	CONDOMNOT EASYRSN	Why is it not easy for you to get a condom? SELECT ALL THAT APPLY.	CONDOMS NOT AVAILABLE/TOO FAR = A NOT CONVENIENT = B COSTS TOO MUCH = C EMBARASSED TO GET CONDOMS =D DO NOT WANT OTHERS TO KNOW = E DO NOT KNOW WHERE TO GET CONDOMS = F OTHER, (SPECIFY) = X DON'T KNOW = Y REFUSED = Z			N	S
604	FIRSTSXAGE	How old were you when you had vaginal sex for the very <u>first</u> time? Vaginal sex is when a penis enters a vagina.	AGE IN YEARS __ NEVER HAD VAGINAL SEX = 96 DON'T KNOW = -8 REFUSED = -9		GARPR/1.2 GF/HIV-O1	Y	C
605	ANALSXEVER	People have sex in different ways. Some have vaginal sex. Some have anal sex. Anal sex is when a penis enters a person's anus. Have you ever had anal sex?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED NEVER VAGINAL OR ANAL SEX → NEXT MODULE		N	C→S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
606	FIRSTANALAGE	How old were you when you had anal sex for the very <u>first</u> time?	AGE IN YEARS __ DON'T KNOW = -8 REFUSED = -9			N	C→S
607	FIRSTSEXCNDMVGNL	The <u>first</u> time you had vaginal sex, was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			N	—S, ALT
507A	FIRSTSEXCNDMANAL	The <u>first</u> time you had anal sex, was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9				S, ALT
608	PART12MONUM	People often have sex with different people over their lifetime. In total, with how many different people have you had sex in the last 12 months? IF NONE CODE '0'. IF NUMBER OF PARTNERS IS GREATER THAN 100, WRITE '100'.	NUMBER OF SEXUAL PARTNERS IN LAST 12 MONTHS ____ DON'T KNOW = -8 REFUSED = -9	IF 0 PARTNERS IN LAST 12 MONTHS → NEXT MODULE	GARPR/1.3 & 1.4 GF/HIV-O2 & HIV-O3	Y	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES &SKIPS/FILTERS			INDICATOR	DHS/AIS	CORE
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 your most recent partner.								
		ASK ONLY ABOUT THE LAST 3 PERSONS THE PARTICIPANT HAS HAD SEX WITH.						
609	PARTLIVEW	Does your person you had sex with live in this household?	YES = 1 NO = 2		NO→PARTINIT		N	C
610	PARTHHLINE	Please select the name below from the household membership list. Please identify the person you had sex with..	[LIST] NOT LISTED IN HOUSEHOLD = 96		LISTED → PARTRELATION		N	C
611	PARTINIT	I would like to ask you for the initials of this person so I can keep track. They do not have to be the actual initials of your partner.	INITIALS ____				N	C
612	PARTRELATION	What is your relationship with (INITIALS)?	HUSBAND/WIFE = 1 LIVE-IN PARTNER = 2 PARTNER, NOT LIVING WITH RESPONDENT = 3 EX-SPOUSE/EX-PARTNER = 4 FRIEND/ACQUAINTANCE = 5 SEX WORKER = 6 SEX WORKER CLIENT = 7 STRANGER = 8 OTHER (SPECIFY)= 96 DON'T KNOW = -8				Y	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES &SKIPS/FILTERS			INDICATOR	DHS/AIS	CORE
			REFUSED = -9					
613	PARTGEND	Is (INITIALS) male or female?	MALE = 1 FEMALE = 2 DON'T KNOW = -8 REFUSED = -9				N	C
614	PARTAGE	How old is (INITIALS)? Please give your best guess.	AGE IN YEARS ____ DON'T KNOW = -8 REFUSED = -9				N	C
615	PARTSEXTYPE	The last time you had sex with (INITIALS), did you have vaginal sex, anal sex or both?	VAGINAL = 1 ANAL = 2 BOTH = 3 DON'T KNOW = -8 REFUSED = -9 SKIP IF SAME SEX RELATIONSHIP.				N	S
616	PARTLASTCOND	The <u>last</u> time you had sex with (INITIALS) was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			GARPR/1.4 GF/HIV-O3	Y	C
617	PARTLASTETOH	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				N	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES &SKIPS/FILTERS			INDICATOR	DHS/AIS	CORE
			BOTH WERE DRINKING= 3 NEITHER = 4 DON'T KNOW = -8 REFUSED = -9					
618	PARTCOND REQVAG	In the last 12 months, how often did you use condoms with (INITIALS) when having vaginal sex? Was it always, most of the time, sometimes, rarely or never?	ALWAYS = 1 MOST OF THE TIME = 2 SOMETIMES = 3 RARELY = 4 NEVER = 5 NO VAGINAL SEX IN THE LAST 12 MONTHS = 3 DON'T KNOW = -8 REFUSED = -9		SKIP IF NEVER HAD VAGINAL SEX.		N	S
619	PARTCOND REQANAL	In the last 12 months, how often did you use condoms with (INITIALS) when having anal sex? Was it always, most of the time, sometimes, rarely or never?	ALWAYS = 1 MOST OF THE TIME = 2 SOMETIMES = 3 RARELY = 4 NEVER = 5 NO ANAL SEX IN THE LAST 12 MONTHS = 6 DON'T KNOW = -8 REFUSED = -9		SKIP IF NEVER HAD ANAL SEX		N	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES &SKIPS/FILTERS			INDICATOR	DHS/AIS	CORE
620	PARTLASTSUP	Did you enter into a sexual relationship with (INITIALS) because (INITIALS) provided you with, or you expected that (INITIALS) would provide you with gifts, help you to pay for things or help you in other ways?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9		NO, DK, REFUSED → PARTAGAIN SKIP IF SEX WORKER OR CLIENT		N	C
621	PARTLASTSUPREC	In the <u>last 12 months</u> , what have you received from (INITIALS)? READ RESPONSES ALOUD. SELECT ALL THAT APPLY.	DID NOT RECEIVE ANYTHING = A MONEY = B FOOD = C SCHOOL FEES = D EMPLOYMENT = E GIFTS/FAVORS = F TRANSPORT = G SHELTER/RENT = H PROTECTION = I OTHER (SPECIFY) = X DON'T KNOW = Y REFUSED = Z		SKIP IF SPOUSE, LIVE-IN PARTNER, SEX WORKER OR CLIENT		N	C
622	PARTAGAIN	Do you expect to have sex with (INITIALS) again?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9				N	C
623	PARTKNOWHIV	Does (INITIALS) know your HIV status? HIV status could mean you are HIV negative or HIV positive.	YES = 1 NO = 2				N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES &SKIPS/FILTERS			INDICATOR	DHS/AIS	CORE
			DON'T KNOW = -8 REFUSED = -9					
624	PARTHIVSAT	What is the HIV status of (INITIALS)? READ RESPONSES ALOUD	I THINK (INITIALS) IS POSITIVE = 1 (INITIALS) TOLD ME HE/SHE IS POSITIVE = 2 POSITIVE, TESTED TOGETHER = 3 I THINK (INITIALS) IS NEGATIVE = 4 (INITIALS) TOLD ME HE/SHE IS NEGATIVE = 5 NEGATIVE, TESTED TOGETHER=6 DON'T KNOW STATUS = 7 REFUSED = -9				N	C
625	SXPREPS	DOES THE RESPONDENT HAVE ANOTHER PARTNER IN THE LAST 12 MONTHS?	YES = 1 NO = 2 I will now ask you about the person you have had sex with previous to (INITIALS).		YES → PARTLIVEW		N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		Now I am going to ask you some additional questions about your sexual activities. Again, I am asking that you answer these questions honestly. Let me assure you again that your answers are completely confidential and will not be shared with anyone.					
626	SELLSX12MO	In the last 12 months, have you <u>received payment for sex?</u>	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → BUYSX12MO		N	S
627	SELLSXCNM	The last time you <u>received payment for sex</u> , was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			N	S
628	BUYSX12MO	In the last 12 months, have you paid money for sex?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →NEXT MODULE		N	S
629	BUYSXCNM	The last time you paid money for sex, was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			N	S

MODULE B: HIV/AIDS KNOWLEDGE AND ATTITUDES

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		Now I will ask you questions on your knowledge of HIV.					
701	ONEPARTNR	Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		GARPR/1.1 GF/HIV-C-P1	Y	S
0	MOSQUITO	Can a person get HIV from mosquito bites?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		GARPR/1.1 GF/HIV-C-P1	Y	S
1	CONDOMS	Can a person reduce their risk of getting HIV by using a condom every time they have sex?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		GARPR/1.1 GF/HIV-C-P1	Y	S
2	SHAREFOOD	Can a person get HIV by sharing food with someone who has HIV?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		GARPR/1.1 GF/HIV-C-P1	Y	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
3	HEALTHYINF	Can a healthy-looking person have HIV?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		GARPR/1.1 GF/HIV-C-P1	Y	S
		Now I would like to ask you some questions about people's attitudes towards people living with HIV.					
4	BUYFOOD	Would you buy fresh vegetables from a shop keeper or vendor if you knew the person has HIV?	YES = 1 NO = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9		GARPR 8.1	N	S
5	KIDSSCHOOL	Do you think children living with HIV should be allowed to attend school with children who do not have HIV?	YES = 1 NO = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9		GARPR 8.1	N	S
6	FEARTEST	Do you think people hesitate to take an HIV test because they are afraid of how other people will react if the test result is positive for HIV?	YES = 1 NO = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9			N	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
7	FAMSHAME	Do you agree or disagree with the following statement: I would be ashamed if someone in my family had HIV.	AGREE = 1 DISAGREE = 2 DON'T KNOW/NOT SURE/DEPENDS = -8 REFUSED = -9			N	C→S

MODULE 7: HIV TESTING

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		I would now like to ask you some questions about HIV testing.					
601	HIVTSTEVER	Have you <u>ever</u> tested for HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → HIVTSLSTM/HIVTSLS TY DK, REFUSED → SKIP TO END OF MODULE CONSTRAINT IF REPORTED TESTING	GARPR/HTC- TST/GF HIV p.7	Y	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
602	HIVSTNVRR SN	Why have you never been tested for HIV? SELECT ALL THAT APPLY.	DON'T KNOW WHERE TO TEST = A TEST COSTS TOO MUCH = B TRANSPORT COSTS TOO MUCH = C TOO FAR AWAY = D AFRAID OTHERS WILL KNOW ABOUT TEST RESULTS = E DON'T NEED TEST/LOW RISK = F DID NOT RECEIVE PERMISSION FROM SPOUSE/FAMILY = G AFRAID SPOUSE/PARTNER/FAMILY WILL KNOW RESULTS = H DON'T WANT TO KNOW I HAVE HIV = I CANNOT GET TREATMENT FOR HIV = J TEST KITS NOT AVAILABLE = K RELIGIOUS REASONS = L OTHER, (SPECIFY) = X DON'T KNOW = Y REFUSED = Z	ALL->NEXT MODULE		N	C
603	HIVSLSTM/H IVTSLSTY	What month and year was your last HIV test?	MONTHS _____ DON'T KNOW MONTH= -8 REFUSED MONTH= -9 YEAR _____ DON'T KNOW YEAR = -8 REFUSED YEAR= -9		GARPR/1.5 GF/HIV-C-P4	Y	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
604	HIVTSTLOCATION	Where was the <u>last</u> test done?	VCT FACILITY = 1 MOBILE VCT = 2 AT HOME = 3 HEALTH CLINIC / FACILITY = 4 HOSPITAL OUTPATIENT CLINIC = 5 TB CLINIC = 6 STI CLINIC = 7 HOSPITAL INPATIENT WARDS = 8 BLOOD DONATING CENTER = 9 ANC CLINIC = 10 CAMPAIGNS = 11 SOCIAL EVENTS = 12 OTHER = -96 DON'T KNOW = -8 REFUSED = -9		N	Yes "Where was the test done? (429)" (Different response categories)	C
605	HIVTSTRSLT	What was the result of that HIV test?	POSITIVE = 1 NEGATIVE = 2 DID NOT RECEIVE THE RESULT = 3 DON'T KNOW = -8 REFUSED = -9	NEG, UNCERTAIN/IND, NO RESULT, DK, REF→SKIP TO END OF MODULE	GARPR/1.5 GF/HIV-C-P4	N	C
608	HIVTFPOSM/ HIVTFPOSY	What was the month and year of your first HIV-positive test result? Please give your best guess.	MONTH ____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ____		N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		This will be the very first HIV-positive test result that you have received. PROBE TO VERIFY DATE.	DON'T KNOW YEAR = -8 REFUSED YEAR = -9				
609	HIVPOSTOLD	Of the following people, who have you told that you are HIV positive? CHECK ALL THAT APPLY.	NO ONE = A SPOUSE/SEX PARTNER = B DOCTOR = C FRIEND = D SIBLING = E PARENTS= F OTHER (SPECIFY)= X DON'T KNOW = Y REFUSED = Z		N	N	C
		Now I would like to ask you questions about your experiences with health care providers.					
610	HIVSTATHIDE	In the last 12 months, when you sought health care in a facility where your HIV status is not known, did you feel you needed to hide your HIV status?	YES = 1 NO, NO NEED TO HIDE = 2 NO, DID NOT ATTEND HEALTH FACILITY IN LAST 12 MONTHS =3 DON'T KNOW = -8 REFUSED = -9		N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
611	HIVSTATDENI EDCARE	In the last 12 months, have you been denied health services including dental care, because of your HIV status?	YES = 1 NO = 2 NO ONE KNOWS MY STATUS = 3 DON'T KNOW = -8 REFUSED = -9		N	N	C

MODULE 8: HIV STATUS, CARE AND TREATMENT

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		Now I'm going to ask you more about your experience with HIV support, care and treatment.		SKIP TO NEXT MODULE IF NOT HIV POSITIVE			
701	HIVCARE	After learning you had HIV, have you <u>ever</u> received HIV medical care from a health care provider (doctor, clinical officer or nurse)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → HIVCFM/HIVCFY DK, REFUSED → SKIP TO END OF MODULE	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
702	HIVCNOTRSN	What is the <u>main</u> reason why you have never received HIV medical care from a health care provider (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/I 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 OTHER, (SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9	ALL → CD4TESTEVER	N	N	C
703	HIVCFM/HIVCFY	What month and year did you <u>first</u> see a health care provider (doctor, clinical officer or nurse) for HIV medical care? PROBE TO VERIFY DATE.	MONTH ____ DON'T KNOW MONTH = 98 REFUSED MONTH = 99 YEAR ____ DON'T KNOW YEAR = 9998 REFUSED YEAR = 9999		N	N	C
704	HIVCLM/HIVCLY	What month and year did you <u>last</u> see a health care provider (doctor, clinical officer or nurse) for HIV medical care?	MONTH ____ DON'T KNOW MONTH = 98 REFUSED MONTH= 99 YEAR ____ DON'T KNOW YEAR = 9998	IF < 7 MONTHS, DK, REFUSED → CD4TESTEVER	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
			REFUSED = 9999				
705	HIVCNOT6MO	What is the <u>main</u> reason for not seeing a health care provider (doctor, clinical officer or nurse) for HIV medical care for more than 6 months?	THE FACILITY IS TOO FAR AWAY = 1 I DON'T KNOW WHERE TO GET HIV MEDICAL CARE = 2 COST OF CARE = 3 COST OF TRANSPORT = 4 I DO NOT NEED IT/I FEEL HEALTHY/NOT SICK = 5 I FEAR PEOPLE WILL KNOW THAT I HAVE HIV IF I GO TO A CLINIC = 6 I'M TAKING TRADITIONAL MEDICINE= 7 RELIGIOUS REASONS = 8 NO APPOINTMENT SCHEDULED/DID NOT MISS MOST RECENT APPOINTMENT = 9 OTHER, (SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9		N	N	S
706	CD4TESTEVER	Have you ever had a CD4 count test? The CD4 count tells you the level of your immune status and how sick you are with HIV and if you need to take ARVs or other HIV medications.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → ARVSTAKENEV NEVER IN HIV CARE → SKIP TO END OF MODULE	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
707	CD4TTM/CD4 TTY	What month and year were you last tested for your CD4 count?	MONTH ____ DON'T KNOW MONTH = -8 REFUSED MONTH = -9 YEAR ____ DON'T KNOW YEAR = -8 REFUSED YEAR = -9	SKIP TO END OF MODULE IF NEVER IN HIV CARE.	N	N	C
708	ARVSTAKENE V	Have you <u>ever</u> taken ARVs, that is, medications to treat HIV infection?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	YES → ARVFTM/ARVFTY DK, REFUSED → SKIP TO END OF MODULE	N	N	C
709	ARVSNOTTAK E	What is the main reason you have never taken ARVs?	NOT ELIGIBLE FOR TREATMENT = 1 HEALTH CARE PROVIDER DID NOT PRESCRIBE = 2 HIV MEDICINES NOT AVAILABLE = 3 I FEEL HEALTHY/NOT SICK = 4 COST OF MEDICATIONS = 5 COST OF TRANSPORT = 6 RELIGIOUS REASONS = 7 TAKING TRADITIONAL MEDICATIONS = 8 NOT ATTENDING HIV CLINIC = 9 STIGMA/ KEEP HIV STATUS SECRET = 10 OTHER, (SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9	ALL → SKIP TO END OF MODULE .	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
710	ARVFTM/ARVFTY	What month and year did you <u>first</u> start taking ARVs? PROBE TO VERIFY DATE.	MONTH _____ DON'T KNOW MONTH = -98 REFUSED MONTH = -99 YEAR _____ DON'T KNOW YEAR = -9998 REFUSED YEAR = -9999		MER/TX_RET GARPR/4.1 GF/HIV-I6	N	C
711	ARVSCURRENT	Are you <u>currently</u> taking ARVs, that is, antiretroviral medications? By currently, I mean that you may have missed some doses but you are still taking ARVs.	YES = 1 NO=2 DON'T KNOW = -8 REFUSED = -9	YES → ARVSMISSDAY S DK, REFUSED → SKIP TO NUTRITION E	MER/TX_CURR GARPR/4.1 GF/HIV-T1	N	C
712	ARVSNOTCURRSN	Can you tell me the <u>main</u> reason why you are <u>not</u> currently taking ARVs?	I HAVE TROUBLE TAKING A TABLET EVERYDAY = 1 I HAD SIDE EFFECTS = 2 FACILITY TOO FAR AWAY FOR ME TO GET MEDICINE REGULARLY = 3 COST OF MEDICATIONS =4 COST OF TRANSPORT = 5 I FEEL HEALTHY/NOT SICK =6 FACILITY WAS OUT OF STOCK = 7 RELIGIOUS REASONS = 8 TAKING TRADITIONAL MEDICATIONS = 9 STIGMA/ KEEP HIV STATUS SECRET =10 OTHER, (SPECIFY) = 96 DON'T KNOW = -8	ALL → SKIP TO NUTRITION . .	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
			REFUSED = -9				
713	ARVSMISSDAY S	People sometimes forget to take all of their ARVs everyday. In the last 30 days, how many days have you missed taking any of your ARV pills? CODE '0' IF NONE.	NUMBER OF DAYS _____ DON'T KNOW = -8 REFUSED = -9		N	N	C
714	NUTRITION	Were you given a nutritional supplement or referred for a nutritional consult or both?	NO, NEVER GIVEN SUPPLEMENT/REFERRED = 1 YES, GIVEN SUPPLEMENT = 2 YES, REFERRED = 3 BOTH GIVEN SUPPLEMENT AND REFERRED = 4 DON'T KNOW = -8 REFUSED = -9		N	N	S
715	SPTGRGO	Have you ever attended a support group for people living with HIV?	YES= 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → NEXT MODULE	N	N	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
716	SPTGRREC	Which of the following do you receive from the support group related to your HIV infection? READ EACH RESPONSE. SELECT ALL THAT APPLY.	NOTHING = A COUNSELING/HEALTHY LIVING MESSAGES = A REMINDED OF IMPORTANCE OF TAKING ARVs REGULARLY = B REMINDED TO KEEP HIV APPOINTMENTS = C REFILLS OR PICKING UP ARV MEDICATIONS = D PSYCHOSOCIAL SUPPORT = E LIVELIHOOD/MATERIAL SUPPORT = F NOTHING = A OTHER (SPECIFY) = X DON'T KNOW = Y REFUSED = Z		N	N	S

MODULE 9: TUBERCULOSIS AND OTHER HEALTH ISSUES

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		Now we will ask you about tuberculosis or TB.		SKIP INSTRUCTION IF IN HIV CARE.			
301	TBCLINVISIT	Have you ever visited a TB clinic for TB diagnosis or treatment?	YES = 1 NO=2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → SKIP TO NEXT MODULE	N	N	C
302	TBDIAGN	Have you ever been told by a health care provider (doctor, clinical officer or nurse) that you had TB?	YES = 1 NO=2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → SKIP TO NEXT MODULE	N	N	C
303	TBTREATED	Were you <u>ever</u> treated for TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → SKIP TO NEXT MODULE	N	N	C
304	TBTREATCURR	Are you currently on treatment for TB?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → SKIP TO END OF MODULE	N	N	C

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
305	TBTREAT6MO FULL	The last time you were treated for TB, did you complete at least 6 months of treatment?	YES = 1 NO, MEDICINE WAS STOPPED IN LESS THAN 6 MONTHS = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →SKIP TO END OF MODULE	N	N	C
		Now I'm going to ask you about tests a health care provider can do to check for cervical cancer. The cervix connects the uterus to the vagina. The tests a health care provider can do to check for cervical cancer are called a Pap smear, HPV test and VIA test. For a Pap smear and HPV test, a health care provider puts a small stick inside the vagina to wipe the cervix and sends the sample to the laboratory. For a VIA test, a healthcare worker puts vinegar on the cervix and looks to see if the cervix changes color.		SKIP TO NEXT MODULE IF MALE.			
8805	CERVCNTST	Have you ever been screened for cervical cancer?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →NEXT MODULE	N	N	C→S
806	CERVCNTSM/ CERVCNTSY	What month and year was your last screen for cervical cancer?	MONTH ____ DON'T KNOW MONTH = -98 REFUSED = -99 YEAR ____ DON'T KNOW YEAR = -9998 REFUSED YEAR = -9999		N	N	C→S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
807	CERVCNRSLT	What was the result of your last screening for cervical cancer?	NORMAL/NEGATIVE = 1 ABNORMAL/POSITIVE = 2 SUSPECT CANCER = 3 UNCLEAR/INCONCLUSIVE = 4 DID NOT RECEIVE RESULTS = 5 DON'T KNOW = -8 REFUSED = -9	NORMAL, SUSPECT CANCER, UNCLEAR, DID NOT RECEIVE, DK, REFUSED → NEXT MODULE	N	N	C→S
808	CERVCNTRT	Did you receive treatment after your last screening 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 REFUSED = -8 DON'T KNOW = -9		N	N	C→S
Now I would like to ask you questions about sexual health.				SKIP TO NEXT MODULE IF NEVER HAD SEX.			
919	VGDISCHARGE	During the last 12 months, have you had an abnormal discharge from your vagina or experienced pelvic pain? This may include an unusual smell, color, or texture.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF MALE.	N	Y	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
920	VGSORE	During the last 12 months, have you had an ulcer or sore on or near your vagina?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF MALE.	N	Y	S
921	PNDSCHRG	During the last 12 months, have you had a discharge from your penis?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF FEMALE.	N	Y	S
922	PNSORE	During the last 12 months, have you had an ulcer or sore on or near your penis?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF FEMALE.	N	Y	S
923	PAINURIN	During the last 12 months, have you had pain on urination?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF FEMALE.	N	Y	S
924	SEEKHP	Did you see a health care provider (doctor, clinical officer or nurse) because of these problems?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF NO TO THE QUESTIONS ABOVE.	N	Y	S

OPTIONAL MODULE C: ALCOHOL USE/NON-PRESCRIPTION DRUG USE/TOBACCO

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
The next few questions will be on your use of alcohol and non-prescription drugs. Remember, all the answers you provide will be kept confidential.							
A1	ALCFREQ	How often do you have a drink containing alcohol?	NEVER = 0 MONTHLY OR LESS = 1 2-4 TIMES A MONTH = 2 2-3 TIMES A WEEK = 3 4 OR MORE TIMES A WEEK = 4 DON'T KNOW= -8 REFUSED = -9	NEVER , DK, REFUSED→ IDEVER		N	S
A2	ALCNUMDAY	How many drinks containing alcohol do you have in a typical day?	NONE OR LESS THAN ONE = 0 1 OR 2= 1 3 OR 4= 2 5 OR 6=3 7 TO 9 = 4 10 OR MORE = 5 DON'T KNOW= -8 REFUSED = -9			N	S
A3	ALCSIXMORE	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			N	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
A4	IDEVER	Some people inject drugs with a needle and syringe for pleasure. Have you ever injected drugs for pleasure?	YES = 1 NO = 2 DON'T KNOW= -8 REFUSED = -9	NO, DK, REFUSED → NEXT MODULE		N	S
A5	ID30DAY	Have you injected drugs with a needle and syringe in the last 30 days?	YES = 1 NO = 2 DON'T KNOW= -8 REFUSED = -9	NO, DK, REFUSED → NEXT MODULE		N	S
A6	ID30DSHR	When you have injected drugs during the last 30 days, have you shared the syringe or needle with other people?	YES = 1 NO = 2 DON'T KNOW= -8 REFUSED = -9			N	S

MODULE 10: GENDER NORMS

Now I would like to ask you question on attitudes and decision-making in your home.							
901	HEALTHC	Who usually makes decisions about health care for yourself: you, your (spouse/partner), you and your (spouse/partner) together, or someone else?	I DO = 1 SPOUSE/PARTNER = 2 WE BOTH DO = 3 SOMEONE ELSE = 4	SKIP IF NOT MARRIED/LIVING TOGETHER		N	C

			DON'T KNOW = -8 REFUSED = -9				
902	MONEY	Who generally decides about how the money you receive is spent: you, your (spouse/partner), you and your (spouse/partner) together, or someone else?	I DO = 1 SPOUSE/PARTNER = 2 WE BOTH DO = 3 SOMEONE ELSE = 4 DON'T KNOW = -8 REFUSED = -9	SKIP IF NOT MARRIED/LIVING TOGETHER		N	C
1001	OKHITSEX	Do you believe it is right for a man to hit or beat his wife if she refuses to have sex with him?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9			N	S

MODULE D: VIOLENCE

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		You have been selected to be asked questions on other important aspects of a person's life. I know that some of these questions are very personal. However, your answers are important for helping to understand the condition of men and women in Tanzania. Let me assure you that your answers are completely confidential and will not be told to anyone and no one in your household will know that you were asked these questions.		SELECT ONLY 1 WOMAN PER HOUSEHOLD.			
		By sex, I mean vaginal, anal, oral sex or the insertion of an object into your vagina or anus. Vaginal sex is when a penis enters a vagina. Anal sex is when a penis enters an anus (butt). Oral sex is when a partner puts his/her mouth on his/her partner's penis or vagina.					

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
1100 1	CMPLSXEVER	How many times in your life has anyone <u>tried</u> to make you have sex against your will but did not succeed? This includes someone using harassment, threats, tricks, or physical force. CODE '00' IF NONE.	NONE = 2 DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED → FRCSXEVERALT		N	S, ALT
1100 2	CMPLSXAGE	How old were you the <u>first</u> time someone tried to make you have sex against your will but did not succeed?	AGE IN YEARS ____ DON'T KNOW = -8 REFUSED = -9			N	C→S
1100 3	CMPLSFSTGN DR	The first time someone tried to make you have sex against your will but did not succeed, was the person male or female? If it was more than one person, what was the sex(male/female) of the person you knew the best?	MALE = 1 FEMALE = 2 DON'T KNOW = -8 REFUSED = -9			N	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
1100 4	CMPLSXFSTREL	The first time this happened, what was your relationship to the person who did this? If it was more than one person, what was your relationship with the person you knew the best?	BOYFRIEND/GIRLFRIEND/LIVE-IN PARTNER/SPOUSE = 1 EX- BOYFRIEND/GIRLFRIEND/PARTNER/SPOUSE = 2 RELATIVE/FAMILY MEMBER =3 CLASSMATE/SCHOOLMATE = 4 TEACHER = 5 POLICE/SECURITY OFFICER/MILITARY= 6 EMPLOYER = 7 NEIGHBOR =8 COMMUNITY/ RELIGIOUS LEADER =9 FRIEND = 10 STRANGER = 11 OTHER (SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9			N	S
1100 5	CMPLSX12MO	In the last 12 months, did anyone try to make you have sex against your will but did not succeed? This includes someone using harassment, threats, tricks, or physical force.	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → FRCSXEVERALT		N	S
1100 6	CMPLXLSTGN DR	The last time someone tried to make you have sex against your will but did not succeed, was the person male or female? If it was more than one person, what was the sex (male/female) of the person you knew the best?	MALE = 1 FEMALE = 2 DON'T KNOW = -8 REFUSED = -9			N	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
1100 7	CMPLSXSLSTREL	The last time this happened, what was your relationship to the person who did this? If it was more than one person, what was your relationship with the person you knew the best?	BOYFRIEND/GIRLFRIEND/LIVE-IN PARTNER/SPOUSE = 1 EX- BOYFRIEND/GIRLFRIEND/PARTNER/SPOUSE = 2 RELATIVE/FAMILY MEMBER = 3 CLASSMATE/SCHOOLMATE = 4 TEACHER = 5 POLICE/SECURITY OFFICER/MILITARY= 6 EMPLOYER = 7 NEIGHBOR = 8 COMMUNITY/ RELIGIOUS LEADER = 9 FRIEND = 10 STRANGER = 11 OTHER (SPECIFY)= 96 DON'T KNOW = -8 REFUSED = -9			N	S
1100 8	FRCSXEVERAL T	How many times has anyone <u>ever forced</u> you to have sex against your will and succeeded? This includes someone using harassment, threats, tricks, or physical force. CODE '00' IF NONE.	NUMBER OF TIMES _____ DON'T KNOW = -8 REFUSED = -9	NONE, DK, REFUSED FOR BOTH FRCSXEVERALT & CMPLSXEVER → VLNC NONE, DK, REFUSED FOR FRCSXEVERALT BUT Y FOR CMPLSXEVER→ UNWNTSEEK		N	S, ALT

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
1100 9	FRCSXAGEALT	How old were you the first time someone forced you to have sex and succeeded?	AGE IN YEARS _____ DON'T KNOW = -8 REFUSED = -9			N	S, ALT
1101 0	FRCSXFSTGND RALT	The first time someone forced you to have sex and succeeded, was the person male or female? If it was more than one person, what was the sex (male/female) of the person you knew the best?	MALE = 1 FEMALE = 2 DON'T KNOW = -8 REFUSED = -9			N	S, ALT
1101 1	FRCSXRELATAL T	What was this person's relationship to you? If it was more than one person, what was the relationship with the person you knew the best?	BOYFRIEND/GIRLFRIEND/LIVE-IN PARTNER/SPOUSE = 01 EX- BOYFRIEND/GIRLFRIEND/PARTNER/SPOUSE = 02 RELATIVE/FAMILY MEMBER = 03 CLASSMATE/SCHOOLMATE = 04 TEACHER = 05 POLICE/SECURITY OFFICER/MILITARY = 06 EMPLOYER = 07 NEIGHBOR = 08 COMMUNITY/ RELIGIOUS LEADER = 09 FRIEND = 10 STRANGER = 11 OTHER = 96 DON'T KNOW = -98 REFUSED = -99			N	S, ALT
1101 2	UNWNTSEEK		HEALTHCARE PROFESSIONAL = A			N	C→S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		After any of these unwanted sexual experiences, did you try to seek professional help or services from any of the following? SELECT ALL THAT APPLY.	POLICE OR OTHER SECURITY PERSONNEL = B SOCIAL WORKER, COUNSELOR OR NON-GOVERNMENTAL ORGANIZATION = C RELIGIOUS LEADER = D I DID NOT TRY TO SEEK HELP = E OTHER (SPECIFY)= X DON'T KNOW = Y REFUSED = Z	SKIP TO UNWNTSXTELL IF SOUGHT HELP .			
1101 3	UNWNTSXNOH LP	What was the main reason that you did not try to seek professional help or services?	DID NOT KNOW SERVICES WERE AVAILABLE = 1 SERVICES NOT AVAILABLE = 2 AFRAID OF GETTING IN TROUBLE = 3 ASHAMED FOR SELF/FAMILY = 4 COULD NOT AFFORD SERVICES = 5 DID NOT THINK IT WAS A PROBLEM =6 FELT IT WAS MY FAULT = 7 AFRAID OF BEING ABANDONED = 8 DID NOT NEED/WANT SERVICES = 9 AFRAID OF MAKING SITUATION WORSE = 10 OTHER (SPECIFY)= 96 DON'T KNOW = -8 REFUSED = -9			N	C→S
1013A	UNWNTSXTEL L	Did you tell anyone about these sexual experiences?	YES=1 NO=2 DON'T KNOW = -8 REFUSED = -9				COUNTR Y ADDED

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
1101 4	VLNC	Has anyone ever done any of these things to you: - Punched, kicked, whipped, or beat you with an object - Slapped you, threw something at you that could hurt you, pushed you or shoved you - Choked, smothered, tried to drown you, or burned you intentionally - Used or threatened you with a knife, gun or other weapon?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → END OF MODULE		N	C→S
1101 5	VLNCFRSTAGE	How old were you the first time one of these things happened to you?	AGE IN YEARS ____ DON'T KNOW = -8 REFUSED = -9			N	C→S
1101 6	VLNC12MOTIM ES	In the last 12 months, how many times has someone: - Punched, kicked, whipped, or beat you with an object - Slapped you, threw something at you that could hurt you, pushed you or shoved you - Choked, smothered, tried to drown you, or burned you intentionally - Used or threatened you with a knife, gun or other weapon?	NOT IN LAST 12 MONTHS = 1 ONCE = 2 FEW = 3 MANY = 4 DON'T KNOW = -8 REFUSED = -9	NOT IN LAST 12 MONTHS → VLNCLSTGNDR		N	C→S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
1101 7	VLNC12MOPT NR	<p>In the last 12 months, has a partner done any of these things to you?</p> <ul style="list-style-type: none"> - Punched, kicked, whipped, or beat you with an object - Slapped you, threw something at you that could hurt you, pushed you or shoved you - Choked, smothered, tried to drown you, or burned you intentionally - Used or threatened you with a knife, gun or other weapon? <p>By partner, I mean a live-in partner whether or not you were married at the time.</p>	YES =1 NO, PARTNER DID NOT = 2 NO, DID NOT HAVE A LIVE-IN PARTNER IN THE LAST 12 MONTHS = 3 DON'T KNOW = -8 REFUSED = -9		GARPR 7.1	N	C→S
1101 8	VLNCLSTGNDR	The last time any of these things happened, was the person male or female? If it was more than one person, what was the sex (male/female) of the person you knew the best?	MALE = 1 FEMALE = 2 DON'T KNOW = -8 REFUSED = -9			N	S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
1101	VLNCLSTREL	The last time any of these things happened, what was this person's relationship to you? If it was more than one person, what was your relationship with the person you knew the best?	BOYFRIEND/GIRLFRIEND/LIVE-IN PARTNER/SPOUSE = 1 EX- BOYFRIEND/GIRLFRIEND/PARTNER/SPOUSE = 2 RELATIVE/FAMILY MEMBER = 3 CLASSMATE/SCHOOLMATE = 4 TEACHER = 5 POLICE/SECURITY OFFICER/MILITARY= 6 EMPLOYER = 7 NEIGHBOR = 8 COMMUNITY/ RELIGIOUS LEADER = 9 FRIEND = 10 STRANGER = 11 OTHER (SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9			N	S
1101 9	VLNCLSTPRPA GE	The last time any of these things happened, how old was the perpetrator?	SAME AGE = 1 YOUNGER = 2 LESS THAN 10 YEARS OLDER = 3 10+ YEARS OLDER =4 DON'T KNOW = 8 REFUSED = 9				COUNTRY ADDED
		SERVICES FOR PHYSICAL VIOLENCE					
1102 0	SEEKHELP	Thinking about all the experiences that we just discussed, whether someone has done the following: - Punched, kicked whipped or beat you with an object	I DID NOT TRY TO SEEK HELP = A HEALTHCARE PROFESSIONAL = B POLICE OR OTHER SECURITY PERSONNEL = C	TRY TO SEEK HELP → SKIP TO END OF MODULE		N	C→S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
		<ul style="list-style-type: none"> - Slapped you, threw something at you that could hurt you, pushed you or shoved you - Choked, smothered, tried to drown you or burned you intentionally - Used or threatened you with a knife, gun or other weapon <p>Did you try to seek professional help or services for any of these incidents from any of the following:-</p> <p>SELECT ALL THAT APPLY.</p>	SOCIAL WORKER, COUNSELOR OR NON-GOVERNMENTAL ORGANIZATION = D RELIGIOUS LEADER = E OTHER(SPECIFY) = X DON'T KNOW = Y REFUSED = Z	SKIP IF NEVER EXPERIENCE PHYSICAL VIOLENCE.			
1102 1	SEEKHELPWHY NOT	What was the main reason that you did not try to seek professional help or services?	DID NOT KNOW SERVICES WERE AVAILABLE = 1 SERVICES NOT AVAILABLE = 2 AFRAID OF GETTING IN TROUBLE = 3 ASHAMED FOR SELF/FAMILY =4 COULD NOT AFFORD SERVICES = 5 DID NOT THINK IT WAS A PROBLEM = 6 FELT IT WAS MY FAULT = 7 AFRAID OF BEING ABANDONED = 8 DID NOT NEED/WANT SERVICES = 9 AFRAID OF MAKING SITUATION WORSE = 10 OTHER(SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9			N	C→S

NO.	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS/FILTERS	INDICATOR	DHS/AIS	CORE
1102 2		<p>Thank you for sharing your personal experiences with me. I know it may have been difficult for you to talk about your experiences with me. If you would like to talk further about these experiences, I can refer you to a place that can provide you with help.</p> <p>PROVIDE PARTICIPANT WITH LIST OF ORGANIZATIONS.</p>		SKIP IF NEVER EXPERIENCE PHYSICAL VIOLENCE.		N	C C→S
		<p>Thank you for sharing your personal experiences with me. If you want to talk further about these experiences, I can refer you to a place that can provide you with help.</p>		SKIP IF >18 YEARS OLD SKIP IF NEVER SOLD SEX		N	C
		<p>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.</p> <p>PROVIDE PARTICIPANT WITH LIST OF ORGANIZATIONS, IF NOT ALREADY GIVEN.</p>				N	C

APPENDIX G: EARLY ADOLESCENT QUESTIONNAIRE

NO.	VARNAME	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP/FILTERS COMMENTS	INDICATOR	DHS/AIS	CORE
THIS QUESTIONNAIRE IS ADMINISTERED TO ELIGIBLE CHILDREN AGED BETWEEN 10-14 YEARS AFTER INFORMED PARENTAL/GUARDIAN CONSENT AND MINOR ASSENT.							
	ENTER LINE NUMBER OF THE CHILD FROM THE HOUSEHOLD LISTING: _____						
	ENTER NAME OF CHILD: _____						
MODULE1: SOCIO-DEMOGRAPHIC CHARACTERISTICS							
NO	VARNAME	QUESTIONS	CODING CATEGORIES	SKIPS	INDICATOR	DHS/AIS	CORE
101	ADGENDER	IS THE RESPONDENT MALE OR FEMALE?	MALE = 1 FEMALE = 2		N	N	C
102	ADAGE	How old were you at your last birthday?	AGE IN COMPLETED YEARS ____ DON'T KNOW AGE = -98 REFUSED = -99		N	N	C
103	ADENSCH	Are you currently enrolled in school?	YES = 1 NO = 2 DON'T KNOW = -8	IF NO, DK, REFUSED → ADNOSCHREAS	N	N	C

			REFUSED = -9				
104	ADMISCH	During the last school week, did you miss any school days for any reason?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →ADCURGRD	N	N	C
105	ADMISCHRE AS	Why did you miss school?	I HAVE BEEN SICK = 1 I DON'T FEEL SAFE TRAVELING TO SCHOOL = 2 I DON'T FEEL SAFE WHILE IN SCHOOL = 3 I DON'T LIKE SCHOOL = 4 I HAVE TO LOOK AFTER MY FAMILY= 5 THERE'S NOT ENOUGH MONEY TO SEND ME TO SCHOOL = 6 SCHOOL IS TOO FAR AWAY = 7 I HAVE TO WORK = 8 I HAVE A CHILD OR I AM PREGNANT(GIRLS ONLY) = 9 I MISSED TOO MUCH SCHOOL BECAUSE OF MY PERIOD (MENSTRUATION) (GIRLS ONLY) = 10 OTHER = -96 DON'T KNOW = -8 REFUSED = -9		N	N	C
105A	ADLVL SCH	What is the highest level of school you attended?	PRE-PRIMARY = 0 PRIMARY=1 POST- PRIMARY TRAINING=2 SECONDARY (O-LEVEL)=3 DON'T KNOW = -8 REFUSED = -9				

106	ADCURGRD	What grade/form are you in now?	GRADE/FORM ____		N	N	C
107	ADLSTYRGRD	What grade/form were you in last year?	GRADE/FORM ____	ALL → ADHIVPREV	N	N	C
108	ADNOSCHREAS	Why do you NOT go to school? (PROBE FOR THE MAIN/MOST IMPORTANT REASON)	I HAVE BEEN SICK = 1 I DON'T FEEL SAFE TRAVELING TO SCHOOL = 2 I DON'T FEEL SAFE WHILE IN SCHOOL = 3 I DON'T LIKE SCHOOL = 4 I HAVE TO LOOK AFTER MY FAMILY= 5 THERE'S NOT ENOUGH MONEY TO SEND ME TO SCHOOL = 6 SCHOOL IS TOO FAR AWAY = 7 I HAVE TO WORK = 8 I HAVE A CHILD OR I AM PREGNANT(GIRLS ONLY) = 9 I MISSED TOO MUCH SCHOOL BECAUSE OF MY PERIOD (MENSTRUATION) (GIRLS ONLY) = 10 FAILED NATIONAL EXAMS=11 CROWDED CLASSROOMS/HIGH STUDENT TEACHER RATIO=12 DISABILITY=13 OTHER (SPECIFY)= -96 DON'T KNOW = -8 REFUSED = -9		N	N	C-

109	ADATNDSCH	Have you ever attended school?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED → ADHIVPREV	N	N	C
110	ADLSTREGSC H	When was the last time you regularly attended school? Would you say it was less than a year ago or more than a year ago?	LESS THAN 1 YEAR = 1 1 YEAR OR LONGER = 2 DON'T KNOW = -8 REFUSED = -9		N	N	C
111	ADHIGRD	What is the highest grade/form that you have completed?	PRE-PRIMARY = 0 PRIMARY=1 POST- PRIMARY TRAINING=2 SECONDARY (O-LEVEL)= 3 POST SECONDARY (O-LEVEL) TRAINING= 4		N	N	C

	MODULE 2: HIV PREVENTION INTERVENTIONS						
201	ADHRDHIV	Have you ever heard of HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → ADYKWCON	N	N	C
202	ADHRDHIVL OC	From where have you heard about HIV? PROBE: Anywhere else? RECORD ALL MENTIONED	SCHOOLS/TEACHERS = A PARENTS/GUARDIAN/FAMILY = B FRIENDS = C RELIGIOUS LEADERS = D INTERNET = E MOBILE PHONE = F HEALTH PROVIDERS/DOCTORS/NURSES/CLINICAL OFFICERS = G		N	N	S

			TELEVISION/FILM = H RADIO = I COMMUNITY HEALTH WORKERS = J OTHER= X DON'T KNOW = Y REFUSED = Z				
203	ADDISHIV	Have you <u>ever</u> discussed HIV with your parents or guardian?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9		N	N	C
204	ADHIVPREV	Have you taken part in any of the following HIV prevention programs? SHOW CHILD LOGO FOR EACH PROGRAM SELECT ALL THAT APPLY	FAMILIES MATTER PROGRAM = A SISTER TO SISTER = B YOUTH FOR YOU = C YOUTH FOR REAL = D POSITIVE TALK = E AIDS ACTION CLUB = F TUSEME SCHOOL CLUB=G FEMINA-HIP YOUTH CLUBS=H OTHER SCHOOL CLUBS=I SHUGA RADIO LISTENING CLUB=J MABINTI TUSHIKE HATAMU=K MALE CHAMPIONS=L OTHER (SPECIFY) = X DON'T KNOW = Y REFUSED = Z	'DON'T KNOW', 'REFUSED' CANNOT BE SELECTED WITH ANY OTHER CATEGORY.	N	N	C
205	ADHIVSCHM TG	About how many times have you participated in a school meeting or class period about HIV/AIDS in the past 12 months?	NONE = 1 1-4 TIMES= 2 5-9 TIMES = 3 10 OR MORE TIMES = 4 DON'T KNOW = -8	SKIP IF NEVER ATTENDED SCHOOL			

			REFUSED = -9				
206	ADYKWCN	Do you know what a condom is?	YES = 1 NO = 2 REFUSED = 3	NO, DK, REFUSED → ADKNSX			
207	ADYKWHCO N	Do you know where to get a condom?	YES = 1 NO = 2 REFUSED = -9	NO, REFUSED → ADCONDEM DK → ADKNSX	N	N	C
208	ADCONLOC	Where can a person go to get a condom? SELECT ALL THAT APPLY	CLINIC/HOSPITAL = A KIOSK/SHOP = B PHARMACY = C LOCAL FREE DISPENSER = D FRIENDS/PEERS = E BOYFRIEND/GIRLFRIEND = F OTHER (SPECIFY) = X DON'T KNOW = Y REFUSED = Z				
209	ADCLDCON	If you wanted to, could you yourself get a condom?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9	YES, DK, REFUSED → ADCONDEM	N	N	C
210	ADNTEZCON	Why would you not be able to get a condom? SELECT ALL THAT APPLY.	TOO FAR = A COSTS TOO MUCH = B DO NOT WANT OTHERS TO KNOW = C AGE= D GENDER (FOR GIRLS ONLY) = E OTHER = X DON'T KNOW = Y REFUSED = Z		N	N	C

211	ADCONDEM	Have you ever seen a male condom demonstration? By a condom demonstration, I mean someone like a nurse, peer educator or other trained adult showed you how a male condom is correctly used.	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		N	N	S
212	ADCONEXCL S	Has a teacher ever explained to your class about the proper use of condoms?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF NEVER ATTENDED SCHOOL			

	The next questions ask about sexual behavior. There is no right or wrong answer. Your responses will not be linked to you in any way or shared with anyone, including your parents. PLEASE LOOK OUT FOR SIGNS OF DISTRESS IN CHILD WHEN ASKING THE FOLLOWING SEXUAL BEHAVIOR QUESTIONS. IF THE CHILD SEEMS DISTRESSED, ASK CHILD IF HE/SHE WANTS TO STOP THE INTERVIEW.						
	MODULE 3: SEXUAL BEHAVIOR						
301	ADKNSX	Do you know what sex is?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF RESPONSE = NO, DK, REFUSED → ADLGHIV	N	N	C
302	ADHDVGSX	Have you ever had sex?	YES = 1 NO = 2 DON'T KNOW = -8	NO, DK, REFUSED → ADLGHIV	N	N	C

		By sex, we mean vaginal sex. With vaginal sex, we mean a penis enters a vagina.	REFUSED = -9				
303	AD SXAGE	How old were you when you had sex for the first time?	AGE IN YEARS __ __ DON'T KNOW = -8 REFUSED = -9		N	N	C
304	AD WHYSX	The first time you had sex, was it because you wanted to or because you were forced?	WANTED TO = 1 FORCED = 2 DON'T KNOW = -8 REFUSED = -9	WANTED, DK, REFUSED →AD SXFRSN	N	N	C
305	AD SXFRC	The first time you had sex, were you physically forced or were you pressured into having sex through harassment, threats or tricks?	PHYSICALLY FORCED= 1 PRESSURED = 2 DON'T KNOW = -8 REFUSED = -9	ALL → ADFPSXAGE	N	N	C
306	AD SXFRSN	What was the <u>main</u> reason that you had sex for the first time? DO NOT LIST; PROBE IF RESPONDENT ANSWERS MORE THAN ONE	IT JUST HAPPENED = 1 MY FRIENDS PRESSURED ME TO HAVE SEX = 2 TO SHOW MY LOVE/TO FEEL LOVED = 3 I WANTED TO HAVE SEX = 4 MY BOYFRIEND/GIRLFRIEND WANTED TO HAVE SEX = 5 FOR MONEY / GIFTS / FAVOURS = 6 I WANTED TO HAVE A BABY = 7 OTHER (SPECIFY) = -6 DON'T KNOW = -8 REFUSED = -9		N	N	C

307	ADFPSXAGE	How old was the person you <u>first</u> had sex with? Please give your best guess. PROBE IF NECESSARY (ABOUT YOUR AGE, YOUNGER, OLDER?)	AGE IN YEARS _____ DON'T KNOW = -8 REFUSED = -9		N	N	C
308	ADFSXCON	The first time you had sex, was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF DON'T KNOW WHAT CONDOM IS (IN HIV PREVENTION MODULE)	N	N	C
309	ADDIFPSX	In total, how many different people have you had sex with? Please give your best guess.	NUMBER OF PARTNERS ____ DON'T KNOW = -8 REFUSED = -9	CONSTRAINT CANNOT BE '0'	N	N	C
310	ADLTSXCON	The <u>last</u> time you had sex was a condom used?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF DON'T KNOW WHAT CONDOM IS (FROM HIV PREVENTION MODULE)	N	N	C
311	ADOFTCON	How often do you use a condom during sex?	ALWAYS = 1 SOMETIMES = 2 NEVER = 5 DON'T REMEMBER = 6 DON'T KNOW = -8 REFUSED = -9	SKIP IF DON'T KNOW WHAT CONDOM IS (FROM HIV PREVENTION MODULE)	N	N	S

312	ADMATSUP	Have you ever had sex with someone because he/she provided you with, or you expected that he/she would provide you with gifts, help you to pay for things or help you in other ways such as giving you food or paying for school fees?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9		N	N	C
313	ADPREG	Have you ever been or are you currently pregnant?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	GIRLS ONLY; if NO → ADTPSX	N	N	C
313A	ADPREGOUT	What was the outcome of the last pregnancy?	STILL PREGNANT = 1 LIVE BIRTH = 2 MISCARRIAGE = 3 STILLBIRTH = 4 DON'T KNOW = -8 REFUSED = -9				COUNT RY ADDED
314	ADTPSX	Have you <u>ever</u> talked with a parent or guardian about sex?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9		N	N	C

MODULE 4: SOCIAL NORMS, INTENTION TO ABSTAIN, SELF-EFFICACY AND ASSERTIVENESS

Now I would like to ask you some questions about the future.

401	ADFRHVSX	Do you think all, many, some, a few or none of your friends are having sex?	ALL = 1 MOST = 2 SOME = 3 A FEW = 4 NONE = 5 DON'T KNOW/DON'T KNOW WHAT SEX IS= -8 REFUSED = -9	SKIP IF ADKNSX = NO, DKN, REFUSED	N	N	C
402	ADPRFSX	Do you feel pressured by your friends to have sex?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF ADKNSX = NO, DKN, REFUSED	N	N	C
403	ADNOSX	If you did not want to have sex with someone, could you tell him/her that you do not want to have sex with him/her?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	SKIP IF ADKNSX = NO, DKN, REFUSED	N	N	C

MODULE 5: HIV RISK PERCEPTION							
501	ADLGHIV	How likely do you think it is for you to get HIV?	VERY LIKELY = 1 SOMEWHAT LIKELY = 2 NOT LIKELY = 3 I ALREADY HAVE HIV = 4 DON'T KNOW = -8 REFUSED = -9	IF NOT LIKELY, DK, REFUSED → ADMRNLHIV IF I ALREADY HAVE HIV → NEXT MODULE SKIP IF ADHRDHIV =NO, DK, REFUSED	N	N	P

MODULE 6: HIV KNOWLEDGE

	Now I would like to ask you some questions about what you know about some things related to HIV.							SKIP TO NEXT MODULE IF ADHRDHIV = NO, DK, REF			
601	ADREDNOSX	Can a person reduce their chance of getting HIV by not having sex?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		N		N	C			
602	ADREDCON	Can a person reduce their chance of getting HIV by using condoms when having sex?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		N		N	C			
603	ADLKSHIV	Can a healthy-looking person have HIV or AIDS?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		N		N	S			
604	ADMHIVUBB	Can a mother with HIV or AIDS pass HIV to her unborn baby?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		N		N	S			

605	ADMEDLL	Are there medicines that people with HIV or AIDS can take to help them live longer?	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		N	N	C
606	ADCIRHIV	Can male circumcision help prevent HIV infection? Circumcision is the removal of the foreskin from a penis.	YES = 1 NO = 2 DON'T KNOW = 3 REFUSED = -9		N	N	C

		MODULE7: HIV TESTING					
		I would now like to ask you some questions about HIV testing.		SKIP TO NEXT MODULE IF ADHRDHIV = NO, DK, REF			
701	ADEVTEST	To what extent do you agree with the following statement: Everyone should get tested for HIV. Do you strongly agree, agree, disagree, or strongly disagree?	STRONGLY AGREE = 1 AGREE = 2 DISAGREE = 3 STRONGLY DISAGREE = 4 DON'T KNOW = -8 REFUSED = -9		N	N	S
702	ADHIVONLY	To what extent do you agree with the following statement: Only persons who think they might have HIV should get an HIV test.	STRONGLY AGREE = 1 AGREE = 2 DISAGREE = 3 STRONGLY DISAGREE = 4 DON'T KNOW = -8 REFUSED = -9		N	N	S

		Do you strongly agree, agree, disagree, or strongly disagree?					
703	ADTS HIV	Have you ever been tested for HIV?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → NEXT MODULE	N	N	C
704	ADRCRS HIV	Did you receive the results of any of your HIV tests?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → NEXT MODULE	N	N	C
705	ADR SHIV	What was the result of that HIV test? SOME PARTICIPANTS MAY REPORT BEING TESTED MORE THAN ONCE. IF THEY REPORT GETTING A POSITIVE RESULT AND ANOTHER RESULT (I.E. A PREVIOUS NEGATIVE RESULT), SELECT POSITIVE	HIV POSITIVE = 1 HIV NEGATIVE = 2 UNKNOWN = 3 REFUSED = -9	IF HIV NEGATIVE, UNKNOWN, REFUSED → NEXT MODULE	N	N	C
706	AD HIV CLM / AD HIV CLY	What month and year did you last see a health care provider (doctor, clinical officer or nurse) for HIV medical care?	MONTH _____ DON'T KNOW MONTH _____ YEAR _____ DON'T KNOW YEAR _____ NEVER SEEN PROVIDER FOR HIV CARE	SKIP IF 301=NO, DK, REFUSED			COUNT RY ADDED
707	ADARVSTAKE NEV	Have you ever taken ARVs, that is, medicines to treat your HIV infection?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK OR REFUSED, SKIP TO 604B			COUNT RY ADDED

				SKIP IF 201=NO, DK, REFUSED			
708	ADTXHIV	Are you currently on ARVs (treatment for HIV)?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF YES, DK, REFUSED, SKIP TO 604B SKIP IF 201=NO, DK, REFUSED	N	N	C GO BACK
709	ADARVSNOT CURRSN	Can you tell me the main reason why you are not currently taking ARVs?	STIGMA/DON'T WANT PEOPLE TO KNOW MY STATUS =01 HAVE SIDE EFFECTS/RASH = 02 FACILITY/PHARMACY TOO FAR AWAY TO GET MEDICATION REGULARLY = 03 COST OF MEDICATIONS =04 COST OF TRANSPORT =05 I AM HEALTHY/NOT SICK = 06 FACILITY WAS OUT OF STOCK = 07 RELIGIOUS REASONS= 08 I AM TAKING TRADITIONAL MEDICATIONS = 09 OTHER (SPECIFY) =96	SKIP IF 301=NO, DK, REFUSED			COUNT RY ADDED
710	ADHIVDIFF	What one thing do you find most difficult about living with HIV?	I DON'T FIND IT DIFFICULT = 1 ILLNESS OR MEDICINE SIDE EFFECTS = 2 ACCESS TO MEDICAL/SOCIAL SERVICES = 3 FINANCIAL COSTS = 4 ARV ADHERENCE = 5 STIGMA = 6 DISCLOSURE IN GENERAL = 7 FEAR FOR HEALTH/FUTURE = 8 OTHER = 96 SPECIFY _____ DK =88 REFUSED= 99	SKIP IF 301=NO, DK, REFUSED			COUNT RY ADDED

MODULE 9: ALCOHOL AND DRUGS							
I would like to ask you some questions about alcohol and drugs or substances that you may have taken that were not given to you by doctor. Your answers will not be told to anyone, even your parents.							
901	ADHDALC	Have you ever drunk alcohol?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED →ADTRDRG SHOW GRAPHIC OF COMMON ALCOHOLIC BEVERAGES.	N	N	S
902	ADMNONDRK	During the past 1 month, on how many days did you have at least one drink containing alcohol?	NUMBER OF DAYS ____ DON'T KNOW = -8 REFUSED = -9	MAX = 31	N	N	C
903	ADTRDRG	Have you ever tried drugs such as DRUG A, DRUG B, DRUG C, or others?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	IF NO, DK, REFUSED → ADSHFDHIV ADAPT QUESTION TO LOCAL CONTEXT.	N	N	S

904	ADDRUGS	<p>It's possible that some people in our communities use drugs.</p> <p>What drugs have you ever tried?</p> <p>DO NOT READ RESPONSES.</p> <p>PROBE FOR MULTIPLE RESPONSES.</p>	<p>NONE = A MIRAA = B BHANG = C GLUE = D KUBER = E MANDRAZ = F COCAINE = G HEROIN = H OTHER (SPECIFY) = X DON'T KNOW = Y REFUSED = Z</p>	.	N	N	S
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Module 10: PARENTAL SUPPORT							
1001	ADPARFRTM	Do your parents/guardians really know what you were doing with your free time when you were not at school or work?	<p>ALWAYS = 1 MOST OF THE TIME = 2 SOMETIMES = 3 RARELY = 4 NEVER = 5 DON'T KNOW = -8 REFUSED = -9</p>	.	N	N	S
1002	ADOBTNWOPAR	Do you sometimes have to obtain some items without getting any money from your parents or caregivers:- READ ALL RESPONSES	<p>CLOTHING = A SHOES = B SOAP AND OR BODY OIL = C HOUSEHOLD SUPPLIES = D SCHOOL SUPPLIES = E TRANSPORTATION TO SCHOOL = F MEALS AWAY FROM HOME = G NONE = H OTHER (SPECIFY) = X DON'T KNOW = Y REFUSED = Z</p>

	MODULE 11: VIOLENCE
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Now I would like to ask you questions about some other important aspects of a person's life. I know that some of these questions are very personal. However, your answers are important for helping to understand the condition of children in [Tanzania]. Let me assure you that your answers are completely confidential and will not be told to anyone.

1101	ADATTCK	<p>Has anyone ever done any of these things to you:</p> <ul style="list-style-type: none"> - Punched, kicked, whipped, or beat you with an object - Choked, smothered, tried to drown you, or burned you intentionally - Used or threatened you with a knife, gun or other weapon? 	<p>YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9</p>		N	N	C
1102	ADTCHWOPM	<p>Has anyone ever touched you in a sexual way without your permission, but did not try and force you to have sex?</p> <p>Touching in a sexual way without permission includes fondling, pinching, grabbing, or touching you on or around your sexual body parts.</p>	<p>YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9</p>	IF NO, DK, REFUSED → ADSXNTSCC	N	N	C

1103	ADFTREL	The first time this sexual touching happened, what was your relationship to the person who did this? If it was more than one person, what was your relationship with the person you knew the best?	BOYFRIEND/GIRLFRIEND/SPOUSE = 1 RELATIVE/FAMILY MEMBER = 2 CLASSMATE/SCHOOLMATE = 3 TEACHER = 4 POLICE/SECURITY OFFICER/MILITARY= 5 EMPLOYER = 6 NEIGHBOR = 7 COMMUNITY RELIGIOUS LEADER = 8 FRIEND = 9 STRANGER = 10 OTHER = 96 DON'T KNOW = -8 REFUSED = -9		N	N	C
1104	ADSXNTSCC	Has anyone ever <u>tried</u> to make you have sex against your will but did not succeed?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9		N	N	S
1105	ADPRSXSCC	Has anyone ever pressured you to have sex, through harassment, threats or tricks and did succeed?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9		N	N	C
1106	ADFRCSCC	Has anyone ever physically forced you to have sex and did succeed?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9		N	N	C

1107	ADFRCREL	The first time you were pressured or forced to have sex, what was your relationship to the person who did this?	BOYFRIEND/GIRLFRIEND/SPOUSE = 1 RELATIVE/FAMILY MEMBER = 2 CLASSMATE/SCHOOLMATE = 3 TEACHER = 4 POLICE/SECURITY OFFICER/MILITARY= 5 EMPLOYER = 6 NEIGHBOR = 7 COMMUNITY RELIGIOUS LEADER = 8 FRIEND = 9 STRANGER = 10 OTHER (SPECIFY) = 96 DON'T KNOW = -8 REFUSED = -9	SKIP IF ADPRSXSCC IS NO, DK, REFUSED AND ADFRCSCC IS NO, DK, REFUSED	N	N	S
1108	ADPROSVC	After any of these unwanted sexual experiences, did you try to seek professional help or services from any of the following? READ RESPONSES ALOUD SELECT ALL THAT APPLY.	HEALTHCARE PROFESSIONAL = A POLICE OR OTHER SECURITY PERSONNEL = B SOCIAL WORKER, COUNSELOR OR NGO = C RELIGIOUS LEADER = D I DID NOT TRY TO SEEK HELP = E OTHER (SPECIFY) = X DON'T KNOW = Y REFUSED = Z	ALL BUT I DID NOT TRY TO SEEK HELP → ADSXTELL SKIP IF ADTCHWOPM = NO, DK, REFUSED & ADSXNTSCC = NO, DK, REFUSED & ADPRSXSCC = NO, DK, REFUSED, & ADFRCSCC = NO, DK, REFUSED	N	N	C

1109	ADRSRSPSVC	What was the main reason that you did not try to seek professional help or services?	DID NOT KNOW SERVICES WERE AVAILABLE = 1 SERVICES NOT AVAILABLE = 2 AFRAID OF GETTING IN TROUBLE = 3 ASHAMED FOR SELF/FAMILY = 4 COULD NOT AFFORD SERVICES = 5 DID NOT THINK IT WAS A PROBLEM = 6 FELT IT WAS MY FAULT = 7 AFRAID OF BEING ABANDONED = 8 DID NOT NEED/WANT SERVICES = 9 AGE = 10 GENDER = 11 OTHER = 96 DON'T KNOW = -8 REFUSED = -9		N	N	C
1110	ADSXTELL	After any of these unwanted sexual experiences, did you tell anyone about it?	YES = 1 NO = 2 DON'T KNOW = -8 REFUSED = -9	NO, DK, REFUSED →END	N	N	C
1111	ADSXDISC	Whom did you tell about any of these unwanted sexual experiences READ RESPONSES ALOUD SELECT ALL THAT APPLY	PARENT/GUARDIAN = A SIBLING = B TEACHER= C FRIEND/CLASSMATE = D OTHER FAMILY MEMBER = E RELIGIOUS LEADER = F PROFESSIONAL SERVICE PROVIDERS=G OTHER (SPECIFY) = X DON'T KNOW = Y REFUSED = Z				S

1113	ADREFERRAL	<p>Thank you for sharing your personal experiences with me. I know it may have been difficult for you to talk about your experiences with me. If you would like to talk further about these experiences, I can refer you to a place that can provide you with help.</p> <p>PROVIDE PARTICIPANT WITH LIST OF ORGANIZATIONS.</p>		SKIP IF NEVER EXPERIENCED SEXUAL OR PHYSICAL VIOLENCE.			
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COMMENTS FROM INTERVIEWER:

APPENDIX H: CONSENT FORMS

Interviewer reads:

What language do you prefer for our discussion today?

English

Kiswahili

Hello. My name is _____. I would like to invite you to take part in this research study/survey about HIV in Tanzania. The Tanzania and Zanzibar AIDS Commissions, the National Bureau of Statistics, and the Office of the Chief Government Statistician are leading this survey in collaboration with the United States Centers for Disease Control and Prevention and ICAP at Columbia University.

What is the purpose of this survey?

HIV is the virus that causes AIDS. AIDS is a very serious illness. This survey will help us know how many people in Tanzania have HIV and need health services. We expect about 40,000 men, women, and children from 15,000 households throughout Tanzania to join this survey. If you join, your taking part will help the Ministry of Health Zanzibar/Ministry of Health, Community Development, Gender, Elderly and Children (MOHC GEC) make HIV services better in the country.

What do you have to do if you agree to take part?

There are three parts to this survey. The household interview, the individual interviews and blood testing. We would like to ask you some questions about the people staying in your household and about some of the things you have. The household interview will take up to 30 minutes.

After the household interview, we will invite you and others staying in your household to take part in individual interviews and then offer testing for HIV, syphilis, hepatitis B and hepatitis C to some individuals.

What are the potential risks?

You may feel uncomfortable about some of the questions I will ask. You can refuse to answer any question. You may stop the interview at any time.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

There may be no direct benefit to you but the information you provide to us will be used to improve the health of Tanzanians. Your responses will help the Ministry of Health to develop more effective programs to fight HIV.

What are the alternatives to taking part?

You can decide not to take part in this survey, your taking part in this household interview is entirely voluntary. Your decision to take part or not take part will not affect your health care.

What about confidentiality?

All information you give us will be kept strictly confidential, even from your family. The consent forms with your name will be kept separate from the answers you give in this interview. Your name will not appear when we share survey results. Your answers to the questions will be identified only by a number.

(INTERVIEWER INDICATE INFORMATION BELOW ON CONSENT FORM, DO NOT READ ALOUD)

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

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a participant. These include the National Institute for Medical Research (NIMR) and the Zanzibar Medical Ethics Council (ZAMEC) in Tanzania and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center, and Westat (a statistical survey 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 in this survey
- Survey staff and monitors

(INTERVIEWER READ FROM HERE)

The information we collect from you will not be released outside of the groups listed above unless there is an issue of safety. Your permission to allow us to use and share your information with the groups above will expire three years after the end of the survey.

Who should you contact if you have questions?

If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below; or

(INTERVIEWER INDICATE ADDRESSES ON CONSENT FORM, DO NOT READ ALOUD)

Dr. Albina Chuwa

National Bureau of Statistics, 18 Kivukoni Road, Dar es Salaam

P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3

Email: albinachuwa@gmail.com

Mr Emilian Karugendo

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P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3

emilian.karugendo@nbs.go.tz; or

Mayasa Mahfoudh Mwinyi

Office of the Chief Government Statistician
P.O Box 2321, Zanzibar.
Telephone number: +255 242231869
[Email: mmayasa@hotmail.com](mailto:mmayasa@hotmail.com)

If you decide to leave the study, no more information will be collected from you. We will make every effort to delete the information we have collected from you. However, after today, we cannot guarantee we will be able to delete information that has already been shared.

If you have any questions about your rights as a person in this survey, you can contact either of the following persons:

Dr Mwele Malechela
The Director General
National Institute for Medical Research (NIMR)
3 Barack Obama Drive
P. O. Box 9653, Dar es Salaam, Tanzania
Tel: +255-22-2121400
Fax: +255-22-2121360
Email: hq@nimr.or.tz / info@nimr.or.tz

Dr Msafiri L Marijani
Zanzibar Medical Research and Ethics Committee (ZAMREC)
Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar
P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

Are there any costs?

There is no cost to you for answering the questions in the household interview other than your time. You should also know that you will not be paid to answer these questions.

Do you want to ask me anything about the survey?

Verbal Consent Statement

I have read this form and/or someone has read it to me. Any questions that I had have been answered satisfactorily. I agree to take part in the household interview. I know that after choosing to be in the interview, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this consent form.

If you agree to take part in the household interview, please state the following statement:

"I agree to take part in the household interview"

Check this box if participant agrees to participate in the household interview

If you do not agree to take part in the household interview, please state the following statement:

"I do not wish to take part in the household interview"

Check this box if participant refuses to participate in the household interview

Printed name of head of household _____

Signature of person obtaining consent _____ Date: ___/___/___

Printed name of person obtaining consent _____

Survey staff ID number _____

Consent/Permission from Parent/Guardian for blood draw for children ages 0-9years

Interviewer reads:

What language do you prefer for our discussion today?

English

Kiswahili

Hello. My name is_____ . We are doing a research study/survey throughout Tanzania to learn more about HIV in the country. The Tanzania and Zanzibar AIDS Commissions, the National Bureau of Statistics and the Office of the Chief Government Statistician are leading this survey in collaboration with the United States Centers for Disease Control and Prevention (CDC) and ICAP at Columbia University.

[IF PARTICIPANT HAS BEEN THROUGH HOUSEHOLD CONSENT]

What do you have to do if you agree to take part?

If you agree to join this survey, we will ask you questions about your age, your marriage and sexual behavior, any behavior that puts you at greater risk of HIV infection, your knowledge about HIV, if you ever had an HIV test, whether you know your HIV status and if you have any experience with HIV prevention and treatment services. This interview will take about 50 minutes.

After the interview, I will offer you blood tests for HIV and syphilis. We will give you a separate opportunity to agree to the blood testing. You can agree to the interview, but not agree to the blood testing.

Lastly, it is possible that you may be eligible to take part in future studies related to the health of Tanzanians. At the end of this form, I will ask for permission to contact you in the next two years if such an opportunity occurs.

What are the potential risks?

The risks to taking part in the interview are small. You may feel uncomfortable about some of the questions I will ask. You can refuse to answer any question. As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

There may be no direct benefit to you but your taking part in this survey could help us learn more about HIV in Tanzania. It can also help us learn about how well HIV prevention and treatment programs are working.

What are alternatives to taking part?

You can decide not to take part in this interview. Your decision to take part or not take part will not affect your healthcare.

→ GO TO CONSENT STATEMENT

[IF PARTICIPANT HAS NOT BEEN THROUGH HOUSEHOLD CONSENT]

Why are we doing this survey?

HIV is the virus that causes AIDS. AIDS is a very serious illness. This survey will help us know how many people in Tanzania have HIV and need health services. We expect about 40,000 men, women, and children from 15,000 households throughout Tanzania to join this survey. If you join, your taking part will help the Ministry of Health Zanzibar/Ministry of Health, Community Development, Gender, Elderly and Children (MOHC GEC) make HIV services better in the country.

What do you have to do if you agree to take part?

If you agree to join this survey, we will ask you questions about your age, if you had any experience with HIV services, and your sexual behaviors. This interview will take about 50 minutes.

After the interview, I will offer you blood tests for HIV and syphilis. We will give you a separate opportunity to agree to the blood testing. You can agree to the interview, but not agree to the blood testing.

Lastly, it is possible that you may be eligible to take part in future studies related to the health of Tanzanians. At the end of this form, I will ask for permission to contact you in the next two years, if such an opportunity occurs.

What are the potential risks?

The risks to taking part in the interview are small. You may feel uncomfortable about some of the questions I will ask. You can refuse to answer any question.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

There may be no direct benefit to you but your taking part in this survey could help us learn more about HIV in Tanzania. It can also help us learn about how well HIV prevention and treatment programs are working.

What are alternatives to taking part?

You can decide not to take part in this interview. Your decision to take part or not take part will not affect your healthcare.

What about confidentiality?

All the information you give us will be kept strictly confidential, even from your family and will not be shown outside of the survey team. The consent forms with your name will be kept separate from the answers you give in this interview. Your name will not appear when we share survey results. Your answers to the questions will be identified only by a number.

(INTERVIEWER INDICATE INFORMATION BELOW ON CONSENT FORM, DO NOT READ ALOUD)

The following individuals and agencies will be able to look at your interview record to help oversee the conduct of this survey:

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a participant. These include the National Institute of Medical Research (NIMR) and Zanzibar Medical Ethics Council (ZMEC), and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center and Westat (a statistical survey 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 participant in this survey
- Survey staff and monitors

(INTERVIEWER READ FROM HERE)

The information we collect from you will not be released outside of the groups listed above unless there is an issue of safety. Your permission to allow us to use and share your information with the groups above will expire three years after the end of the survey.

Who should you contact if you have questions?

If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below: , or

(INTERVIEWER INDICATE ADDRESSES ON CONSENT FORM, DO NOT READ ALOUD)

Dr. Albina Chuwa

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If you have any questions about your rights as a person in this survey, you can contact either of the following persons:

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Email: hq@nimr.or.tz / info@nimr.or.tz

Dr Msafiri L Marijani
Zanzibar Medical Research and Ethics Committee (ZAMREC)
Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar
P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

Are there any costs?

There is no cost to you for answering the questions in the interview except for your time. You should also know that you will not be paid to answer these questions.

Do you want to ask me anything about the survey?

Verbal Consent Statement

I have read this form, and/or someone has read it to me. Any questions that I had were answered satisfactorily. I agree to take part in the individual interview. I know that after choosing to be in the individual interview, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this consent form.

1. If you agree to take part in the individual interview, please state the following statement:

"I agree to take part in the individual interview"

Check this box if participant agrees to participate in the individual interview

If you do not agree to take part in the individual interview, please state the following statement:

"I do not wish to take part in the individual interview"

Check this box if participant refuses to participate in the individual interview

2. **FUTURE RESEARCH:** It is possible that you may be eligible to take part in future studies related to health in Tanzania. We are asking for your permission to contact you in the next two years if such an opportunity

occurs. If we contact you, we will give you details about the new study and ask you to sign a separate consent form at that time. You may decide at that time that you do not want to take part in that study.

If you do not wish to be contacted about future studies, it does not affect your involvement in this study.

If you agree to be contacted about future studies, please state the following statement

"I agree to be contacted for future studies"

Check this box if participant agrees to be contacted for future studies

If you do not agree to be contacted about future studies, please state the following statement

"I do not wish to be contacted for future studies"

Check this box if participant refuses to be contacted for future studies

Printed name of participant _____

Participant ID number _____

Signature of person obtaining consent _____ Date: ___/___/___

Printed name of person obtaining consent _____

Survey staff ID number _____

Interviewer reads:

What language do you prefer for our discussion today?

English

Swahili

Now I would like to ask you to let your child take part in the research study/survey. Your child's taking part will help the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCGEC)/Ministry of Health make HIV services better in Tanzania. The Tanzania and Zanzibar AIDS Commissions, the National Bureau of Statistics, and the Office of the Chief Government Statistician are leading this survey in collaboration with the United States Centers for Disease Control and Prevention and ICAP at Columbia University.

[IF PARENT/GUARDIAN HAS BEEN THROUGH CONSENT PROCESS FOR INTERVIEW/BLOOD DRAW]

What will happen to your child if you agree to allow your child to take part?

If you and your child agree, the following will happen, as described in your own consent:

- **[IF CHILD IS <2 YEARS OLD]** A trained nurse will take a few drops of blood (about 1 mL) from your child's finger or heel to perform an HIV test here in your home.
- **[IF CHILD IS 2-9 YEARS OLD]** We will take about 6 mL (about one teaspoonful) of blood from your child's arm. If it is not possible to take blood from your child's arm, we will take a few drops of blood from your child's finger or heel.
- We will give you the results of these blood tests today. We will not share the results with your child unless you ask us to do so.
- If your child tests positive for HIV
 - we will also test the amount of CD4 cells in his/her blood and give you the result today.
 - His/her blood will be sent to a laboratory to measure his/her viral load and the results will be returned the health facility of your choice in about 10 weeks.
 - We will give you a referral form so that you and your child can consult with a doctor or nurse to learn more about his/her HIV test, CD4 count, and overall health.
 - We may also do other additional tests related to HIV. If we have test results that might guide your child's care or treatment and you provide us with your contact information, we will contact you to tell you how you and your child's doctor or nurse may get these results.
- We will ask for your permission to store your child's leftover blood for future research tests. This sample will be stored for an indefinite amount of time but your child's name will be on the sample for only three years. During this three year period we will attempt to tell you about any test results that are important for your child's health. If you do not agree to future research tests to your child's blood samples, we will destroy your child's blood samples after survey-related testing has been completed.

[For children aged 0-18 months only]

The body makes antibodies to fight HIV. Antibodies from a mother with HIV can enter the baby's blood during pregnancy. The test we perform on your child today will let us know if your child has been exposed to HIV. If it is positive, it does not mean your child has the virus in his/her blood. It just confirms that he/she has been exposed to HIV. We will need to send your child's blood to a lab for a special test to confirm if he/she has HIV. We will send the result to the health facility of your choice in about ten weeks from now. If you provide us with your contact information, we will contact you to inform you that the results have been sent to the facility and encourage you to go to the health facility to discuss your child's HIV test results with a doctor or nurse.

What are the potential risks?

The needle stick may be uncomfortable for your child, and may include bleeding and rarely, infection where the needle enters the skin. Experienced staff will do the tests under safe and clean conditions in order to protect your child against any risk.

You and your child may learn that your child is infected with HIV. Learning about your child's HIV infection may cause some emotional discomfort. We will provide counseling on how to cope with learning that your child has HIV and tell you where you may go for your child's care and treatment.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

The main benefit for your child to be in the survey is the chance to learn more about his/her health today. If your child has HIV, you will learn where to take your child for treatment. If you already know that your child is HIV positive and he/she is on treatment, the CD4 and viral load tests can help your child's doctor or nurse judge how well the treatment is working. Your child taking part in this survey could help us learn more about children, HIV in Tanzania and how well HIV prevention and treatment programs are working.

What are alternatives to taking part?

Your child may stop participation at any time. This will not affect your child's healthcare in any way.

What about confidentiality?

Your child's test results will be kept strictly confidential. Your child's name and the consent forms will be kept separate from his/her health information. Your name and your child's name will not appear when we share survey results. The information we collect from your child will be identified by a number and not by your name or your child's name.

→ GO TO PERMISSION STATEMENT

[IF PARENT/GUARDIAN HAS NOT BEEN THROUGH CONSENT PROCESS FOR BLOOD DRAW READ THE FOLLOWING]

What is the purpose of the survey?

HIV is the virus that causes AIDS. AIDS is a very serious illness. This survey will help us know how many people in Tanzania have HIV and need health services. This survey will help us learn more about HIV, AIDS and the health of children in Tanzania. We expect about 40,000 men, women, and children from 15,000 households throughout Tanzania to join this survey. If you join, your taking part will help the Ministry of Health Zanzibar/Ministry of Health, Community Development, Gender, Elderly and Children (MOHCGEC)/make HIV services better in the country.

What will happen to your child if you agree to allow your child to take part?

If you agree to allow your child to take part in the survey, and he/she is less than 2 years, a trained nurse will take a few drops of blood (about 1 mL) from your child's finger or heel to perform an HIV test here in your home and give you the results today. If your child is 2 to 9 years of age, we will take about 6 mL (one teaspoonful) of blood from your child's arm. If it is not possible to take blood from your child's arm, then we will try to take a few drops of blood from your child's finger or heel.

We will provide counseling about the results today and discuss with you how to share the test results with your child if you decide to share them with him/her. If you would like, we can discuss the test results together with your child. The entire testing and counseling session will take about 40 minutes.

If your child tests positive for HIV, we will also test the amount of CD4 cells in his/her blood and give you the result today. CD4 cells are the part of the immune system that fight HIV infection and other diseases. We will also test the amount of CD4 cells in some children without HIV. We will give you a referral form and information on today's test results so that you and your child can consult with a doctor or nurse to learn more about his/her HIV test, CD4 count, and overall health.

In addition, if your child tests positive for HIV, we will send his/her blood to a laboratory to measure his/her viral load. Viral load is the amount of HIV in the blood. Your child's viral load test results will be ready in about ten weeks from now. If you provide us with your contact information, we will contact you to let you know the results are ready and encourage you to go to your health facility of choice to discuss your child's viral load results with a doctor or nurse.

We may also do other additional tests related to HIV. If we have test results that might guide your child's care or treatment and you provide us with contact information, we will contact you to tell you how you and your child's doctor or nurse may get these results.

[For children aged 0-<18 months only]

The body makes antibodies to fight HIV. Antibodies from a mother with HIV can enter the baby's blood during pregnancy. The test we perform on your child today will let us know if your child has been exposed to HIV. If it is positive, it does not mean your child has the virus in his/her blood. It just confirms that he/she has been exposed to HIV. We will need to send your child's blood to a lab for a special test to confirm if he/she has HIV. We will send

the result to the health facility of your choice in about ten weeks from now. If you provide us with your contact information, we will contact you to inform you that the results have been sent to the facility and encourage you to go to the health facility to discuss your child's HIV test results with a doctor or nurse.

What will happen to your child's leftover blood?

We would like to ask your permission to store your child's leftover blood for future research tests. These tests may be for HIV or other health issues which are important to the health of Tanzanians, such as nutrition or immunization. This sample will be stored for an indefinite amount of time but your child's name will be on the sample for only three years. During this three year period we will attempt to tell you about any test results that are important for your child's health. Your child's leftover blood will not be sold or used for commercial reasons. If you do not agree to future research tests to your child's blood samples, we will destroy your child's blood samples after survey-related testing has been completed.

What are the potential risks?

The needle stick may be uncomfortable for your child, and may include bleeding and rarely, infection where the needle enters the skin. Experienced staff will do the tests under safe and clean conditions in order to protect your child against any risk.

You and your child may learn that your child is infected with HIV. Learning about your child's HIV infection may cause some emotional discomfort. We will provide counseling on how to cope with learning that your child has HIV and tell you where you may go for your child's care and treatment.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

The main benefit for your child to be in the survey is the chance to learn more about his/her health today. Some children who take part will test positive for HIV. If this happens to your child, the benefit is that you will learn his/her HIV status and will learn where to take your child for life-saving treatment. Care and treatment provided by the Ministry of Health is free. If you already know that your child is HIV positive and he/she is on treatment, the CD4 and viral load tests can help your child's doctor or nurse judge how well the treatment is working. Your child taking part in this survey could help us learn more about children and HIV in Tanzania and how well HIV prevention and treatment programs are working.

What are alternatives to taking part?

You can decide to allow or not allow your child to take part in this survey. Or you can decide to allow your child to get his or her blood tested for HIV, but not agree to have his or her blood stored for future testing. Your decision to allow your child to take part or not take part in this survey will not affect your child's health care in any way.

What about confidentiality?

Your child's test results will be kept strictly confidential. Your child's name and the consent forms will be kept separate from his/her health information. Your name and your child's name will not appear when we share survey results. The information we collect from your child will be identified by a number and not by your name or your child's name.

(INTERVIEWER INDICATE INFORMATION BELOW ON CONSENT FORM, DO NOT READ ALOUD)

The following individuals and agencies will be able to look at your child's survey records to help oversee the conduct of this survey:

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your child's rights as a participant. These include the National Institute for Medical Research (NIMR) and the Zanzibar Medical Ethics Council (ZAMEC) in Tanzania and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center, and Westat (a statistical survey 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 child's rights as a participant in this survey
- Survey staff and monitors

(INTERVIEWER READ FROM HERE)

The information we collect from your child will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your child's name and contact information with the groups above will end three years after the end of the survey.

Who should you contact if you have questions?

If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below:

(INTERVIEWER INDICATE ADDRESSES ON CONSENT FORM, DO NOT READ ALOUD)

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If you decide to leave the study, no more information will be collected from you. We will make every effort to delete the information we have collected from you. However, after today, we cannot guarantee we will be able to delete information that has already been shared.

If you have any questions about your rights as a person in this survey, you can contact either of the following persons:

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P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

Are there any costs?

There is no cost to you for your child being in the survey except for your time. You should also know that neither you nor your child will be paid for your child to be in the survey.

Do you want to ask me anything about your child's taking part in the survey?

Verbal Consent Statement

I have read this form, and/or someone has read it to me. Any questions I had have been answered satisfactorily. I agree for my child to take part in this survey. I know that after allowing my child to take part, I may change my mind and withdraw him/her from taking part in this survey at any time. I have been offered a copy of this consent form.

1. If you agree that your child will give blood for HIV and related testing, please state the following statement:

"I agree for my child to give blood for HIV and related testing"

Check this box if parent/guardian agrees to allow their child participate in the blood draw

If you do not agree for us to ask your child to give blood for HIV and related testing and, please state the following statement:

"I do not wish for my child to take part in blood testing today"

Check this box if participant/guardian refuses to allow their child participate in the blood draw

(If agrees to participate in blood draw proceed to the next question)

2. If you agree to have your child's leftover blood stored for future research please state the following statement:

"I agree to have my child's leftover blood stored for future research"

Check here if participant agrees to have their child's leftover blood stored for future research.

If you do not agree to have your blood stored for future research, please state the following statement:

"I do not wish to have my child's leftover blood stored for future research"

Check here if participant refuses to have their child's leftover blood stored for future research.

Printed name of parent/guardian_____

Parent/guardian ID number_____ (If applicable. If not applicable check here)

Signature of person obtaining consent_____

Date: ___/___/___

Printed name of person obtaining consent_____

Survey staff ID number_____

Child's name (print)_____

Child's participant ID number_____

Permission from Parents/guardians for Interview and Blood Draw of Children, ages 10-17

Interviewer reads:

What language do you prefer for our discussion today?

English

Swahili

Now I would like to ask you to give us permission to invite your child to take part in the research study/survey. Your child's participation will help the Ministry of Health, Community Development, Gender, Elderly and Children (MOHC GEC)/Zanzibar Ministry of Health (MOH), make HIV services better in Tanzania. The Tanzania and Zanzibar AIDS Commissions, the National Bureau of Statistics, and the Office of the Chief Government Statistician are leading this survey in collaboration with the United States Centers for Disease Control and Prevention and ICAP at Columbia University.

[IF PARENT/GUARDIAN HAS BEEN THROUGH CONSENT PROCESS FOR INTERVIEW/BLOOD DRAW]

What would happen to your child if you agree to allow your child to take part?

If you and your child agree, the following will happen, as described in your own consent:

- We will invite your child to do an interview. We will ask your child questions on behaviors that may put him/her at risk for HIV, his/her exposure to HIV prevention and care programs and knowledge of his/her own HIV status. The interview will take about 30 minutes.
 - We will offer him/her a blood test for HIV, and syphilis. Like HIV, syphilis is an infection that can cause very serious illnesses if left untreated.
 - To do the HIV and syphilis tests in your home, a trained nurse will take about one teaspoon of blood (about 6mL) from your child's arm, if aged 10-14 years and about one tablespoon (about 14 mL) of blood from your child's arm, if aged 15-17 years to perform the tests for HIV and syphilis. If it is not possible to take blood from your child's arm, then we will try to take a few drops of blood from your child's finger.
 - [For children 15-17 years old] Your child may also be randomly selected today for Hepatitis B or C testing to be done at the lab. We will not return the Hepatitis C results if your child test positive for Hepatitis C. If your child tests positive for Hepatitis B we will send the results to your health facility and we will contact you and let you know if you provide us with your contact information. We will let you know today if your child is selected for Hep B testing.
-
- We will discuss the results with you and your child if you decide to share the test results with your child.
 - If your child tests positive for HIV,
 - We will also test the amount of CD4 cells in his/her blood and give you the result today.
 - His/her blood will also be sent to a laboratory to measure his/her viral load and the results will be returned to your preferred health facility in about 10 weeks

- We will give you a referral form so you and your child can consult with a doctor regarding his/her HIV test, CD4 count, and viral load results
 - We may also do other additional tests related to HIV. If we have test results that might guide your child's care or treatment and you provide us with contact information, we will contact you to tell you how you and your child's doctor or nurse may get these results.
- We will also test your child's blood for syphilis. If your child tests positive for syphilis, we will refer you to the nearest appropriate health facility for further testing for your child.
- We will ask for your permission to store your child's leftover blood for future research tests for an indefinite amount of time. If you do not agree to future research tests to your child's blood samples, we will destroy your child's blood samples after survey-related testing has been completed.
- You can agree to the interview, but not agree to the blood testing. Or agree for interview and blood testing but not for future storage of blood.

[For parents/guardians of children aged 15-17 only] It is also possible that your child may be eligible to participate in future studies related to health in Tanzania. We will also ask your child for permission to contact them in the next two years if such an opportunity occurs. Your child may also be randomly selected today for Hepatitis B or hepatitis C testing to be done at the lab. If your child is tested for Hepatitis B and test positive, his/her results will be returned to your health facility and we will contact you and let you know if you provide us with your contact information. We will let you know today if your child is selected for Hep B testing. If they are tested for Hepatitis C, the results will not be returned.

What are the potential risks?

Your child may feel uncomfortable about some of the questions I will ask. Your child can refuse to answer any question. The needle may be uncomfortable for your child and may include bleeding and rarely, infection where the needle enters the skin. Experienced staff will do the tests under safe and clean conditions in order to protect your child against any risk.

You and your child may learn that your child is infected with HIV and/or syphilis. Learning about your child's HIV and/or syphilis infection may cause some emotional discomfort. We will provide counseling on how to cope with learning that your child has HIV and/or syphilis, and tell you where you may go for care and treatment for your child.

Lastly, as with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

The main benefit for your child to be in the survey is the chance to learn more about his/her health today. If your child has HIV and or/syphilis, you will learn where to take your child for treatment. If you already know that your child is HIV positive and he/she is on treatment, the CD4 and viral load tests can help your child's doctor or nurse judge how well the treatment is working. Your child taking part in this survey could help us learn more about children, HIV and syphilis in Tanzania.

What are alternatives to taking part?

Your child may stop taking part at any time. This will not affect your child's healthcare in any way

What about confidentiality?

Your child's test results will be kept strictly confidential. Your child's name and the permission and assent forms will be kept separate from his/her health information. Your name and your child's name will not appear when we share survey results. When we share results, the information we collect from your child will be identified by a number and not by your name or your child's name.

→ **GO TO PERMISSION STATEMENT**

[IF PARENT/GUARDIAN HAS NOT BEEN THROUGH CONSENT PROCESS FOR INTERVIEW/BLOOD DRAW]

What is the purpose of the survey?

HIV is the virus that causes AIDS. AIDS is a very serious illness. This survey will help us know how many people in Tanzania have HIV and need health services. This survey will also help us learn more about HIV, AIDS and the health of children in Tanzania. We expect about 40,000 men, women, and children from 15,000 households throughout Tanzania to join this survey. If your child joins, his/her taking part will help the Ministry of Health Zanzibar/Ministry of Health, Community Development, Gender, Elderly and Children (MOHC GEC) make HIV services better in the country.

What would happen to your child if you agree to allow your child to take part?

If you agree to allow us to invite your child to take part in the survey, we will invite your child to do an interview with us and then offer him/her a blood test for HIV and syphilis. Like HIV, syphilis is an infection that can cause very serious illnesses if left untreated.

In the interview we will ask what your child knows about HIV. We will ask your child questions on behaviors that may put him/her at risk for HIV, his/her exposure to HIV prevention and care programs and knowledge of his/her own HIV status. The interview will take about 30 minutes.

If you agree, after the interview a trained nurse will take about one teaspoon of blood (about 5mL) from your child's arm, if aged 10-14 years, and about one tablespoon (about 14 mL) of blood from your child's arm if aged 15-17 years to perform the tests for HIV and syphilis here in your home and give you the results today. If it is not possible to take blood from your child's arm, then we will try to take a few drops of blood from your child's finger.

We will provide counseling about the results and discuss with you how to share the test results with your child. If you would like, we can discuss the test results together with your child. The entire testing and counseling session will take about 40 minutes.

If your child tests positive for HIV, we will also test the amount of CD4 cells in his/her blood and give you the result today. CD4 cells are the part of the immune system that fight HIV infection and other diseases. We will also test the amount of CD4 cells in some children without HIV. We will give you a referral form and information so that you and your child can consult with a doctor or nurse to learn more about his/her HIV test, syphilis test, CD4 count, viral load, and health.

In addition, if your child tests positive for HIV, we will send his/her blood to a laboratory to measure his/her viral load. Viral load is the amount of HIV in the blood. Your child's viral load test results will be ready in about ten weeks from now. If you provide us with your contact information, we will contact you to let you know the results

are ready and encourage you to go to your health facility to discuss your child's viral load results with a doctor or nurse.

We may also do other additional tests related to HIV. If we have test results that might guide your child's care or treatment and you provide us with contact information, we will contact you to tell you how you and your child's doctor or nurse may get these results.

We will also test your child's blood for syphilis. If your child tests positive for syphilis, we will refer you to the nearest appropriate health facility for further testing for your child.

[For parents/guardians of children aged 15-17 only]

It is also possible that your child may be eligible to take part in future studies related to health in Tanzania. We will also ask your child for permission to contact them in the next two years if such an opportunity occurs.

What will happen to your child's leftover blood?

We would like to ask your permission to store your child's leftover blood for future research tests. These tests may be for HIV or other health issues which are important to the health of Tanzanians, such as nutrition or immunization. This sample will be stored for an indefinite amount of time but your child's name will be on the sample for only three years. During this three year period, we will attempt to tell you about any test results that are important for your child's health. Your child's leftover blood will not be sold or used for commercial reasons. If you do not agree to future research tests to your child's blood samples, we will destroy your child's blood samples after survey-related testing has been completed.

You can agree to the interview, but not agree to the blood testing. Or agree for interview and blood testing but not for future storage of blood.

What are the potential risks?

Your child may feel uncomfortable about some of the questions I will ask. Your child does not need to answer any question(s) if they feel the question(s) are too personal or if it makes them uncomfortable.

The needle stick may be uncomfortable for your child and may include bleeding and rarely, infection where the needle enters the skin. Experienced staff will do the tests under safe and clean conditions in order to protect your child against any risk.

You and your child may learn that your child is infected with HIV and/or syphilis. Learning about your child's HIV and/or syphilis may cause some emotional discomfort. We will provide counseling on how to cope with learning that your child has HIV and/or syphilis, and tell you where you may go for care and treatment for your child.

Lastly, as with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

The main benefit for your child to be in the survey is the chance to learn more about his/her health today. Some children who take part will test positive for HIV and/or syphilis. If this happens to your child, the benefit is that you will learn his/her HIV and syphilis status and will learn where to take your child for life-saving treatment. Care

and treatment provided by the Ministry of Health is free. If you already know that your child is HIV positive and he/she is on treatment, the CD4 and viral load tests can help your child's doctor or nurse judge how well the treatment is working. Your child taking part in this survey could help us learn more about children, HIV and syphilis in Tanzania and how well HIV prevention and treatment programs are working.

What are alternatives to taking part?

You can decide to not allow your child to take part in the survey. Or you can allow your child to take part in the interview, but not the blood testing. Or you can allow your child to take part in the interview and blood testing, but not agree to allow your child's leftover blood to be stored for future studies.

Your decision to allow your child to take part or not take part in this survey will not affect your child's health care in any way.

What about confidentiality?

Your child's test results will be kept strictly confidential. Your child's name and the permission and assent forms will be kept separate from his/her health information. Your name and your child's name will not appear when we share survey results. The information we collect from your child will be identified by a number and not by your name or your child's name.

(INTERVIEWER INDICATE INFORMATION BELOW ON CONSENT FORM, DO NOT READ ALOUD)

The following individuals and agencies will be able to look at your child's survey records to help oversee the conduct of this survey:

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your child's rights as a participant. These include the National Institute for Medical Research (NIMR) and the Zanzibar Medical Ethics Council (ZAMEC) in Tanzania and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center and Westat (a statistical survey 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 child's rights as a person in this survey
- Survey staff and monitors

(INTERVIEWER READ FROM HERE)

The information we collect from your child will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your child's name and contact information with the groups above will end three years after the end of the survey.

Who should you contact if you have questions?

If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact any of the Principal Investigators below:

(INTERVIEWER INDICATE ADDRESSES ON CONSENT FORM, DO NOT READ ALOUD)

Dr. Albina Chuwa

National Bureau of Statistics, 18 Kivukoni Road, Dar Es Salaam

P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3

Email: albinachuwa@gmail.com

Mr. Emilian Karugendo

National Bureau of Statistics, 18 Kivukoni Road, Dar Es Salaam

P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3

emilian.karugendo@nbs.go.tz; or

Mayasa Mahfoudh Mwinyi

Office of the Chief Government Statistician

P.O Box 2321, Zanzibar.

Telephone number: +255 242231869

Email: mmayasa@hotmail.com

If you decide withdraw your child from the study, no more information will be collected from your child. We will make every effort to delete the information we have collected from your child. However, after today, we cannot guarantee we will be able to delete information that has already been shared.

If you have any questions about your child's rights as a person in this survey, you can contact:

Dr Mwele Malechela

The Director General

National Institute for Medical Research (NIMR)

3 Barack Obama Drive

P. O. Box 9653, Dar es Salaam, Tanzania

Tel: +255-22-2121400

Fax: +255-22-2121360

Email: hq@nimr.or.tz / info@nimr.or.tz

Dr Msafiri L Marijani

Zanzibar Medical Research and Ethics Committee (ZAMREC)

Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar

P.O.BOX 672. Zanzibar

Email: msafiridr@yahoo.com

Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

Are there any costs?

There is no cost to you for your child being in the survey other than your time. You should also know that neither you nor your child will be paid for your child to be in the survey.

Do you want to ask me anything about your child's taking part in the survey?

Verbal Permission Statement

I have read this form, and/or someone has read it to me. Any questions I had have been answered satisfactorily. I agree for my child to take part in this survey. I know that after allowing my child to take part, I may change my mind and withdraw him/her from taking part in this survey at any time.

I have been offered a copy of this permission form.

2. If you agree for us to ask your child to do the interview, please state the following statement: "***I give permission to the study team to ask my child to take part in the interview***"

Check this box if parent/guardian agrees to allow us to ask his/her child to take part in the interview

If you do not agree for us to ask your child to do interview, please state the following statement:

"I do not wish for the study team to ask my child to take part in the interview"

Check this box if parent/guardian refuses to allow the study team to ask his/her child to take part in the interview

(If permission given proceed to the next question)

- 3.

If you agree for us to ask your child to give blood for HIV and syphilis testing, and related testing and Hepatitis B or C testing for your child aged 15-17 years, please state the following statement: "***I give permission for the study team to ask my child to give blood for HIV, syphilis and related testing and Hepatitis B or C testing for my child aged 15-17 years***"

Check this box if parent/guardian gives permission for study team to ask his/her child to take part in the blood draw

If you do not agree for us to ask your child to give blood for HIV, syphilis and related testing and Hepatitis B or C for your child age 15-17, please state the following statement:

"I do not wish for the study team to ask my child to take part in blood testing today"

Check this box if parent/guardian refuses to allow the study team to ask his/her child to take part in the blood draw

(If permission given, proceed to the next question)

4. If you agree for us to ask your child to have your child's leftover blood stored for future research , please state the following statement:

"I give permission for the study team to ask my child to have his/her leftover blood stored for future research"

Check this box if parent/guardian gives permission for study team to ask his/her child to have his/her leftover blood stored for future research.

If you do not agree to have your blood stored for future research, please state the following statement:

"I do not wish for the study team to ask my child to have his/her leftover blood stored for future research"

Check this box if parent/guardian refuses to have study team ask his/her child to have his/her leftover blood stored for future research.

5. [ONLY FOR PARENTS OF CHILDREN aged 15 – 17] If you agree for us to contact your child in the next two years to participate in future studies related to health in Tanzania, please state the following statement:

"I give permission for the study team to contact my child about participation in future studies"

Check this box if parent/guardian gives permission for study team to ask his/her child about participating in future studies.

If you do not agree for us to contact your child to participate in future studies, please state the following statement:

"I do not wish for the study team to contact my child about participation in future studies"

Check this box if parent/guardian refuses to have study team ask his/her child about participating in future studies.

Printed name of parent/guardian _____

Parent/guardian ID number _____ (If applicable. If not applicable check here)

Signature of person obtaining permission _____ Date: ___/___/___

Printed name of person obtaining permission _____

Survey staff ID number _____

Child's name (print) _____

Child's participant ID number _____

Assent for Interview of children, ages 10-14

Interviewer reads:

What language do you prefer to use for this discussion?

English

Kiswahili

Hello. My name is_____ . We have talked to your parent/guardian and they said it was okay to invite you to take part in a survey. Surveys help us learn new things.

Your participation in this survey will help the Ministry of Health, Community Development, Gender, Elderly and Children (MOHC GEC)/Zanzibar Ministry of Health (MOH), make HIV services better in Tanzania.

This form talks about our survey and the choice that you have to take part in it. I want you to ask me any questions that you have. You can ask questions any time.

Why are we doing this survey?

HIV is the virus that causes AIDS. AIDS is a very serious illness. This survey will help us know how many people in Tanzania have HIV and need health services. We are also doing this survey to help us learn more about the health of children in Tanzania. We plan to ask thousands of children like you to join this survey. We would like to invite you to join this survey too.

This form might have some words that you may not have heard before. Please ask me to explain anything that you do not understand.

What would happen if you joined this survey?

If you decide to join the survey, here is what would happen:

- We will ask you questions related to your knowledge about HIV, your exposure to HIV prevention and care services, your knowledge about your own HIV infection status. We will also ask you if you experienced any behaviors that may increase your chance of getting HIV.
The interview will take place in private here in your home or an area around your home.
- The interview will take about 30 minutes.
- After we ask you the questions, we will also ask you if it is okay to take some of your blood to test for HIV and syphilis. Like HIV, syphilis is a germ that can make people very sick. We will also ask you if we can store your leftover blood for future surveys. You can agree to the interview, but not agree to the blood testing.

Could bad things happen to you if you joined this survey?

You may feel uncomfortable answering some of the questions I will ask. If I ask you any questions you don't want to answer, just let me know and I will go to the next question. You can stop the interview at any time.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

Could the survey help you?

Being in this survey may not help you. But you may help us figure out ways to help other children and learn more about HIV in Tanzania. Taking part in this survey is important.

What else should you know about this survey?

If you don't want to be in the survey, you don't have to be. Nobody will get upset with you if you do not want to join the survey.

It is also OK to say 'yes' and change your mind later. You can stop being in the survey at any time. If you want to stop, please tell us.

We will not tell other people that you are in this survey and will not share information about you to anyone who does not work on the survey. Any information about you will have a number on it instead of your name.

The following individuals and agencies will be able to look at your survey records:

- Survey staff and monitors
- Staff members from groups that protect your rights as a person taking part in a survey to make sure that we are protecting your rights

If you have any questions about the survey, feel that you have been harmed by taking part, or no longer want to take part in the survey, you can contact any of the Principal Investigators listed below:

(INTERVIEWER INDICATE ADDRESSES ON ASSENT FORM, DO NOT READ ALOUD)

Dr. Albina Chuwa

Email: albinachuwa@gmail.com

Mr. Emilian Karugendo

National Bureau of Statistics, 18 Kivukoni Road, Dar Es Salaam

P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3

emilian.karugendo@nbs.go.tz; or

Mayasa Mahfoudh Mwinyi

Office of the Chief Government Statistician

P.O Box 2321, Zanzibar.

Telephone number: +255 242231869

Email: mmayasa@hotmail.com

If you have any questions about your rights as a person in this survey, you can contact:

Dr Mwele Malechela
The Director General
National Institute for Medical Research (NIMR)
3 Barack Obama Drive
P. O. Box 9653, Dar es Salaam, Tanzania
Tel: +255-22-2121400
Fax: +255-22-2121360
Email: hq@nimr.or.tz / info@nimr.or.tz

Dr Msafiri L Marijani
Zanzibar Medical Research and Ethics Committee (ZAMREC)
Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar
P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

You should also know that you will not be paid to be in the study.

You can ask questions any time. Take the time you need to make your choice.

Do you want to ask me anything?

Verbal Consent Statement

1. If you agree to take part in the individual interview, please state the following statement:

"I agree to take part in the individual interview"

Check this box if participant agreed to participate in the individual interview

If you do not agree to take part in the individual interview, please state the following statement:

"I do not wish to take part in the individual interview"

Check this box if participant refuses to participate in the individual interview

Printed name of child _____

Child's participant ID number _____

Printed name of parent/guardian_____

Signature of person obtaining assent_____

Date: ____/____/____

Printed name of person obtaining assent_____

Survey staff ID number _____

Assent for Interview, ages 15-17

Interviewer reads:

What language do you prefer to use for this discussion?

English

Kiswahili

Hello. My name is _____. I have talked to your parent/guardian and they said it was okay to invite you take part in a research/survey about HIV in Tanzania. A survey is a way to learn about something by interviewing and testing many people. Your participation in this survey will help the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCGEC)/Zanzibar Ministry of Health (MOH), make HIV services better in Tanzania.

This form talks about our survey and the choice that you have to take part in it. I want you to ask me any questions that you have. You can ask questions any time.

Why are we doing this survey?

HIV is the virus that causes AIDS. AIDS is a very serious illness. This survey will help us know how many people in Tanzania have HIV and need health services. We are also doing this survey to help us learn more about HIV, AIDS and the health of children in Tanzania.

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

What would happen if you joined this survey?

If you agree to join, here is what would happen:

- We will ask you questions related to your knowledge about HIV, your exposure to HIV prevention and care services, your knowledge about your own HIV infection status. We will also ask you if you experienced any behaviors that may increase your chance of getting HIV.
- The interview will take about 50 minutes.
- After the interview, we will ask you if it is okay to take some of your blood to test for HIV and syphilis. You do not have to agree to the blood testing now. We will give you a separate opportunity to agree to the blood testing. You can agree to the interview, but not agree to the blood testing.

Could bad things happen to you if you joined the survey?

The risks in being in the survey are small. We will do everything we can to keep your information private. However, we cannot promise complete confidentiality. You may feel uncomfortable about some of the questions I will ask. If I ask you any questions you don't want to answer, just let me know and I will go to the next question. You can stop the interview at any time.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

Could this survey help you?

Being in this survey may not help you. But you may help us figure out ways to help other children and learn more about HIV in Tanzania. Taking part in this survey is important.

What else should you know about this survey?

If you don't want to be in the survey, you don't have to be. Nobody will get upset with you if you do not want to join the survey. Your decision to take part or not take part will not affect your healthcare.

Will you share my answers in the interview with other people?

All the information you share with us during the interview will be kept confidential. We will not tell your family about any of your responses. The consent forms with your name will be kept separate from your answers to the questions, which will only be identified by a number. Your name will not appear on any survey results. Only people working on the survey will have access to the data during the survey.

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

- Survey staff and monitors
- Staff members from groups that protect your rights as a person taking part in a survey to make sure that we are protecting your rights

Who should you contact if you have questions?

If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below:

(INTERVIEWER INDICATE ADDRESSES ON ASSENT FORM, DO NOT READ ALOUD)

Dr. Albina Chuwa

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Mayasa Mahfoudh Mwinyi

Office of the Chief Government Statistician

P.O Box 2321, Zanzibar.

Telephone number: +255 242231869

[Email: mmayasa@hotmail.com](mailto:mmayasa@hotmail.com)

If you have any questions about your rights as a person in this survey, you can contact:

Dr Mwele Malechela
The Director General
National Institute for Medical Research (NIMR)
3 Barack Obama Drive
P. O. Box 9653, Dar es Salaam, Tanzania
Tel: +255-22-2121400
Fax: +255-22-2121360
Email: hq@nimr.or.tz / info@nimr.or.tz

Dr Msafiri L Marijani
Zanzibar Medical Research and Ethics Committee (ZAMREC)
Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar
P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

Are there any costs to taking part in the interview?

There is no cost to you for answering the questions in the interview except for your time. You should also know that you will not be paid to answer these questions.

You can ask questions any time. Take the time you need to make your choice.

Do you want to ask me anything?

Verbal Assent Statement

I have read this form, and/or someone has read it to me. Any questions that I had were answered satisfactorily. I agree to take part in the individual interview. I have been offered a copy of this assent form.

Verbal Assent Statement

2. If you agree to take part in the individual interview, please state the following statement:

"I agree to take part in the individual interview"

Check this box if participant agreed to participate in the individual interview

If you do not agree to take part in the individual interview, please state the following statement:

"I do not wish to take part in the individual interview"

Check this box if participant refuses to participate in the individual interview

2. FUTURE RESEARCH: It is possible that you may be eligible to take part in future studies related to health in Tanzania. We are asking for your permission to contact you in the next two years if such an opportunity occurs. If we contact you, we will give you details about the new study and ask you to sign a separate assent form at that time. You may decide at that time that you do not want to take part in that study.

If you do not wish to be contacted about future studies, it does not affect your involvement in this study. If you agree to be contacted in the future, please state the following statement:

"I agree to be contacted about future studies"

Check this box if participant agreed to be contacted about future studies

If you do not agree to be contacted about future studies, please state the following statement:

"I do not wish to be contacted about future studies"

Check this box if participant refuses to be contacted about future studies

Printed name of participant _____

Participant ID number _____

Printed name of parent/guardian _____

Signature of person obtaining assent _____ Date: ___/___/___

Printed name of person obtaining assent _____

Survey staff ID number _____

Consent for Interview from Emancipated Minors Age 15-17

Nurse counselor/Interviewer reads:

What language do you prefer to use for this discussion?

English

Kiswahili

Hello. My name is_____. I would like to invite you to take part in a research study/survey about HIV in Tanzania. A survey is a way to learn about something by interviewing and testing many people. Your participation will help the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCGEC)/Zanzibar Ministry of Health (MOH), make HIV services better in Tanzania. The Tanzania and Zanzibar AIDS Commissions, the National Bureau of Statistics, and the Office of the Chief Government Statistician are leading this survey in collaboration with the United States Centers for Disease Control and Prevention and ICAP at Columbia University.

This form talks about our survey and the choice that you have to take part in it. I want you to ask me any questions that you have. You can ask questions any time.

Why are we doing this survey?

HIV is the virus that causes AIDS. AIDS is a very serious illness. This survey will help us know how many people in Tanzania have HIV and need health services. We are also doing this survey to help us learn more about HIV, AIDS and the health of children in Tanzania. We expect about 40,000 men, women, and children from 15,000 households throughout Tanzania to join this survey. We would like to invite you to join this survey too. If you join, your taking part will help the Ministry of Health Zanzibar/Ministry of Health, Community Development, Gender, Elderly and Children (MOHCGEC)/make HIV services better in the country. We plan to ask thousands of young people like you to join this survey. We would like to invite you to join this survey too.

This form might have some words that you may not have heard before. Please ask us to explain anything that you do not understand.

What would happen if I join this survey?

If you decide to join the survey, here is what would happen:

- We will ask you questions related to your knowledge about HIV, your exposure to HIV prevention and care services, your knowledge about your own HIV infection status. We will also ask you if you experienced any behaviors that may increase your chance of getting HIV.
- The interview will take about 50 minutes.
- After the interview, we will ask you if it is okay to take some of your blood to test for HIV and syphilis. You do not have to agree to the blood testing now. We will give you a separate opportunity to agree to the blood testing. You can agree to the interview, but not agree to the blood testing.

Could bad things happen to you if you joined the survey?

The risks in being in the survey are small. We will do everything we can to keep your information private. However, we cannot promise complete confidentiality. You may feel uncomfortable about some of the questions I will ask. If I ask you any questions you don't want to answer, just let me know and I will go to the next question. You can stop the interview at any time.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk

Could this survey help you?

Being in this survey may not help you. But you may help us figure out ways to help other children and learn more about HIV in Tanzania.

What else should you know about this survey?

If you don't want to be in the survey, you don't have to be. Nobody will get upset with you if you do not want to join the survey. Your decision to take part or not take part will not affect your healthcare, but we hope you will agree to answer these questions since your views are important.

Will you share my answers in the interview with other people?

All the information you share with us during the interview will be kept confidential. We will not tell your family about any of your responses. The consent forms with your name will be kept separate from your answers to the questions, which will only be identified by a number. Your name will not appear on any survey results. Only people working on the survey will have access to the data during the survey.

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

- Survey staff and monitors
- Staff members from groups that protect your rights as a person taking part in a survey to make sure that we are protecting your rights

The information we collect from you will not be released outside of the groups listed above unless there is an issue of safety. If we learn of anything that could harm you, we will contact you on where you can receive support. Your permission to allow us to use and share your information with the groups above will expire three years after the end of the survey.

Who should you contact if you have questions?

If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below:

(INTERVIEWER INDICATE ADDRESSES ON CONSENT FORM, DO NOT READ ALOUD)

Dr. Albina Chuwa

National Bureau of Statistics, 18 Kivukoni Road, Dar Es Salaam

P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3

Email: albinachuwa@gmail.com

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emilian.karugendo@nbs.go.tz; or

Mayasa Mahfoudh Mwinyi
Office of the Chief Government Statistician
P.O Box 2321, Zanzibar.
Telephone number: +255 242231869
Email: mmayasa@hotmail.com

If you decide to leave the study, no more information will be collected from you. We will make every effort to delete the information we have collected from you. However, after today, we cannot guarantee we will be able to delete information that has already been shared.

If you have any questions about your rights as a participant in this survey, you can contact:

Dr Mwele Malechela
The Director General
National Institute for Medical Research (NIMR)
3 Barack Obama Drive
P. O. Box 9653, Dar es Salaam, Tanzania
Tel: +255-22-2121400
Fax: +255-22-2121360
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P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

Are there any costs to taking part in the interview?

There is no cost to you for answering the questions in the interview except for your time. You should also know that you will not be paid to answer these questions.

You can ask questions any time. Take the time you need to make your choice.

Do you want to ask me anything?

Verbal Consent Statement

I have read this form, and/or someone has read it to me. Any questions that I had were answered satisfactorily. I agree to take part in the individual interview. I know that after choosing to be in this individual interview, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this consent form.

6. If you agree to take part in the individual interview, please state the following statement:

"I agree to take part in the individual interview"

Check this box if participant agrees to participate in the individual interview

If you do not agree to take part in the individual interview, please state the following statement:

"I do not wish to take part in the individual interview"

Check this box if participant refuses to participate in the individual interview

7. **FUTURE RESEARCH:** It is possible that you may be eligible to participate in future studies related to health in Tanzania. We are asking for your permission to contact you in the next two years if such an opportunity occurs. If we contact you, we will give you details about the new study and ask you to sign a separate consent form at that time. You may decide at that time that you do not want to take part in that study.

If you do not wish to be contacted about future studies, it does not affect your involvement in this study.

If you agree to be contacted about future studies, please state the following statement

"I agree to be contacted for future studies"

Check this box if participant agrees to be contacted for future studies

If you do not agree to be contacted about future studies, please state the following statement

"I do not wish to be contacted for future studies"

Check this box if participant refuses to be contacted for future studies

Printed name of participant _____

Participant ID number _____

Signature of person obtaining consent _____

Date: ____/____/____

Printed name of person obtaining consent _____

Survey staff ID number _____

Consent for Blood Draw, Ages 18+

Interviewer reads:

What language do you prefer to use for this discussion?

English

Kiswahili

As a part of this survey, we are giving people who take part a chance to learn if they have HIV and/or syphilis. HIV and syphilis are infections that can cause very serious illness if left untreated. We are also asking people if we can keep some of their blood for future testing.

What would happen to you if you agree to take part in the blood testing?

If you agree to the HIV, and syphilis blood testing a trained nurse will take about one tablespoon or about 14 mL of blood from your arm. 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 these blood tests today. We will provide counseling about the results. The testing and counseling session will take about 40 minutes.

If you test positive for HIV, we will also test the amount of CD4 cells in your blood and give you the result today. CD4 cells are the part of the immune system that fight HIV infection and other diseases. We will also test the amount of CD4 cells in some people without HIV. We will also do other additional tests related to HIV. If we have test results that might guide your care or treatment and you provide us with contact information, we will contact you to tell you how may get these results.

We will give you a referral form to take to the nearest Ministry of Health-approved health facility you select and information on today's test results so that you can consult with a doctor or nurse to learn more about your HIV test, CD4 count, and overall health.

If you test positive for HIV, we will also send your blood to a laboratory to measure your viral load. Viral load is the amount of HIV in the blood. Your viral load test results will be ready in about ten weeks. When the results are ready, we will send the results to your health facility of choice. If you provide us with your contact information, we will contact you to let you know the results are ready, and encourage you to go to your health facility to discuss your viral load results with a doctor or nurse.

You may also be randomly selected today for Hepatitis B or C testing to be done at the lab. We will not return the Hepatitis C results if you are tested for Hepatitis C. If you test positive for Hepatitis B we will send the results to your health facility and we will contact you and let you know if you provide us with your contact information. We will let you know today if you are selected for Hep B testing.

If you test positive for syphilis, we will refer you to the nearest appropriate health facility for further testing.

What will happen to your leftover blood?

We would also like your permission to store your leftover blood for future research tests. These tests may be about HIV or other health issues which are important to the health of Tanzanians, like nutrition or immunization. This sample will be stored for an indefinite amount of time but your name will be on the sample for only three years. During this three year period we will attempt to tell you about any test results that are important to your health. Your leftover blood will not be sold or used for commercial reasons. If you do not agree to future research tests of your blood samples, we will destroy your blood samples after survey-related testing has been completed.

What are the potential risks?

The risks in drawing blood are very small. The needle may hurt and may include bleeding and rarely, infection where the needle enters the skin. Experienced staff will do the test under safe and clean conditions in order to protect you against any risk.

You may learn that you are infected with HIV and/or syphilis. Learning that you have HIV and/or syphilis may cause some emotional discomfort. We will provide counseling on how to cope with learning that you have HIV and/or syphilis, and tell you where you may go for care and treatment.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk

What are the potential benefits?

The main benefit is the chance to learn more about your health today. If you test HIV negative and/or syphilis negative, or Hep B negative you will learn about what you can do to stay negative. Some people who take part will test positive for HIV and/or syphilis and/or Hep B and will learn where to go for life-saving treatment. If you already know that you are HIV positive and are on treatment, the CD4 and viral load tests can help your doctor or nurse judge how well the treatment is working. Your taking part in this blood testing could help us learn more about HIV and syphilis in Tanzania and how well HIV prevention and treatment programs are working.

What are alternatives to taking part?

You can decide to not take part in the blood testing. Or you can decide to take part in the blood testing, but not agree to allow your leftover blood to be stored for future studies.

Your decision to take part or not take part in the blood testing will not affect your health care in any way.

What about confidentiality?

Your blood test results will be kept strictly confidential. The consent forms with your name will be kept separate from your health information. Your name will not appear when we share survey results. The information we collect from you will be identified by a number and not by your name. Only people working on the survey will have access to the data during the survey.

(INTERVIEWER INDICATE INFORMATION BELOW ON CONSENT FORM, DO NOT READ ALOUD)

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

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your rights as a participant. These include the National Institute for Medical Research (NIMR) and the Zanzibar Medical Ethics Council (ZAMEC) in Tanzania and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center and Westat (a statistical survey 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 participant in this survey
- Survey staff and monitors

(INTERVIEWER READ FROM HERE)

The information we collect from you will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your name and contact information with the groups above will end three years after the end of the survey.

Who should you contact if you have questions?

If you want to leave the survey, have any questions about the survey, or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below:

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Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar
P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

Are there any costs?

There is no cost to you for receiving the blood tests today except for your time. You should also know that you will not be paid to receive the blood tests.

Do you want to ask me anything about:

- Taking your blood for HIV and/or syphilis testing?
- Testing in the laboratory?
- Storage of blood for future research testing?

Verbal Consent Statement

I have read this form, and/or someone has read it to me. Any questions that I had were answered satisfactorily. I know that after choosing to be in this survey, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this consent form.

8. If you agree to give blood for HIV, Hepatitis B or C and syphilis testing and related testing, please state the following statement: '

"I agree to give blood for HIV, hepatitis B or C and syphilis testing and related testing"

Check this box if participant agreed to blood draw and testing.

If you do not agree to give blood for HIV, hepatitis B or C and syphilis testing and related testing, please state the following statement:

"I do not wish to take part in blood testing today"

Check this box if participant refuses blood draw, testing.

(If agrees to blood testing proceed to next question)

9. If you agree to have your leftover blood stored for future research, please state the following statement:

"I agree to have my leftover blood stored for future research"

Check this box if participant agrees to have their leftover blood stored for future research

If you do not agree to have your blood stored for future research, please state the following statement:

"I do not wish to have my leftover blood stored for future research"

Check this box if participant refuses to have their leftover blood stored for future research

Printed name of participant _____

Participant ID number _____

Signature of person obtaining consent _____

Date: ___/___/___

Printed name of person obtaining consent _____

Survey staff ID number _____

Assent for Blood Draw, Ages 15-17

Nurse counselor/Interviewer reads:

What language do you prefer for our discussion today?

English

Kiswahili

Hello. My name is _____. I will now give you information about the blood testing part of this research study/survey.

As a part of this survey, we are giving people who take part a chance to learn if they have HIV and/or syphilis. HIV and syphilis are infections that can make someone very sick if treatment is not given. We are also asking people if we can keep some of their blood for future testing.

What would happen if you joined the blood testing part of this survey?

If you decide to join the blood testing part of the survey, here is what would happen:

- We will use a needle to take some of your blood from your arm or finger and then we would test your blood for HIV and syphilis today in your home.
- It will take about 40 minutes to do the test and to talk to your parents about the results.
- If you test positive for HIV, we will do another test on the blood we have already collected to measure the cells in your blood that fight HIV and other infections. We will also measure these cells from some children without HIV. We will do this test here at your home.
- If you test positive for HIV, we will send your blood to a laboratory to measure the amount of HIV in your blood.
- We will ask you if we can use some of your blood for future testing. These tests will help us learn more about the health of people in Tanzania. This sample will be stored for a long period of time, but your name will be on it for only three years. During this three year period, we will try to tell your parents/guardians about any test results that are important to your health. Your leftover blood will not be sold. If you do not agree to future testing of your blood, we will destroy your blood after survey related testing has finished.

Could bad things happen if you take the blood tests?

The needle may hurt and may include bleeding and rarely, infection where the needle enters the skin. This will go away after a while. We will do our best to make it hurt as little as possible. Experienced nurses will do the test under safe and clean conditions to protect you from any risks. You can say 'no' to what we ask you to do for the survey at any time and we will stop.

You may learn that you are infected with HIV and/or syphilis. Learning that you have HIV and/or syphilis may cause some emotional discomfort. We will provide counseling on how to cope with learning that you have HIV and/or syphilis, and tell you where you may go for care and treatment.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

Could the blood testing help you?

Taking the blood test may help you learn if you have HIV and/or syphilis . After the blood test, we would give your tests results to your parent/guardian and they would decide on the best time to tell you the results. If you have HIV and/or syphilis we will tell your parent/guardian where they can take you for medical care and treatment. Treatment for HIV and syphilis is free. We hope to learn about HIV healthcare needs in this survey to help other children in Tanzania in the future.

What else should you know about the blood testing part of this survey?

If you don't want to take the blood tests, you don't have to. Nobody will get upset if you do not want to get your blood tested. You can say 'Yes' to the blood testing and future studies. Or you can say 'yes' to the blood testing, but 'No' to future testing. You can also say 'Yes' and change your mind later. You can stop the blood testing at any time. If you want to stop, please tell us.

We will not tell other people that you took a blood test today. We will not share information about you to anyone who does not work on the survey. Any information we share about you will have a number on it instead of your name.

The following individuals and agencies will be able to look at your blood testing records:

- Survey staff and monitors
- Staff members from groups that protect your rights as a person taking part in a survey to ensure that we are protecting your rights

Who should you contact if you have questions?

If you have any questions about the survey or blood test, feel that you have been harmed by taking part, or no longer want to participate in the survey, you can contact any of the Principal Investigators listed below:

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Dr. Albina Chuwa

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Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303
(INTERVIEWER READ FROM HERE)

Will you or your parent/guardian have to pay to receive blood testing?

There is no cost to you or your parent/guardian for receiving blood testing today except for your time. You should also know that you and your parent/guardian will not be paid for receiving blood testing.

Take the time you need to make your choice.

Do you want to ask me anything about:

- Taking your blood for HIV and syphilis testing?
- Testing in the laboratory?
- Storage of blood for future research testing?

Verbal Assent

1. If you agree to give blood for HIV, syphilis testing and related testing, please state the following statement:

"I agree to give blood for HIV and syphilis testing and related testing"

Check this box if participant agreed to blood testing and related testing.

If you do not agree to give blood for HIV and syphilis testing and related testing, please state the following statement:

"I do not wish to take part in blood testing today"

Check this box if participant refuses to participate in blood draw and related testing.

(If agrees to blood testing and related testing, proceed to the next question)

2. If you agree to give your blood for future testing, please state the following statement:

"I agree to have my leftover blood stored for future research"

Check this box if participant agrees to have his/her leftover blood stored for future research.

If you do not agree to have your blood stored for future research, please state the following statement:

"I do not wish to have my leftover blood stored for future research"

Check this box if participant refuses to have his/her blood stored for future research.

Printed name of child _____

Child's participant ID number _____

Printed name of parent/guardian_____

Signature of person obtaining assent_____

Date: ___/___/___

Printed name of person obtaining assent_____

Survey staff ID number _____

Nurse counselor/Interviewer reads:

What language do you prefer to use for this discussion?

English

Kiswahili

Hello. My name is_____ I will give you information about the blood testing part of this research study/survey.

As a part of this survey, we are giving people who take part a chance to learn if they have HIV and/or syphilis. HIV and syphilis are infections that can make someone very sick if treatment is not provided. We are also asking people if we can keep some of their blood for future testing.

This form might have some words in it that you may not understand. Please ask me to explain anything that you do not understand. You can ask me questions any time.

What would happen if you joined the blood testing part of this survey?

If you decide to join the blood testing part of the survey, here is what would happen:

- We will use a needle to take some of your blood from your arm and then we would test your blood for HIV and syphilis today in your home.
- It will take about 40 minutes to do the test and to talk to your parents/guardian about the results.
- If you test positive for HIV, we will do another test on the blood we have already collected to measure the cells in your blood that fight HIV and other infections. We will also measure these cells from some children without HIV. We will do this test here at your home.
- If you test positive for HIV, we will send your blood to a laboratory to measure the amount of HIV in your blood.
- You may also be randomly selected today for Hepatitis B or C testing to be done at the lab. We will not return the Hepatitis C results if you are tested for Hepatitis C. If you test positive for Hepatitis B we will send the results to your health facility and we will contact you and let you know if you provide us with your contact information. We will let you know today if you are selected for Hep B testing.
- Lastly, we will ask you if we can use some of your blood for future testing. These tests will help us learn more about the health of people in Tanzania. This sample will be stored for a long period of time, but your name will be on it for only three years. During this three year period, we will try to tell your parents/guardians about any test results that are important to your health. Your leftover blood will not be sold. If you do not agree to future testing of your blood, we will destroy your blood after survey related testing has finished.

Could bad things happen if you take the blood tests?

The needle may hurt and may include bleeding and rarely, infection where the needle enters the skin. This will go away after a while. We will do our best to make it hurt as little as possible. Experienced nurses will do the test under safe and clean conditions to protect you from any risks. You can say 'No' to what we ask you to do for the survey at any time and we will stop.

In addition, you may learn that you are infected with HIV and/or syphilis. Learning that you have HIV and/or syphilis may cause some emotional discomfort. If your parent/guardian agrees, we will provide counseling on how to cope with learning that you have HIV and/or syphilis, and tell your parent/guardian where you may go for care and treatment.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

Could the blood testing help you?

Taking the blood test may help you learn if you have HIV and or syphilis. After the blood test, we would give your tests results to your parent/guardian and they would decide on the best time to tell you the results. If you have HIV and/or syphilis, we will tell your parent/guardian where they can take you for medical care and treatment. Treatment for HIV and syphilis is free. We hope to learn about HIV healthcare needs in this survey.

What else should you know about the blood testing part of this survey?

If you don't want to take the blood tests, you don't have to. Nobody will get upset if you do not want to get your blood tested. You can say 'Yes' to the blood testing and future studies. Or you can say 'Yes' to the blood testing, but 'No' to future testing. You can also say 'Yes' and change your mind later. You can stop the blood testing at any time. If you want to stop, please tell us.

Your decision to take part or not take part in the blood testing will not affect your health care in any way.

We will not tell other people that you took a blood test today. We will not share information about you to anyone who does not work on the survey. Any information we share about you will have a number on it instead of your name.

The following individuals and agencies will be able to look at your blood testing records:

- Survey staff and monitors
- Staff members from groups that protect your rights as a person taking part in a survey to ensure that we are protecting your rights

Who should you contact if you have questions?

If you have any questions about the survey or blood test, feel that you have been harmed by taking part, or no longer want to participate in the survey, you can contact any of the Principal Investigators listed below:
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Will you or your parent/guardian have to pay to receive blood testing?

There is no cost to you or your parent/guardian for receiving blood testing today except for your time. You should also know that you and your parent/guardian will not be paid for receiving blood testing.

Take the time you need to make your choice.

Do you want to ask me anything about:

- Taking your blood for HIV and/or syphilis testing?
- Testing in the laboratory?
- Storage of blood for future research testing?

If you want to get a blood test and give your blood for research after we talk, please write your name below. We will write our name too. This shows we talked about the blood testing and that you want to take part.

Verbal Assent statement

I have read this form, and/or someone has read it to me. Any questions that I had have been answered satisfactorily. I know that after choosing to be in this survey, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this assent form.

10. If you agree to give blood for HIV, Hepatitis B or C and syphilis testing and related testing, please state the following statement:

"I agree to give blood for HIV, hepatitis B or C and syphilis testing and related testing"

Check this box if participant agreed to blood draw and related testing.

If you do not agree to give blood for HIV, hepatitis B or C and syphilis testing and related testing, please state the following statement:

"I do not wish to take part in blood testing today"

Check this box if participant refuses blood draw and related testing.

(If agrees to blood testing proceed to next question)

11. If you agree to have your leftover blood stored for future research, please state the following statement:

"I agree to have my leftover blood stored for future research"

Check this box if participant agrees to have their leftover blood stored for future research

If you do not agree to have your blood stored for future research, please state the following statement:

"I do not wish to have my leftover blood stored for future research"

Check this box if participant refuses to have their leftover blood stored for future research

Printed name of participant _____

Participant ID number _____

Printed name of parent/guardian _____

Signature of person obtaining assent _____

Date: ___/___/___

Printed name of person obtaining assent _____

Survey staff ID number _____

Consent for Blood Draw Emancipated Minors, Ages 15-17

Nurse counselor/Interviewer reads:

What language do you prefer to use for this discussion?

English

Kiswahili

Hello. My name is_____ . I will give you information about the blood testing part of this research study/survey.

As a part of this survey, we are giving people who take part a chance to learn if they have HIV and/or syphilis. HIV and syphilis are infections that can make someone very sick if treatment is not given. We are also asking people if we can keep some of their blood for future testing.

This form might have some words in it that you may not understand. Please ask me to explain anything that you do not understand. You can ask me questions any time.

What would happen if you joined the blood testing part of this survey?

If you decide to join the blood testing part of the survey, here is what would happen:

- We will use a needle to take some of your blood from your arm and then we would test your blood for HIV and syphilis today in your home.
- It will take about 40 minutes to do the test
- If you test positive for HIV, we will do another test on the blood we have already collected to measure the cells in your blood that fight HIV and other infections. We will also measure these cells from some children without HIV. We will do this test here at your home.
- If you test positive for HIV, we will send your blood to a laboratory to measure the amount of HIV in your blood.
- You may also be randomly selected today for Hepatitis B or Hepatitis C testing to be done at the lab. We will not return the Hepatitis C results if you are tested for Hepatitis C. If you test positive for Hepatitis B we will send the results to your health facility and we will contact you and let you know if you provide us with your contact information. We will let you know today if you are selected for Hep B testing.
- Lastly, we will ask you if we can use some of your blood for future testing. These tests will help us learn more about the health of people in Tanzania. This sample will be stored for a long period of time, but your name will be on it for only three years. During this three year period, we will try to tell you about any test results that are important to your health. Your leftover blood will not be sold. If you do not agree to future testing of your blood, we will destroy your blood after survey related testing has finished.

Could bad things happen if you take the blood tests?

The needle may hurt and may include bleeding and rarely, infection where the needle enters the skin. This will go away after a while. We will do our best to make it hurt as little as possible. Experienced nurses will do the test under safe and clean conditions to protect you from any risks. You can say 'No' to what we ask you to do for the survey at any time and we will stop.

In addition, you may learn that you are infected with HIV and/or syphilis. Learning that you have HIV and/or syphilis may cause some emotional discomfort. We will provide counseling on how to cope with learning that you have HIV and/or syphilis, and tell you where you may go for care and treatment.

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

Could the blood testing help you?

Taking the blood test may help you learn if you have HIV and or syphilis. After the blood test, we would give you your tests. If you have HIV and/or syphilis, we will tell you where you can go for medical care and treatment. Treatment for HIV and syphilis is free. We hope to learn about HIV healthcare needs in this survey.

What else should you know about the blood testing part of this survey?

If you don't want to take the blood tests, you don't have to. Nobody will get upset if you do not want to get your blood tested. You can say 'Yes' to the blood testing and future studies. Or you can say 'Yes' to the blood testing, but 'No' to future testing. You can also say 'Yes' and change your mind later. You can stop the blood testing at any time. If you want to stop, please tell us.

Your decision to take part or not take part in the blood testing will not affect your health care in any way.

We will not tell other people that you took a blood test today. We will not share information about you to anyone who does not work on the survey. Any information we share about you will have a number on it instead of your name.

The following individuals and agencies will be able to look at your blood testing records:

- Survey staff and monitors
- Staff members from groups that protect your rights as a survey participant to ensure that we are protecting your rights as a participant

The information we collect from you will not be released outside of the groups listed above unless there is an issue of safety. If we learn of anything that could harm you, we will contact you on where you can receive support. Your permission to allow us to use and share your information with the groups above will expire three years after the end of the survey.

Who should you contact if you have questions?

If you have any questions about the survey or blood test, feel that you have been harmed by taking part, or no longer want to take part in the survey, you can contact any of the Principal Investigators listed below:

(INTERVIEWER INDICATE ADDRESSES ON CONSENT FORM, DO NOT READ ALOUD)

Dr. Albina Chuwa
National Bureau of Statistics, 18 Kivukoni Road, Dar Es Salaam
P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3
Email: albinachuwa@gmail.com

Mr Emilian Karugendo
National Bureau of Statistics, 18 Kivukoni Road, Dar Es Salaam
P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3
or emilian.karugendo@nbs.go.tz; or

Mayasa Mahfoudh Mwinyi
Office of the Chief Government Statistician
P.O Box 2321, Zanzibar.
[Telephone number](#) +255 242231869
Email: mmayasa@hotmail.com

If you decide to leave the study, no more information will be collected from you. We will make every effort to delete the information we have collected from you. However, after today, we cannot guarantee we will be able to delete information that has already been shared.

If you have any questions about your rights as a person in this survey, you can contact:

Dr Mwele Malechela
The Director General
National Institute for Medical Research (NIMR)
3 Barack Obama Drive
P. O. Box 9653, Dar es Salaam, Tanzania
Tel: +255-22-2121400
Fax: +255-22-2121360
Email: hq@nimr.or.tz / info@nimr.or.tz

Dr Msafiri L Marijani
Zanzibar Medical Research and Ethics Committee (ZAMREC)
Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar
P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

Will you have to pay to receive blood testing?

There is no cost to you for receiving blood testing today except for your time. You should also know that you will not be paid for receiving blood testing.

Take the time you need to make your choice.

Do you want to ask me anything about:

- Taking your blood for HIV and/or syphilis testing?
- Testing in the laboratory?
- Storage of blood for future research testing?

If you want to get a blood test and give your blood for research after we talk, please write your name below. We will write our name too. This shows we talked about the blood testing and that you want to take part.

Verbal Consent statement

I have read this form, and/or someone has read it to me. Any questions that I had have been answered satisfactorily. I know that after choosing to be in this survey, I may withdraw at any time. My taking part is voluntary. I have been offered a copy of this consent form.

12. If you agree to give blood for HIV, Hepatitis B or C and syphilis testing and related testing, please state the following statement: ‘

"I agree to give blood for HIV and related testing, hepatitis B or C and syphilis testing and related testing"

Check this box if participant agreed to blood draw and related testing.

If you do not agree to give blood for HIV, hepatitis B or C and syphilis testing and related testing, please state the following statement:

"I do not wish to take part in blood testing today"

Check this box if participant refuses blood draw and related testing.

(If agrees to blood testing proceed to next question)

13. If you agree to have your leftover blood stored for future research, please state the following statement:

"I agree to have my leftover blood stored for future research"

Check this box if participant agrees to have their leftover blood stored for future research

If you do not agree to have your blood stored for future research, please state the following statement:

"I do not wish to have my leftover blood stored for future research"

Check this box if participant refuses to have their leftover blood stored for future research

Printed name of participant_____

Participant ID number_____

Signature of person obtaining consent_____

Date: ____/____/____

Printed name of person obtaining consent_____

Survey staff ID number_____

Consent & Permission for Interview and Blood Draw, ages 0-17

Interviewer reads:

What language do you prefer for our discussion today?

English

Swahili

Now I would like to ask you to give us consent/permission to invite your eligible child/children to take part in the research study/survey.

Your child's participation will help the Ministry of Health, Community Development, Gender, Elderly and Children (MOHC GEC)/Zanzibar Ministry of Health (MOH), make HIV services better.

What is the purpose of the survey?

HIV is the virus that causes AIDS. AIDS is a very serious illness. This survey will help us know how many people in Tanzania have HIV and need health services. This survey will help us learn more about HIV, AIDS and the health of children in Tanzania. We expect about 40,000 men, women, and children from 15,000 households throughout Tanzania to join this survey. If your child joins this survey, his/her taking part will help the Ministry of Health Zanzibar/Ministry of Health, Community Development, Gender, Elderly and Children (MOHC GEC)/make HIV services better in the country.

What would happen to your child if you agree to allow your child to take part?

If you and your child agree, the following will happen:

Interview Procedures

- **[IF CHILD IS 10-17 YEARS OLD]** We will invite your child to do an interview. We will ask your child questions related to his/her knowledge about HIV, exposure to HIV prevention and care services, knowledge about his/her own HIV infection status. We will also ask your child about any behaviors that may increase his/her chance of getting HIV.
- The interview will take about 30 minutes.

Blood Procedures

- **[IF CHILD IS <2 YEARS OLD]** A trained nurse will take a few drops of blood (about 1 mL) from your child's finger or heel to perform an HIV test here in your home.
- **[IF CHILD IS 2-9 YEARS OLD]** We will take about 6 mL (about one teaspoonful) of blood from your child's arm. If it is not possible to take blood from your child's arm, we will take a few drops of blood from your child's finger or heel to perform an HIV test here in your home.
- **[IF CHILD IS 10-17 YEARS OLD]** A trained nurse will take about one teaspoon of blood (about 6mL) from your child's arm, if aged 10-14 years and about one tablespoon (about 14 mL) of blood from your child's arm aged 15-17 years to perform the tests for HIV and syphilis. If it is not possible to take blood from your child's arm, then we will try to take a few drops of blood from your child's finger. We will offer him/her a

blood test for HIV, and syphilis. Like HIV, syphilis is an infection that can cause very serious illnesses if left untreated.

- **[IF CHILD IS 0-9 YEARS OLD]** We will give you the results of these blood tests today. We will not share the results with your child unless you ask us to do so.
- **[IF CHILD IS 10-17 YEARS OLD]** We will discuss the results with you and your child if you decide to share the test results with your child.
- If your child tests positive for HIV,
 - We will also test the amount of CD4 cells in his/her blood and give you the result today.
 - His/her blood will also be sent to a laboratory to measure his/her viral load and the results will be returned to your preferred health facility in about 10 weeks
 - We will give you a referral form so you and your child can consult with a doctor regarding his/her HIV test, CD4 count, and viral load results
 - We may also do other additional tests related to HIV. If we have test results that might guide your child's care or treatment and you provide us with contact information, we will contact you to tell you how you and your child's doctor or nurse may get these results.
- **[IF CHILD IS 10-17 YEARS OLD]** We will also test your child's blood for syphilis. If your child tests positive for syphilis, we will refer you to the nearest appropriate health facility for further testing for your child.
- We would like to ask your consent/permission to store your child's leftover blood for future research tests. These tests may be for HIV or other health issues which are important to the health of Tanzanians, such as nutrition or immunization. This sample will be stored for an indefinite amount of time but your child's name will be on the sample for only three years. During this three year period, we will attempt to tell you about any test results that are important for your child's health. Your child's leftover blood will not be sold or used for commercial reasons. If you do not agree to future research tests to your child's blood samples, we will destroy your child's blood samples after survey-related testing has been completed.
- **[IF CHILD IS 15-17 YEARS OLD]** It is also possible that your child may be eligible to participate in future studies related to health in Tanzania. We will also ask your child for permission to contact them in the next two years if such an opportunity occurs. Your child may also be randomly selected today for Hepatitis B testing at the lab. If your child is tested for Hepatitis B and test positive, his/her results will be returned to your health facility and we will contact you and let you know if you provide us with your contact information. We will let you know today if your child is selected for Hepatitis B testing. Your child may also be selected for Hepatitis C testing which will also be done in the lab. We will not be returning the Hepatitis C test results back to you.
- **[IF CHILD IS 0-18 MONTHS]** The body makes antibodies to fight HIV. Antibodies from a mother with HIV can enter the baby's blood during pregnancy. The test we perform on your child today will let us know if your child has been exposed to HIV. If it is positive, it does not mean your child has the virus in his/her blood. It just confirms that he/she has been exposed to HIV. We will need to send your child's blood to a lab for a special test to confirm if he/she has HIV. We will send the result to the health facility of your choice in about ten weeks from now. If you provide us with your contact information, we will contact you to inform you that the results have been sent to the facility and encourage you to go to the health facility to discuss your child's HIV test results with a doctor or nurse.

What are the potential risks?

[IF CHILD IS 0-9 YEARS OLD]

The needle may be uncomfortable for children and may include bleeding and rarely, infection where the needle enters the skin. Experienced staff will do the tests under safe and clean conditions in order to protect your child against any risk.

You and your child may learn that your child is infected with HIV. Learning about your child's HIV infection may cause some emotional discomfort. We will provide counseling on how to cope with learning that your child has HIV and tell you where you may go for care and treatment for your child.

Lastly, as with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

[IF CHILD IS 10-17 YEARS OLD]

Your child may feel uncomfortable about some of the questions I will ask during the interview. Your child can refuse to answer any question. The needle may be uncomfortable for children and may include bleeding and rarely, infection where the needle enters the skin. Experienced staff will do the tests under safe and clean conditions in order to protect your child against any risk.

You and your child may learn that your child is infected with HIV and/or syphilis. Learning about your child's HIV or syphilis infection may cause some emotional discomfort. We will provide counseling on how to cope with learning that your child has HIV or syphilis and tell you where you may go for care and treatment for your child.

Lastly, as with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

The main benefit for your child to be in the survey is the chance to learn more about his/her health today.

[IF CHILD IS 10-17 YEARS OLD]

If your child has HIV and/or syphilis, you will learn where to take your child for treatment. If you already know that your child is HIV positive and he/she is on treatment, the CD4 and viral load tests can help your child's doctor or nurse judge how well the treatment is working. Your child taking part in this survey could help us learn more about children, HIV and syphilis in Tanzania.

[IF CHILD IS 0-9 YEARS OLD]

If your child has HIV, you will learn where to take your child for treatment. If you already know that your child is HIV positive and he/she is on treatment, the CD4 and viral load tests can help your child's doctor or nurse judge how well the treatment is working. Your child taking part in this survey could help us learn more about children, HIV in Tanzania.

What are alternatives to taking part?

[IF CHILD IS 0-9 YEARS OLD]

You can decide to not allow your eligible children aged 0-9 years to take part in the blood testing. Your decision to allow your children to take part or not take part in this survey will not affect your children's health care in any way.

[IF CHILD IS 10-17 YEARS OLD]

You can decide not to have the study team ask your eligible children to take part in the interview or blood testing. Or you can allow your eligible children to take part in the interview, but not the blood testing. Or you can allow your eligible children to take part in the interview and blood testing, but not agree to allow your children's leftover blood to be stored for future studies. Your decision to allow your children to take part or not take part in this survey will not affect your children's health care in any way.

What about confidentiality?

Your child's test results will be kept strictly confidential. Your child's name and the consent/permission and assent forms will be kept separate from his/her health information. Your name and your child's name will not appear when we share survey results. When we share results, the information we collect from your child will be identified by a number and not by your name or your child's name.

(INTERVIEWER INDICATE INFORMATION BELOW ON CONSENT FORM, DO NOT READ ALOUD)

The following individuals and agencies will be able to look at your child's survey records to help oversee the conduct of this survey:

- Staff members from the Institutional Review Boards or Ethics Committees overseeing the conduct of this survey to ensure that we are protecting your child's rights as a participant. These include the National Institute for Medical Research (NIMR) and the Zanzibar Medical Ethics Council (ZAMEC) in Tanzania and the Institutional Review Boards at the Centers for Disease Control and Prevention (CDC; Atlanta, USA), Columbia University Medical Center and Westat (a statistical survey 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 child's rights as a person in this survey
- Survey staff and monitors

(INTERVIEWER READ FROM HERE)

The information we collect from your child will not be released outside of the survey groups listed above unless there is an issue of safety. Your permission to allow us to use and share your child's name and contact information with the groups above will end three years after the end of the survey.

Who should you contact if you have questions?

If you want your child to leave the survey, have any questions about the survey, or feel that your child has been harmed by taking part, you should contact any of the Principal Investigators below:

(INTERVIEWER INDICATE ADDRESSES ON CONSENT FORM, DO NOT READ ALOUD)

Dr. Albina Chuwa
National Bureau of Statistics, 18 Kivukoni Road, Dar es Salaam
P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3
Email: albinachuwa@gmail.com

Mr. Emilian Karugendo
National Bureau of Statistics, 18 Kivukoni Road, Dar es Salaam
P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3
emilian.karugendo@nbs.go.tz; or

Mayasa Mahfoudh Mwinyi
Office of the Chief Government Statistician
P.O Box 2321, Zanzibar.
Telephone number: +255 242231869
Email: mmayasa@hotmail.com

If you decide withdraw your child from the study, no more information will be collected from your child. We will make every effort to delete the information we have collected from your child. However, after today, we cannot guarantee we will be able to delete information that has already been shared.

If you have any questions about your child's rights as a person in this survey, you can contact:

Dr Mwele Malechela
The Director General
National Institute for Medical Research (NIMR)
3 Barack Obama Drive
P. O. Box 9653, Dar es Salaam, Tanzania
Tel: +255-22-2121400
Fax: +255-22-2121360
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Dr Msafiri L Marijani
Zanzibar Medical Research and Ethics Committee (ZAMREC)
Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar
P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

(INTERVIEWER READ FROM HERE)

Are there any costs?

There is no cost to you for your child being in the survey other than your time. You should also know that neither you nor your child will be paid for your child to be in the survey.

Do you want to ask me anything about your child's taking part in the survey?

Verbal Consent/Permission Statement

I have read this form, and/or someone has read it to me. Any questions I had have been answered satisfactorily. I know that after allowing my child to take part, I may change my mind and withdraw him/her from taking part in this survey at any time.

I have been offered a copy of this consent/permission form.

14. If you agree for us to ask your eligible child/children aged 10-17 years to do the interview, please state the following statement: **"I give permission to the study team to ask my eligible child/children aged 10-17 years to take part in the interview."**

Check this box if parent/guardian agrees to allow us to ask his/her eligible child/children to take part in the interview

If you do not agree for us to ask your eligible child/children aged 10-17 years to do interview, please state the following statement:

"I do not wish for the study team to ask my eligible child/children aged 10-17 years to take part in the interview."

Check this box if parent/guardian refuses to allow the study team to ask his/her eligible child/children to take part in the interview

(If permission given, proceed to the next question)

15. If you agree that your eligible child/children, ages 0-9 years, give blood for HIV testing and related testing and for us to ask your eligible child/children, ages 10-17 years, to give blood for HIV and syphilis testing and related testing and Hepatitis B or C testing for children, ages 15-17 years, please state the following statement: **"I agree for my eligible child/children, ages 0-9 years, to give blood for HIV and related testing and for the study team to ask my eligible child/children, ages 10-17 years, to give blood for HIV and syphilis testing and related testing, and for the study team to ask my eligible child/children, ages 15-17 years to give blood for HIV, hepatitis B or C, and syphilis testing and related testing."**

Check this box if parent/guardian gives consent/permission for the study team to ask his/her eligible child/children to give blood for testing.

If you do not agree that your eligible child/children ages 0-9 give blood for HIV testing and related testing or for us to ask your eligible child/children ages 10-17 to give blood for HIV and syphilis testing and related testing, or for us to ask your eligible child/children ages 15-17 to give blood for HIV, hepatitis B or C, and syphilis testing and related testing, please state the following statement:

"I do not wish for the study team to ask my eligible child/children to take part in blood testing today."

Check this box if parent/guardian refuses to allow the study team to ask his/her eligible child/children ages 0-17 to give blood for testing.

(If permission given, proceed to the next question)

16. If you agree that your eligible child/children ages 0-9 leftover blood be stored for future research and for us to ask your eligible child/children ages 10-17 to have his/her leftover blood stored for future research , please state the following statement:

"I agree for the study team to have the leftover blood of my eligible child/children ages 0-9 stored for future research and for the study team to ask my eligible child/children ages 10-17 to have his/her leftover blood stored for future research."

Check this box if parent/guardian gives consent/permission for study team to ask his/her eligible child/children to have his/her leftover blood stored for future research or to have their eligible child/children's leftover blood stored for future research.

If you do not agree to have your eligible child/children ages 0-9 leftover blood stored for future research or for the study team to ask your eligible child/children ages 10-17 to have his/her leftover blood stored for future research, please state the following statement:

"I do not wish to have the leftover blood of my child/children ages 0-9 stored for future research or for the study team to ask my eligible child/children ages 10-17 to have their leftover blood stored for future research."

Check this box if parent/guardian refuses to have their eligible child's leftover blood stored for future research, or to have study team ask his/her eligible child/children to have his/her leftover blood stored for future research.

17. If you agree for us to contact your eligible child/children ages 15-17 in the next two years to participate in future studies related to health in Tanzania, please state the following statement:

"I give permission for the study team to contact my eligible child/children ages 15-17 about participation in future studies."

Check this box if parent/guardian gives permission for study team to ask his/her eligible child/children about participating in future studies.

If you do not agree for us to contact your eligible child/children ages 15-17 to participate in future studies, please state the following statement:

"I do not wish for the study team to contact my eligible child/children ages 15-17 about participation in future studies."

Check this box if parent/guardian refuses to have study team ask his/her eligible child/children about participating in future studies.

Printed name of parent/guardian_____

Parent/guardian ID number_____ (If applicable. If not applicable check here)

Signature of person obtaining consent/permission_____ Date: ____/____/____

Printed name of person obtaining consent/permission _____

Survey staff ID number _____

Child/Children's name(s) (print) _____

Child/Children's participant ID number (s) _____

Consent to Share Contact Information for Active Linkage to Care of THIS Participants, 18+ years

What language do you prefer for our discussion today?

English

Kiswahili

Purpose of consent

You had a positive HIV test today. We have provided you with a referral form to bring to a health clinic and seek HIV treatment and care. We would like to help you in accessing the health care that you need. If you agree, we may be able to provide your contact information and HIV test results to health care workers from the Ministry of Health (MOH)/ the Ministry of Health, Community Development, Gender, Elderly and Children (MOHC GEC) or to a partner that the MOH/ the MOHC GEC work with. This health care worker will contact you to talk to you about HIV and help you go for HIV care. Anyone who is provided with your details will be experienced in providing support to people living with HIV and will be trained in maintaining confidentiality.

What do you have to do if you agree to take part?

If you agree for your information to be shared and to be contacted, we will provide your name, phone number (if you provided it to us) and your address to those health care providers to provide you with support. The health care worker can contact you by SMS, phone or in person.

What about confidentiality?

Your HIV test results and your contact information will not be shared with any other parties aside from what was specified in the other consent forms, and with this support organization. They will also do their utmost to maintain your confidentiality. However, we cannot guarantee complete confidentiality.

What are the potential risks?

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

A health care worker will assist you in accessing the health care that you need.

Who should you contact if you have questions?

If you change your mind or have any questions or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below:

Principal Investigator:

Dr. Albina Chuwa

National Bureau of Statistics, 18 Kivukoni Road, Dar Es Salaam

P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3

Email: albinachuwa@gmail.com

Mr Emilian Karugendo
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P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3
emilian.karugendo@nbs.go.tz; or

Mayasa Mahfoudh Mwinyi
Office of the Chief Government Statistician
P.O Box 2321, Zanzibar.
Telephone number: +255 242231869
[Email: mmayasa@hotmail.com](mailto:mmayasa@hotmail.com)

If you have any questions about your rights as a person in this survey, you can contact either of the following persons:

Dr Mwele Malechela
The Director General
National Institute for Medical Research (NIMR)
3 Barack Obama Drive
P. O. Box 9653, Dar es Salaam, Tanzania
Tel: +255-22-2121400
Fax: +255-22-2121360
Email: hq@nimr.or.tz / info@nimr.or.tz

Dr Msafiri L Marijani
Zanzibar Medical Research and Ethics Committee (ZAMREC)
Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar
P.O.BOX 672. Zanzibar
Email: msafiridr@yahoo.com
Telephone number: +25 577 6663303

Consent Statement

Any questions that I had were answered satisfactorily. I have been offered a copy of this consent form.

If you agree to allow us to share your contact information with the MOH/ the MOHC GEC or a partner that MOH/MOHC GEC works with who can help you go to a clinic to receive HIV treatment, care and support, please state the following:

"I agree to allow my contact information to be shared with the MOH/ the MOHC GEC or a partner that the MOH/MOHC GEC works with, to help me go to a clinic to receive HIV treatment, care and support"

_____ Check this box if participant AGREES to have their contact information shared with MOH/MOHC GEC or their partner

If you DO NOT agree to allow us to share your contact information with MOH/ the MOHCGEC or a partner that MOH/ the MOHCGEC works with who can help you go to a clinic to receive treatment, care and support, please state the following:

"I DO NOT agree to allow my contact information to be shared with the MOH/MOHCGEC or a partner that the MOH/MOHCGEC works with, to help me go to a clinic to receive HIV treatment, care and support"

_____ Check this box if participant DOES NOT AGREE to have their contact information shared with MOH/MOHCGEC or their partner

1. If yes, do you agree to be contacted by?

SMS _____ Yes _____ No
Phone call _____ Yes _____ No
In person _____ Yes _____ No

Participant ID number _____

Signature of person obtaining consent _____

Date: ____/____/____

Printed name of person obtaining consent _____

Survey staff ID number _____

Consent to Share Contact Information for Active Linkage to Care of THIS Participants, parents of children 0-17years

What language do you prefer for our discussion today?

English

Kiswahili

Purpose of consent

Your child had a positive HIV test today. We have provided you with a referral form so that you and your child can take to a health clinic and seek HIV treatment and care. We would like to help you and your child in accessing the health care that your child needs. If you agree, we might be able to provide your contact information and your child's HIV results to health care workers from the Ministry of Health (MOH)/ the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCGE) or a partner that the Ministry of Health works with. This counselor will contact you to talk to you and your child about HIV and help you and your child go for HIV care. Anyone who is provided with you and your child's details will be experienced in providing support to people living with HIV and will be trained in maintaining confidentiality.

What do you have to do if you agree to take part?

If you agree for your child's 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 health care workers to provide you with support. The health care worker can contact you by SMS, phone or in person.

What about confidentiality?

Your HIV test results and your contact information will not be shared with any other parties aside from what was specified in the other consent forms, and with this support organization. They will also do their utmost to maintain your confidentiality. However, we cannot guarantee complete confidentiality.

What are the potential risks?

As with all surveys, there is a chance that confidentiality could be compromised. We are doing everything we can to minimize this risk.

What are the potential benefits?

A health care worker will assist you in accessing the health care needed by your child.

Who should you contact if you have questions?

If you change your mind or have any questions or feel that you have been harmed by taking part, you should contact any of the Principal Investigators listed below:

Principal Investigator:

Dr. Albina Chuwa

National Bureau of Statistics, 18 Kivukoni Road, Dar Es Salaam

P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3

Email: albinachuwa@gmail.com

Mr Emilian Karugendo

National Bureau of Statistics, 18 Kivukoni Road, Dar Es Salaam

P.O Box 796, 11992 Dar es Salaam, Tanzania. Tel: +255 (0) 22-2122722/3

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Mayasa Mahfoudh Mwinyi

Office of the Chief Government Statistician

P.O Box 2321, Zanzibar.

Telephone number: +255 242231869

Email: mmayasa@hotmail.com

If you have any questions about your rights as a person in this survey, you can contact either of the following persons:

Dr Mwele Malechela

The Director General

National Institute for Medical Research (NIMR)

3 Barack Obama Drive

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Tel: +255-22-2121400

Fax: +255-22-2121360

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Dr Msafiri L Marijani

Zanzibar Medical Research and Ethics Committee (ZAMREC)

Ministry of Health, Mnazi Mmoja Hospital, Michenzani - Zanzibar

P.O.BOX 672. Zanzibar

Email: msafiridr@yahoo.com

Telephone number: +25 577 6663303

Consent Statement

Any questions that I had were answered satisfactorily. I have been offered a copy of this consent form.

If you agree to allow us to share your child's contact information with MOH/ the MOHC GEC or a partner that MOH or the MOHC GEC work with who can help you and your child go to a clinic to receive HIV treatment, care and support, please state the following:

"I agree to allow my child's contact information to be shared with the MOH/ the MOHCGEC or a partner that the MOH or the MOHCGEC work with, to help me and my child go to a clinic to receive HIV treatment, care and support"

 Check this box if participant AGREES to have their child's contact information shared with MOH/ the MOHCGEC or their partner

If you DO NOT agree to allow us to share your child's contact information with MOH/ the MOHCGEC or a partner that MOH/MOHCGEC works with who can help you and your child go to a clinic to receive treatment, care and support, please state the following:

"I DO NOT agree to allow my child's contact information to be shared with the MOH/ the MOHCGEC or a partner that the MOH or the MOHCGEC works with, to help me and my child go to a clinic to receive HIV treatment, care and support"

 Check this box if participant DOES NOT AGREE to have their child's contact information shared with MOH/ the MOHCGEC or their partner

2. If yes, do you agree to be contacted by?

SMS Yes No

Phone call Yes No

In person Yes No

Parent/guardian's Participant ID number _____

Child's Participant ID number _____

Signature of person obtaining consent _____ Date: / /

Printed name of person obtaining consent _____

Survey staff ID number _____

